Table of Contents

As confidentially submitted to the Securities and Exchange Commission on August 10, 2017

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM S-1
REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

ARSANIS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**2836**	**27-3181608**
(State or other jurisdiction of incorporation or organization)	**(Primary Standard Industrial Classification Code Number)**	**(I.R.S. Employer Identification Number)**

890 Winter Street, Suite 230
Waltham, MA 02451
(781) 819-5704
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

René Russo, Pharm.D., BCPS
President and Chief Executive Officer
Arsanis, Inc.
890 Winter Street, Suite 230
Waltham, MA 02451
(781) 819-5704
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Steven D. Singer, Esq. **Cynthia T. Mazareas, Esq.** **Wilmer Cutler Pickering Hale and Dorr LLP** **60 State Street** **Boston, Massachusetts 02109** **(617) 526-6000**	**Michael D. Maline, Esq.** **Edwin O'Connor, Esq.** **Seo Salimi, Esq.** **Goodwin Procter LLP** **620 Eighth Ave.** **New York, New York 10018** **(212) 813-8000**

Approximate date of commencement of proposed sale to public:
As soon as practicable after this Registration Statement is declared effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. ☐

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer" "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒ (Do not check if a smaller reporting company)	Smaller reporting company	☐
		Emerging growth company	☒

If an emerging growth company, indicate by check mark if the registrant has not elected to use the extended transition period for complying with any new or revised financial accounting standards provided in Section 7(a)(2)(B) of the Securities Act. ☒

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to Be Registered	**Proposed Maximum Aggregate Offering Price(1)**	**Amount of Registration Fee(2)**
Common stock, par value $0.001 per share	$	$

(1) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended.

(2) Calculated pursuant to Rule 457(o) based on an estimate of the proposed maximum aggregate offering price. Includes the offering price of additional shares of common stock that the underwriters have the option to purchase to cover over-allotments, if any.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

Table of Contents

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and we are not soliciting offers to buy these securities in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED , 2017

PRELIMINARY PROSPECTUS

Shares

Common Stock

This is an initial public offering of common stock by Arsanis, Inc. We are selling shares of common stock. The estimated initial public offering price is between $ and $ per share.

We have granted the underwriters an option to purchase up to additional shares of common stock to cover over-allotments, if any.

We intend to apply to list our common stock on The NASDAQ Global Market under the symbol "ASNS."

Investing in our common stock involves risks. See "Risk Factors" beginning on page 10 of this prospectus.

We are an emerging growth company as that term is used in the Jumpstart Our Business Startups Act of 2012 and, as such, have elected to comply with certain reduced public company reporting requirements for this prospectus and future filings.

Neither the Securities and Exchange Commission nor any other regulatory body has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

	Per share	Total
Initial public offering price	$	$
Underwriting discounts and commissions[1]	$	$
Proceeds to Arsanis, before expenses	$	$

(1) We refer you to "Underwriting" beginning on page 174 for additional information regarding underwriter compensation.

The underwriters expect to deliver the shares of common stock to purchasers on or about , 2017.

Citigroup **Cowen** **Piper Jaffray**

, 2017

We are responsible for the information contained in this prospectus. We have not authorized anyone to provide you with different information, and we take no responsibility for any other information others may give you. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and the underwriters are not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should not assume that the information contained in this prospectus is accurate as of any date other than the date on the front of this prospectus.

TABLE OF CONTENTS

We own or have rights to trademarks, service marks and trade names that we use in connection with the operation of our business, including our corporate name, logos and website names. Other trademarks, service marks and trade names appearing in this prospectus are the property of their respective owners. Solely for convenience, some of the trademarks, service marks and trade names referred to in this prospectus are listed without the ® and ™ symbols, but we will assert, to the fullest extent under applicable law, our rights to our trademarks, service marks and trade names.

PROSPECTUS SUMMARY

This summary highlights information contained elsewhere in this prospectus and does not contain all of the information that you should consider in making your investment decision. Before investing in our common stock, you should carefully read this entire prospectus, including our consolidated financial statements and the related notes thereto and the information set forth in the sections titled "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations." Unless the context otherwise requires, we use the terms "company," "we," "us" and "our" in this prospectus to refer to Arsanis, Inc. and our wholly owned subsidiary.

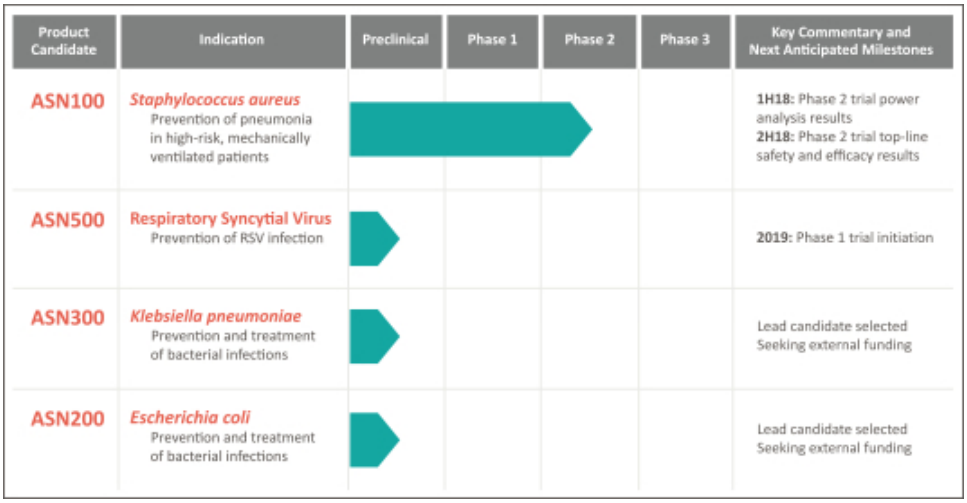
Overview

We are a clinical-stage biopharmaceutical company focused on applying monoclonal antibody immunotherapies to address serious infectious diseases. Monoclonal antibodies, or mAbs, are a well-established therapeutic class across many disease areas; however, they have yet to be broadly utilized for the prevention or treatment of acute bacterial and viral infections, where they hold the potential to address serious unmet medical needs. Unlike antibiotics that propagate resistance, disrupt both disease-causing and beneficial bacteria and have adverse off-target effects, mAbs have the ability to precisely bind only to an intended target, thereby avoiding these undesired consequences. Our expertise lies in applying our deep understanding of infectious disease pathogenesis paired with our ability to access some of the most advanced mAb discovery techniques and platforms available today. We have used this expertise to discover and develop novel mAbs with multiple mechanisms of action and high potency against their intended targets.

Our lead product candidate, ASN100, is a first-in-class mAb therapeutic in Phase 2 clinical development for the prevention of *Staphylococcus aureus*, or *S. aureus,* pneumonia in high-risk, mechanically ventilated patients, a potentially life-threatening and costly infection for which there are no approved preventive therapies. ASN100 is a fully human mAb product candidate that we developed specifically to neutralize the six cytotoxins critical to *S. aureus* pneumonia pathogenesis, a scientific advancement that has not previously been achieved. Given its unique mechanism of action, we believe that ASN100 could improve the standard of care for mechanically ventilated patients who are heavily colonized with *S. aureus* and are therefore at high risk of developing life-threatening pneumonia. In addition to ASN100, our preclinical pipeline is comprised of mAbs targeting multiple serious bacterial and viral pathogens, including respiratory syncytial virus, or RSV.

Our Pipeline

The following chart summarizes information about our product candidates and programs:



Our Strategy

Our goal is to be a leader in the discovery, development and commercialization of monoclonal antibody immunotherapies for serious infectious diseases. Our strategy includes the following key components:

- rapidly advance our lead product candidate, ASN100, through clinical development and regulatory approval;
- apply our expertise in *S. aureus* pathogenesis to expand the indications for ASN100;
- pursue a rapid development strategy for advancing ASN500 into clinical trials; and
- maximize the global commercial value of ASN100 and ASN500.

***S. aureus* in Mechanically Ventilated Patients**

S. aureus is the leading cause of pneumonia in mechanically ventilated patients in the United States and the second leading cause of pneumonia in this patient population in Europe. Mechanical ventilation is used to assist or replace spontaneous breathing in patients who need respiratory support while recovering from medical conditions, surgical procedures or traumatic events. The endotracheal tube used to deliver oxygen from a ventilator to a patient's lungs serves as a conduit through which *S. aureus* and other pathogens can readily transit from the patient's normal microflora and external environment to invade and persist in the lungs. There are more than one million mechanically ventilated patients in the United States each year. Based on published epidemiology data, up to 20% of mechanically ventilated patients become heavily colonized with *S. aureus* in their respiratory secretions, putting them at high risk of progressing to *S. aureus* pneumonia, which occurs at a rate of 30% to 40% in this patient population, even when best-available prevention strategies are used. Despite the availability of antibiotic treatments, outcomes of ventilator-associated pneumonia, or VAP, are poor, with high mortality rates and incremental hospital costs of approximately $40,000 per case. Given the serious outcomes associated with VAP, costly time- and resource-intensive prevention strategies are routinely employed in intensive care units, or ICUs. These activities can take up to four hours of nursing time per patient per day and interfere with other critical patient care activities. There are currently no therapeutic options for proactively addressing this serious infection.

Key Advantages of ASN100

We believe ASN100 has the potential to improve the standard of care for *S. aureus* pneumonia in mechanically ventilated patients from suboptimal prevention and treatment to efficient and effective pre-emptive therapy. Moreover, given its product profile, ASN100 aligns well with accepted preventive hospital quality measures and antimicrobial stewardship efforts to reduce infections and antibiotic use. We believe that the following key attributes of ASN100 differentiate it from existing therapies.

- **First-in-class therapeutic with novel mechanism of action.** ASN100 is the first and only therapy in development that neutralizes all six of the cytotoxins critical to the pathogenesis of *S. aureus* pneumonia.
- **Mitigates the risk of resistance.** ASN100 precisely and specifically targets *S. aureus* cytotoxins and not the bacteria directly, thereby potentially reducing the emergence and propagation of resistant bacterial strains.
- **Well tolerated with no off-target effects.** In a Phase 1 clinical trial, ASN100, a fully human mAb product candidate, was well tolerated with no dose-limiting toxicities observed. The precise nature of ASN100's mechanism to specifically target and neutralize *S. aureus* cytotoxins also allows the patient's healthy microbiome to remain unaffected by this therapy.
- **Clinical trials designed for superiority.** Unlike many clinical trials of antibiotics that are designed to demonstrate non-inferiority, our ASN100 Phase 2 clinical trial has been designed to demonstrate

superiority to placebo. We expect that any Phase 3 clinical trial of ASN100 will be similarly designed for superiority.

- **One-time dosing and seamless integration with current preventive practices.** ASN100 is being developed as a single dose to protect a targeted set of patients who are at high risk for *S. aureus* pneumonia. We believe that ASN100 has the potential to be easily integrated into, and to improve the effectiveness of, current inefficient and inadequate preventive approaches.
- **Positive impact on health-economic and quality metrics.** We believe that ASN100 has the potential to show a meaningful and quantifiable impact on important health-economic and hospital quality metrics such as a reduction in *S. aureus* pneumonia rates and related lengths of ICU stay and days on mechanical ventilation.

ASN100 Clinical Trials

In early 2017, we initiated a Phase 2 clinical trial of ASN100 for the prevention of *S. aureus* pneumonia in high-risk, mechanically ventilated patients. We plan to enroll 354 patients in this double-blind, placebo-controlled superiority trial. The primary endpoint is the proportion of patients who develop *S. aureus* pneumonia during the 21-day period following a single dose of ASN100 as compared to placebo. The superiority design of the trial differs from traditional antibiotic trials, which are consistently designed to demonstrate non-inferiority compared to the applicable standard of care. We expect to report top-line results from full completion of the trial in the second half of 2018, preceded by an analysis by an independent data monitoring committee of the power of the trial for statistical significance, which will take place when approximately one-third of patients have been treated. We expect to report the results of this power analysis in the first half of 2018. Assuming positive top-line safety and efficacy results from our Phase 2 clinical trial, we expect to use these data to design a pivotal Phase 3 clinical trial as well as inform the potential clinical development of ASN100 in additional indications.

In a Phase 1 dose-ranging trial in healthy volunteers, ASN100 was well tolerated across all doses tested, including doses greater than twice the dose selected for the Phase 2 clinical trial, and no dose-limiting toxicities were observed. ASN100 plasma half-life exceeded three weeks and lung concentrations were above levels required for cytotoxin neutralization based on pharmacokinetic and pharmacodynamic modeling. Based on these results, we believe that a single preventive dose of ASN100 may be able to safely neutralize *S. aureus* cytotoxins and prevent pneumonia in high-risk, mechanically ventilated patients.

ASN500

Our second program, ASN500, targets RSV, a virus that afflicts in aggregate over two million young children and elderly and immunocompromised patients annually in the United States, and can cause serious respiratory tract infections. We are currently evaluating mAbs that have exhibited exceptionally high potency against RSV in a laboratory setting, which may support development of a preventive therapy for use in numerous high-risk patient populations not addressed by the currently approved therapy. We expect to advance this mAb into Phase 1 clinical trials in 2019.

Leadership

Our efforts are led by a proven management team that has highly relevant industry experience in the discovery, development and commercialization of over 20 marketed anti-infective drugs and biologics at companies such as Cubist Pharmaceuticals, a leading anti-infective company that was acquired by Merck in 2015, and Bristol-Myers Squibb. Our programs are further supported by the expertise of our founding scientists, who are widely recognized experts in mAb discovery, and the capabilities of our broader scientific team, which span immunology, bacterial and viral pathogenesis and monoclonal antibody drug discovery.

Risks Associated with Our Business

Our business is subject to a number of risks of which you should be aware before making an investment decision. These risks are discussed more fully in the "Risk Factors" section of this prospectus. These risks include, but are not limited to, the following:

- We are a clinical-stage biopharmaceutical company with a limited operating history. We have incurred significant losses since inception. We expect to incur losses for at least the next several years and may never achieve or maintain profitability.
- Even if this offering is successful, we will need to raise additional funding, which may not be available on acceptable terms, or at all. Failure to obtain this necessary capital when needed may force us to delay, reduce or eliminate certain of our product development efforts or other operations.
- Our approach to the discovery and development of product candidates based on our targeted mAbs is unproven, and we do not know whether we will be able to successfully develop any products.
- In the near term, we are dependent on the success of ASN100, which is in clinical development. If we are unable to complete the clinical development of, obtain marketing approval for or successfully commercialize ASN100, either alone or with a collaborator, or if we experience significant delays in doing so, our business could be substantially harmed.
- Clinical drug development is a lengthy and expensive process with uncertain timelines and uncertain outcomes.
- We rely and expect to continue to rely on third parties to conduct our clinical trials and some aspects of our research and preclinical studies, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such trials, research or testing.
- Our reliance on third parties to manufacture our product candidates increases the risk that we will not have sufficient quantities of our product candidates or products or such quantities at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.
- If we are unable to obtain and maintain patent protection for our products and technology, or if the scope of the patent protection obtained is not sufficiently broad or robust, our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to successfully commercialize our products and technology may be adversely affected.
- Our rights to develop and commercialize our product candidates are subject, in part, to the terms and conditions of licenses granted to us by others, and, if we fail to comply with our obligations under these arrangements, we could lose such intellectual property rights or owe damages to the licensor of such intellectual property.
- The regulatory approval processes of the FDA, the EMA and comparable foreign authorities are lengthy, time consuming and inherently unpredictable, and if we are ultimately unable to obtain regulatory approval for our product candidates, our business will be substantially harmed.
- We face substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than we do.
- Our independent registered public accounting firm has included an explanatory paragraph relating to our ability to continue as a going concern in its report on our audited financial statements included in this prospectus.

Our Corporate Information

We were incorporated under the laws of the state of Delaware on August 2, 2010 under the name Arsanis, Inc. Our principal executive offices are located at 890 Winter Street, Suite 230, Waltham, Massachusetts 02451, and our

telephone number is (781) 819-5704. Our website address is www.arsanis.com. The information contained on, or that can be accessed through, our website is not a part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

Implications of Being an Emerging Growth Company

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act, or the JOBS Act, enacted in April 2012. As a result, we may take advantage of reduced reporting requirements that are otherwise applicable to public companies, including delaying auditor attestation of internal control over financial reporting, providing only two years of audited financial statements and related Management's Discussion and Analysis of Financial Condition and Results of Operations and reducing executive compensation disclosures.

We may remain an emerging growth company for up to five years from the date of the first sale in this offering. However, if certain events occur prior to the end of such five-year period, including if we become a "large accelerated filer," our annual gross revenue exceeds $1.07 billion, or we issue more than $1.0 billion of non-convertible debt in any three-year period, we will cease to be an emerging growth company prior to the end of such five-year period.

We have elected to take advantage of certain of the reduced disclosure obligations in the registration statement of which this prospectus is a part and may elect to take advantage of other reduced reporting requirements in future filings. In particular, in this prospectus, we have provided only two years of audited financial statements and have not included all of the executive compensation related information that would be required if we were not an emerging growth company. As a result, the information that we provide to our stockholders may be different than what you might receive from other public reporting companies in which you hold equity interests. However, we have irrevocably elected not to avail ourselves of the extended transition period for complying with new or revised accounting standards and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

THE OFFERING

Common stock offered	shares
Common stock to be outstanding immediately following this offering	shares
Over-allotment option	shares
Use of proceeds	We estimate that the net proceeds from this offering will be $ million (or approximately $ million if the underwriters exercise in full their option to purchase up to additional shares of common stock to cover over-allotments, if any), based on an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We intend to use the net proceeds from this offering, together with our existing cash, to fund the development of ASN100 for the prevention of *S. aureus* pneumonia in mechanically ventilated patients, to fund the development of ASN100 for other indications, to advance our current pipeline of preclinical candidates, and to research and develop additional preclinical product candidates and for working capital and other general corporate purposes. See "Use of Proceeds."
Risk factors	You should read the "Risk Factors" section of this prospectus for a discussion of factors to consider carefully before deciding to invest in shares of our common stock.
Proposed NASDAQ Global Market symbol	"ASNS"

The number of shares of our common stock to be outstanding after this offering is based on 1,754,035 shares of our common stock outstanding as of June 30, 2017, and excludes:

- 4,090,027 shares of common stock issuable upon exercise of stock options outstanding as of June 30, 2017, at a weighted average exercise price of $1.64 per share;
- 582,093 shares of common stock available for future issuance under our 2011 Stock Incentive Plan, as amended, and 7,465 shares of common stock available for future issuance under our 2010 Special Stock Incentive Plan, as amended, in each case as of June 30, 2017;
- additional shares of our common stock that will become available under our 2017 Stock Incentive Plan in connection with this offering;
- additional shares of our common stock that will become available under our 2017 Employee Stock Purchase Plan in connection with this offering; and
- 35,549 shares of common stock issuable following the closing of this offering upon the exercise of outstanding warrants as of June 30, 2017, at a weighted average exercise price of $4.36 per share.

Unless otherwise indicated, all information in this prospectus reflects and assumes:

- no exercise of the outstanding options and warrants described above;

- no exercise by the underwriters of their option to purchase additional shares of our common stock to cover over-allotments;
- the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 22,966,586 shares of our common stock upon the closing of this offering;
- all outstanding warrants to purchase shares of our preferred stock becoming warrants to purchase 35,549 shares of common stock upon the closing of this offering; and
- the filing and effectiveness of our restated certificate of incorporation and the adoption of our amended and restated bylaws upon the closing of this offering.

SUMMARY CONSOLIDATED FINANCIAL DATA

You should read the following summary consolidated financial data together with our consolidated financial statements and the related notes appearing at the end of this prospectus and the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of this prospectus. We have derived the consolidated statement of operations data for the years ended December 31, 2015 and 2016 from our audited consolidated financial statements appearing at the end of this prospectus. The consolidated statement of operations data for the three months ended March 31, 2016 and 2017 and the consolidated balance sheet data as of March 31, 2017 have been derived from our unaudited consolidated financial statements appearing at the end of this prospectus and have been prepared on the same basis as the audited consolidated financial statements. In the opinion of management, the unaudited data reflects all adjustments, consisting only of normal recurring adjustments, necessary for a fair statement of the financial information in those statements. Our historical results are not necessarily indicative of results that may be expected in any future period, and our results for any interim period are not necessarily indicative of results that may be expected for any full year.

	Year Ended December 31,		Three Months Ended March 31,	
	2015	2016	2016	2017
	(in thousands, except per share amounts)			
Consolidated Statement of Operations Data:				
Operating expenses:				
Research and development	$ 12,706	$ 17,831	$ 2,529	$ 4,391
General and administrative	2,119	6,515	1,340	1,436
Total operating expenses	14,825	24,346	3,869	5,827
Loss from operations	(14,825)	(24,346)	(3,869)	(5,827)
Other income (expense):				
Grant and incentive income	2,155	2,390	762	700
Interest expense	(472)	(2,515)	(511)	(1,019)
Change in fair value of warrant liability	1	39	—	—
Change in fair value of derivative liability	—	1,388	52	762
Loss on extinguishment of debt	—	(35)	—	—
Other income (expense), net	(77)	104	66	(1)
Total other income, net	1,607	1,371	369	442
Net loss	(13,218)	(22,975)	(3,500)	(5,385)
Accretion of redeemable convertible preferred stock to redemption value	(19)	(25)	(5)	(7)
Net loss attributable to common stockholders	$(13,237)	$(23,000)	$(3,505)	$(5,392)
Net loss per share attributable to common stockholders—basic and diluted[(1)]	$ (7.62)	$ (13.12)	$ (2.00)	$ (3.07)
Weighted average common shares outstanding—basic and diluted[(1)]	1,736	1,753	1,750	1,754
Pro forma net loss per share attributable to common stockholders—basic and diluted (unaudited)[(1)]		$ (3.04)		$ (0.68)
Pro forma weighted average common shares outstanding—basic and diluted (unaudited)[(1)]		7,571		7,862

(1) See Note 15 to our consolidated financial statements appearing at the end of this prospectus for further details on the calculation of basic and diluted net loss per share attributable to common stockholders and on the calculation of pro forma basic and diluted net loss per share attributable to common stockholders.

	As of March 31, 2017		
	Actual	Pro Forma[2]	Pro Forma As Adjusted[3]
		(in thousands)	
Consolidated Balance Sheet Data:			
Cash	$ 2,282	$ 37,335	$
Working capital (deficit)[1]	(12,136)	33,301	
Total assets	10,975	45,986	
Convertible promissory notes, net of discount	8,150	—	
Loan payable, net of discount, including current portion	12,049	12,049	
Warrant liability	47	—	
Derivative liability	2,234	—	
Redeemable convertible preferred stock	39,845	—	
Total stockholders' equity (deficit)	(61,854)	23,433	

(1) We define working capital (deficit) as current assets less current liabilities.

(2) The pro forma balance sheet data give effect to:

- our issuance and sale in April 2017 of an aggregate of 14,220,284 shares of Series D convertible preferred stock for aggregate consideration consisting of $35.1 million in cash and the conversion of an aggregate of $10.5 million of principal and interest outstanding under convertible promissory notes;
- the automatic conversion of all outstanding shares of our preferred stock, including the shares of Series D convertible preferred stock that we issued and sold in April 2017, into an aggregate of 22,966,586 shares of common stock upon closing of this offering; and
- all outstanding warrants to purchase shares of our preferred stock becoming warrants to purchase 35,549 shares of our common stock upon closing of this offering.

(3) The pro forma as adjusted balance sheet data give further effect to our issuance and sale of shares of our common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted amount of each of cash, working capital, total assets and total stockholders' equity by $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. An increase (decrease) of 1,000,000 shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted amount of each of cash, working capital, total assets and total stockholders' equity by $ million, assuming no change in the assumed initial public offering price per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. This pro forma as adjusted information is illustrative only and will depend on the actual initial public offering price and other terms of this offering determined at pricing.

RISK FACTORS

Investing in our common stock involves a high degree of risk. Before investing in our common stock, you should consider carefully the risks described below, together with the other information contained in this prospectus, including our financial statements and the related notes appearing at the end of this prospectus. If any of the following risks occur, our business, financial condition, results of operations and prospects could be materially and adversely affected. In these circumstances, the market price of our common stock could decline, and you may lose all or part of your investment.

Risks Related to our Financial Position and Need for Additional Capital

We are a clinical-stage biopharmaceutical company with a limited operating history. We have incurred significant losses since inception. We expect to incur losses for at least the next several years and may never achieve or maintain profitability.

Since inception, we have incurred significant net losses. Our net loss was $5.4 million for the three months ended March 31, 2017, $23.0 million for the year ended December 31, 2016 and $13.2 million for the year ended December 31, 2015. As of March 31, 2017, we had an accumulated deficit of $63.8 million. We have funded our operations to date primarily with proceeds from the sale of preferred stock, convertible debt financings, borrowings under a loan agreement, proceeds received from governmental loans and grants and proceeds received under a non-governmental grant. To date, we have devoted substantially all of our resources to organizing and staffing our company, business planning, raising capital, acquiring or discovering product candidates and securing related intellectual property rights, conducting discovery, research and development activities for our programs and planning for potential commercialization. We expect that it could be several years, if ever, before we have a commercialized product candidate. We expect to continue to incur significant expenses and operating losses for the foreseeable future. The net losses we incur may fluctuate significantly from quarter to quarter. We anticipate that our expenses will increase substantially if, and as, we:

- pursue the clinical development of ASN100 and our other product candidates;
- leverage our programs to advance other product candidates into preclinical and clinical development;
- seek regulatory approvals for any product candidates that successfully complete clinical trials;
- establish a sales, marketing, medical affairs and distribution infrastructure to commercialize any product candidates for which we may obtain marketing approval and intend to commercialize on our own or jointly;
- hire additional clinical, quality control and scientific personnel;
- expand our operational, financial and management systems and increase personnel, including personnel to support our clinical development, manufacturing and commercialization efforts and our operations as a public company;
- maintain, expand and protect our intellectual property portfolio; and
- acquire or in-license other product candidates and technologies.

To become and remain profitable, we or any potential future collaborators must develop and eventually commercialize product candidates with significant market potential. This will require us to be successful in a range of challenging activities, including completing preclinical studies and clinical trials of our product candidates, obtaining marketing approval for these product candidates, manufacturing, marketing and selling those products for which we may obtain marketing approval and satisfying any post-marketing requirements. We may never succeed in any or all of these activities and, even if we do, we may never generate revenue that is significant or large enough to achieve profitability. If we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would

decrease the value of our company and could impair our ability to raise capital, maintain our research and development efforts, expand our business or continue our operations. A decline in the value of our company also could cause you to lose all or part of your investment.

We have never generated revenue from product sales and may never be profitable.

Our ability to generate revenue from product sales and achieve profitability depends on our ability, alone or with our collaborative partners, to successfully complete the development of, and obtain the regulatory approvals necessary to commercialize, our product candidates. We do not anticipate generating revenue from product sales for the next several years, if ever. Our ability to generate future revenue from product sales depends heavily on our, or any potential future collaborators', success in:

- completing preclinical and clinical development of our product candidates and identifying and developing new product candidates;
- seeking and obtaining marketing approvals for any of our product candidates;
- launching and commercializing product candidates for which we obtain marketing approval by establishing a sales force, marketing, medical affairs and distribution infrastructure or, alternatively, collaborating with a commercialization partner;
- achieving adequate coverage and reimbursement by hospitals, government and third-party payors for our product candidates;
- establishing and maintaining supply and manufacturing relationships with third parties that can provide adequate, in both amount and quality, products and services to support clinical development and the market demand for our product candidates, if approved;
- obtaining market acceptance of our product candidates as viable treatment options;
- addressing any competing technological and market developments;
- negotiating favorable terms in any collaboration, licensing or other arrangements into which we may enter and performing our obligations in such collaborations;
- maintaining, protecting and expanding our portfolio of intellectual property rights, including patents, trade secrets and know-how;
- defending against third-party interference or infringement claims, if any; and
- attracting, hiring and retaining qualified personnel.

Even if one or more of the product candidates that we develop is approved for commercial sale, we anticipate incurring significant costs associated with commercializing any approved product candidate. Our expenses could increase beyond expectations if we are required by the U.S. Food and Drug Administration, or FDA, the European Medicines Agency, or EMA, or other regulatory agencies to perform clinical trials or studies in addition to those that we currently anticipate. Even if we are able to generate revenue from the sale of any approved products, we may not become profitable and may need to obtain additional funding to continue operations.

Our limited operating history may make it difficult for you to evaluate the success of our business to date and to assess our future viability.

Our operations to date have been limited to organizing and staffing our company, business planning, raising capital, obtaining funding from government entities and non-government organizations, developing and securing our technology, identifying potential product candidates, undertaking preclinical studies and clinical trials of our most advanced product candidates and entering into licensing and funding agreements. We have not yet

demonstrated the ability to initiate or complete Phase 3 clinical trials of our product candidates, obtain marketing approvals, manufacture a commercial-scale product or conduct sales and marketing activities necessary for successful commercialization. Consequently, any evaluation of our business to date or predictions about our future success or viability may not be as accurate as they could be if we had a longer operating history.

Assuming we obtain marketing approval for any of our product candidates, we will need to transition from a company with a research and development focus to a company capable of supporting commercial activities. We may encounter unforeseen expenses, difficulties, complications and delays and may not be successful in such a transition.

Even if this offering is successful, we will need to raise additional funding, which may not be available on acceptable terms, or at all. Failure to obtain this necessary capital when needed may force us to delay, reduce or eliminate certain of our product development efforts or other operations.

We expect our expenses to increase in connection with our ongoing activities, particularly as we continue the research and development of, initiate further clinical trials of and seek marketing approval for, our product candidates. In addition, if we obtain marketing approval for any of our product candidates that we plan to commercialize ourselves, we expect to incur significant expenses related to product sales, medical affairs, marketing, manufacturing and distribution. Furthermore, upon the closing of this offering, we expect to incur additional costs associated with operating as a public company. Accordingly, we will need to obtain additional funding in connection with our continuing operations. We may raise this additional funding through the sale of equity, debt financings or other capital sources, including potential collaborations with other companies or other strategic transactions and funding under government or other contracts. In addition, we may seek additional capital due to favorable market conditions or strategic considerations, even if we believe we have sufficient funds for our current or future operating plans.

We believe that the anticipated net proceeds from this offering, together with our existing cash, will enable us to fund our operating expenses, capital expenditure requirements and debt service payments through , including the completion of our ongoing Phase 2 clinical trial of ASN100 and initiation of a subsequent pivotal Phase 3 clinical trial, assuming a successful outcome in our Phase 2 clinical trial. Without giving effect to the anticipated net proceeds from this offering, we expect that our existing cash will be sufficient to fund our operating expenses, capital expenditure requirements and debt service payments through April 30, 2018. To finance our operations beyond that point, we will need to raise additional capital to finance our operations, which cannot be assured. We have concluded that this circumstance raises substantial doubt about our ability to continue as a going concern within one year after the August 10, 2017 issuance date of our financial statements for the year ended December 31, 2016. See Note 1 to our consolidated financial statements appearing at the end of this prospectus for additional information on our assessment.

We have based our estimates regarding our ability to fund our operating expenses, capital expenditure requirements and debt service payments with our existing cash and the anticipated net proceeds from this offering on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we expect. Our future capital requirements will depend on many factors, including:

- the scope, progress, results and costs of researching and developing our product candidates, and conducting preclinical studies and clinical trials;
- the costs, timing and outcome of regulatory review of our product candidates;
- the costs of future activities, including product sales, medical affairs, marketing, manufacturing and distribution, for any of our product candidates for which we receive marketing approval;
- the costs of manufacturing commercial-grade product and necessary inventory to support commercial launch;
- the ability to receive additional non-dilutive funding, including grants from organizations and foundations;

- the revenue, if any, received from commercial sale of our products, should any of our product candidates receive marketing approval;
- the costs of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending intellectual property-related claims;
- our ability to establish and maintain collaborations on favorable terms, if at all;
- the extent to which we acquire or in-license other product candidates and technologies; and
- the timing, receipt and amount of sales of, or milestone payments related to or royalties on, our current or future product candidates, if any.

Identifying potential product candidates and conducting preclinical studies and clinical trials is a time-consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain marketing approval and achieve product sales. In addition, our product candidates, if approved, may not achieve commercial success. Our product revenue, if any, and any commercial milestones or royalty payments under our collaboration agreements will be derived from or based on sales of products that may not be commercially available for many years, if at all. Accordingly, we will need to continue to rely on additional financing to achieve our business objectives.

Any additional fundraising efforts may divert our management from their day-to-day activities, which may adversely affect our ability to develop and commercialize our product candidates. We cannot guarantee that future financing will be available in sufficient amounts or on terms acceptable to us, if at all. Our issuance of additional securities, whether equity or debt, or the possibility of such issuance, may cause the market price of our common stock to decline, and our stockholders may not agree with our financing plans or the terms of such financings. In addition, if we elect to obtain any additional debt financing, our ability to do so may be limited by covenants we have made under our loan and security agreement with Silicon Valley Bank, or SVB. For example, we have made a negative pledge in favor of SVB with respect to our intellectual property under the loan and security agreement, meaning that we will not pledge any of our intellectual property to a third party as collateral for a loan while the loan and security agreement with SVB is in effect. This negative pledge could further limit our ability to obtain additional debt financing on favorable terms.

Our failure to raise capital as and when needed would have a negative impact on our financial condition and our ability to pursue our business strategy, and we could be forced to delay, reduce or eliminate certain of our research and development programs or any future commercialization efforts.

Our independent registered public accounting firm has included an explanatory paragraph relating to our ability to continue as a going concern in its report on our audited financial statements included in this prospectus.

The report from our independent registered public accounting firm for the year ended December 31, 2016 includes an explanatory paragraph stating that our recurring losses from operations since inception and required additional funding to finance our operations raise substantial doubt about our ability to continue as a going concern. If we are unable to obtain sufficient funding, our business, prospects, financial condition and results of operations will be materially and adversely affected and we may be unable to continue as a going concern. If we are unable to continue as a going concern, we may have to liquidate our assets and may receive less than the value at which those assets are carried on our audited financial statements, and it is likely that investors will lose all or a part of their investment. After this offering, future reports from our independent registered public accounting firm may also contain statements expressing substantial doubt about our ability to continue as a going concern. If we seek additional financing to fund our business activities in the future and there remains substantial doubt about our ability to continue as a going concern, investors or other financing sources may be unwilling to provide additional funding to us on commercially reasonable terms or at all.

Raising additional capital may cause dilution to our stockholders, including purchasers of our common stock in this offering, restrict our operations or require us to relinquish rights to technologies or product candidates.

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our cash needs through a combination of public or private equity offerings, debt financings, government funding, grants, collaborations, strategic partnerships or marketing, distribution or licensing arrangements with third parties. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest may be materially diluted, and the terms of such securities could include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing and preferred equity financing, if available, may involve agreements that include restrictive covenants that limit our ability to take specified actions, such as incurring additional debt, making capital expenditures or declaring dividends. In addition, additional debt financing would result in increased fixed payment obligations.

If we raise funds through government funding, collaborations, strategic partnerships or marketing, distribution or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we will be required to delay, reduce or eliminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Our existing and any future indebtedness could adversely affect our ability to operate our business.

Under our loan and security agreement with SVB, principal amounts outstanding totaled $7.0 million as of December 31, 2016 and $6.4 million as of March 31, 2017. We are required to repay outstanding indebtedness under our loan and security agreement with SVB in monthly installments through December 2019. Under our loans from Österreichische Forschungsförderungsgesellschaft mbH, or FFG, principal amounts outstanding totaled $8.0 million as of December 31, 2016 and $8.2 million as of March 31, 2017. We are required to pay interest on our loans from FFG semi-annually, with payment of principal due at the maturity dates of the loans, which range from 2020 to 2022. We do not currently intend to use the net proceeds from this offering to prepay outstanding indebtedness. We could in the future incur additional indebtedness beyond our borrowings from SVB and FFG.

Our outstanding indebtedness, combined with our other financial obligations and contractual commitments, including any additional indebtedness beyond our borrowings from SVB and FFG, could have significant adverse consequences, including:

- requiring us to dedicate a portion of our cash resources to the payment of interest and principal, and prepayment and repayment fees and penalties, thereby reducing money available to fund working capital, capital expenditures, product development and other general corporate purposes;
- subjecting us to restrictive covenants that may reduce our ability to take certain corporate actions or obtain further debt or equity financing;
- limiting our flexibility in planning for, or reacting to, changes in our business and the industry in which we compete;
- placing us at a competitive disadvantage compared to our competitors that have less debt or better debt servicing options; and
- increasing our vulnerability to adverse changes in general economic, industry and market conditions.

We may not have sufficient funds, and may be unable to arrange for additional financing, to pay the amounts due under our existing debt. Failure to make payments or comply with other covenants under our

existing debt instruments could result in an event of default and acceleration of amounts due. If an event of default occurs and the lenders accelerate the amounts due, we may not be able to make accelerated payments.

We might not be able to utilize a significant portion of our net operating loss carryforwards and research and development tax credit carryforwards.

As of December 31, 2016, we had U.S. federal and state net operating loss carryforwards of $8.3 million and $4.4 million, respectively, which begin to expire in 2030 and 2035, respectively. In addition, as of December 31, 2016, we had foreign net operating loss carryforwards of $40.1 million, which do not expire. As of December 31, 2016, we also had U.S. federal and state research and development tax credit carryforwards of $0.2 million and $0.1 million, respectively, which begin to expire in 2031 and 2035, respectively. These net operating loss and tax credit carryforwards could expire unused and be unavailable to offset our future income tax liabilities. In addition, under Section 382 of the Internal Revenue Code of 1986, as amended, and corresponding provisions of state law, if a corporation undergoes an "ownership change," which is generally defined as a greater than 50% change, by value, in its equity ownership over a three-year period, the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes to offset its post-change income may be limited. We have not determined if we have experienced Section 382 ownership changes in the past and if a portion of our net operating loss and tax credit carryforwards are subject to an annual limitation under Section 382. In addition, we may experience ownership changes in the future as a result of subsequent changes in our stock ownership, including this offering, some of which may be outside of our control. If we determine that an ownership change has occurred and our ability to use our historical net operating loss and tax credit carryforwards is materially limited, it would harm our future operating results by effectively increasing our future tax obligations.

Risks Related to the Development of Our Product Candidates

Our approach to the discovery and development of product candidates based on our targeted mAbs is unproven, and we do not know whether we will be able to successfully develop any products.

We are focused on the discovery, development and commercialization of monoclonal antibody, or mAb, immunotherapies to address serious infectious diseases. We have not yet succeeded and may not succeed in demonstrating efficacy and safety for any of our product candidates in ongoing or later-stage clinical trials or in obtaining marketing approval thereafter. For example, we have not yet advanced a product candidate beyond Phase 2 clinical development.

In addition, we have never had a product candidate receive approval from the FDA, EMA or other regulatory authority. The regulatory review process may be more expensive or take longer for our product candidates than we expect, and we may be required to conduct additional studies and/or trials beyond those we anticipate. If it takes us longer to develop and/or obtain regulatory approval for our product candidates than we expect, such delays could materially and adversely affect our business, financial condition, results of operations and prospects.

We may not be successful in our efforts to identify or discover additional product candidates and may fail to capitalize on programs or product candidates that may present a greater commercial opportunity or for which there is a greater likelihood of success.

The success of our business depends upon our ability to identify, develop and commercialize product candidates based on our mAb programs. If we do not successfully develop and eventually commercialize products, we will face difficulty in obtaining product revenue in future periods, resulting in significant harm to our financial position and adversely affecting our share price. Research programs to identify new product candidates require substantial technical, financial and human resources. Although our product candidates are currently in preclinical or clinical development, we may fail to identify other potential product candidates for

clinical development for several reasons. Similarly, a key element of our business plan is to expand the breadth of indications for ASN100. A failure to find additional indications for which ASN100 may be a viable treatment could harm our business prospectus.

Additionally, because we have limited resources, we may forego or delay pursuit of opportunities with certain programs or product candidates or for indications that later prove to have greater commercial potential. For example, we currently intend to focus our capital resources primarily on the development of ASN100, and to rely primarily on external funding for the development of our other product candidates. However, the development of ASN100 may be ultimately prove to be unsuccessful or less successful than another product candidate in our pipeline that we might have chosen to pursue on a more aggressive basis with our capital resources. Our estimates regarding the potential market for our product candidates could be inaccurate, and our spending on current and future research and development programs may not yield any commercially viable products. If we do not accurately evaluate the commercial potential for a particular product candidate, we may relinquish valuable rights to that product candidate through strategic collaboration, licensing or other arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate. Alternatively, we may allocate internal resources to a product candidate in a therapeutic area in which it would have been more advantageous to enter into a partnering arrangement.

If any of these events occur, we may be forced to abandon or delay our development efforts with respect to a particular product candidate or fail to develop a potentially successful product candidate, which could have a material adverse effect on our business, financial condition, results of operations and prospects.

In the near term, we are dependent on the success of ASN100, which is in clinical development. If we are unable to complete the clinical development of, obtain marketing approval for or successfully commercialize ASN100, either alone or with a collaborator, or if we experience significant delays in doing so, our business could be substantially harmed.

We currently have no products approved for sale and are investing a significant portion of our efforts and financial resources in the development of ASN100. Our prospects are substantially dependent on our ability, or that of any future collaborator, to develop and obtain marketing approval for, and successfully commercialize ASN100 in one or more disease indications.

The success of ASN100 will depend on several factors, including the following:

- successful enrollment and completion of clinical trials;
- a safety, tolerability and efficacy profile that is satisfactory to the FDA, EMA or other regulatory authorities for marketing approval;
- satisfying the regulations applicable to the development and market authorization of combination drugs in the United States or outside the United States, as ASN100 is a combination of two mAbs;
- timely receipt of marketing approvals from applicable regulatory authorities;
- the extent of any required post-marketing approval commitments to applicable regulatory authorities;
- establishment and maintenance of arrangements with third-party manufacturers for both clinical and any future commercial manufacturing;
- adequate ongoing availability of raw materials and drug product for clinical development and any commercial sales;
- obtaining and maintaining patent, trade secret protection and regulatory exclusivity, both in the United States and internationally;
- protection of our rights in our intellectual property portfolio;

- successful launch of commercial sales following any marketing approval;
- a continued acceptable safety profile following any marketing approval;
- commercial acceptance by the patient community, the medical community and third-party payors;
- the performance of our future collaborators, if any; and
- our ability to compete with other therapies.

Many of these factors are beyond our control, including clinical development, the regulatory review process, potential threats to our intellectual property rights and the manufacturing, marketing and sales efforts of any future collaborator. If we are unable to develop, receive marketing approval for and successfully commercialize ASN100, on our own or with any future collaborator, or experience delays as a result of any of these factors or otherwise, our business could be substantially harmed.

Clinical drug development is a lengthy and expensive process with uncertain timelines and uncertain outcomes. If clinical trials of our product candidates, particularly ASN100, are prolonged or delayed, we or our collaborators may be unable to obtain required regulatory approvals, and therefore will be unable to commercialize our product candidates on a timely basis or at all, which will adversely affect our business.

Before obtaining marketing approval from regulatory authorities for the sale of our product candidates, we must conduct extensive clinical trials to demonstrate the safety and efficacy of the product candidates. Clinical testing is expensive, time-consuming, difficult to design and implement and uncertain as to outcome. We cannot guarantee that clinical trials, such as our current Phase 2 clinical trial of ASN100, will be conducted as planned, completed on schedule, if at all, or yield positive results.

A failure of one or more clinical trials can occur at any stage of testing. Events that may prevent successful or timely completion of clinical development include:

- delays in reaching a consensus with regulatory authorities or collaborators on trial design;
- delays in reaching agreement on acceptable terms with prospective contract research organizations, or CROs, and clinical trial sites;
- delays in opening clinical trial sites or obtaining required institutional review board or independent ethics committee approval at each clinical trial site;
- delays in recruiting suitable subjects to participate in our clinical trials;
- imposition of a clinical hold by regulatory authorities, including as a result of a serious adverse event or after an inspection of our clinical trial operations or trial sites;
- failure by us, any CROs we engage, clinical investigators or any other third parties to adhere to clinical trial requirements;
- failure to perform in accordance with good clinical practices, or GCP, or applicable regulatory requirements in the European Union, the United States, or in other countries;
- delays in the testing, validation, manufacturing and delivery of our product candidates to the clinical sites, including delays by third parties with whom we have contracted to perform certain of those functions;
- delays or failures in demonstrating the comparability of product manufactured at one facility or with one process to product manufactured at another facility or with another process, including clinical trials to demonstrate such comparability;
- delays in having subjects complete participation in a trial or return for post-treatment follow-up;
- clinical trial sites or subjects dropping out of a trial;

- selection of clinical endpoints that require prolonged periods of clinical observation or analysis of the resulting data;
- occurrence of serious adverse events associated with the product candidate that are viewed to outweigh its potential benefits;
- occurrence of serious adverse events in trials of the same class of agents conducted by other sponsors; and
- changes in regulatory requirements and guidance that require amending or submitting new clinical protocols.

Any inability to successfully complete preclinical and clinical development could result in additional costs to us or impair our ability to generate revenue from product sales, regulatory and commercialization milestones and royalties. In addition, if we make manufacturing or formulation changes to our product candidates, we may need to conduct additional trials to bridge our modified product candidates to earlier versions. For example, for our ASN100 program, in 2016, we transferred manufacturing technology from a third-party manufacturer that fulfilled our preclinical, Phase 1 and Phase 2 drug supply and drug product requirements to a new third-party manufacturer that is working to improve the manufacturing process as well produce drug product for a potential Phase 3 clinical trial. We anticipate that we will conduct a small clinical trial in 2018 to bridge the potential Phase 3 drug product with the drug product used in our earlier studies. Clinical trial delays also could shorten any periods during which we may have the exclusive right to commercialize our product candidates or allow our competitors to bring products to market before we do, which could impair our ability to successfully commercialize our product candidates and may harm our business, financial condition, results of operations and prospects.

We could encounter delays if a clinical trial is suspended or terminated by us, by the institutional review boards of the institutions in which such trials are being conducted or ethics committees, by the Data Review Committee, or DRC, or Data Safety Monitoring Board, or DSMB, for such trial or by the FDA or other foreign regulatory authorities. Such authorities may impose such a suspension or termination due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or other foreign regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, including those relating to the class of products to which our product candidate belongs.

Any of these occurrences may harm our business, financial condition and prospects significantly. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of our product candidates or result in the development of our product candidates being stopped early.

Preclinical drug development is uncertain. Some or all of our preclinical programs, such as ASN500, may experience delays or may never advance to clinical trials, which would adversely affect our ability to obtain regulatory approvals or commercialize these product candidates on a timely basis or at all, which would have an adverse effect on our business.

In order to obtain FDA approval to market a new biological product we must demonstrate proof of safety, purity and potency or efficacy in humans. To meet these requirements we will have to conduct adequate and well-controlled clinical trials. Before we can commence clinical trials for a product candidate, we must complete extensive preclinical testing and studies that support our planned Investigational New Drug application, or IND, in the United States. We cannot be certain of the timely completion or outcome of our preclinical testing and studies and cannot predict if the FDA will accept our proposed clinical programs or if the outcome of our preclinical testing and studies will ultimately support the further development of these product candidates. As a result, we cannot be sure that we will be able to submit INDs or similar applications for our preclinical programs on the timelines we expect, if at all, and we cannot be sure that submission of INDs or similar applications will result in the FDA or other regulatory authorities allowing clinical trials to begin.

Conducting preclinical testing is a lengthy, time-consuming and expensive process. The length of time may vary substantially according to the type, complexity, novelty and intended use of the product candidate, and often can be several years or more per product candidate. Delays associated with product candidates for which we are directly conducting preclinical testing and studies may cause us to incur additional operating expenses. Moreover, we may continue to be affected by delays associated with the preclinical testing and studies of certain product candidates conducted by our potential partners over which we have no control. The commencement and rate of completion of preclinical studies and clinical trials for a product candidate may be delayed by many factors, including, for example:

- inability to generate sufficient preclinical or other *in vivo* or *in vitro* data to support the initiation of clinical studies;
- delays in reaching a consensus with regulatory agencies on study design; and
- the FDA not allowing us to rely on previous findings of safety and efficacy for other similar but approved products and published scientific literature.

Moreover, even if clinical trials do begin for our product candidates, our development efforts may not be successful, and clinical trials that we conduct or that third parties conduct on our behalf may not demonstrate sufficient safety, purity and potency or efficacy to obtain the requisite regulatory approvals for any of our product candidates or product candidates employing our technology. Even if we obtain positive results from preclinical studies or initial clinical trials, we may not achieve the same success in future trials.

Success in preclinical studies or early clinical trials may not be indicative of results obtained in later trials.

Results from preclinical studies or previous clinical trials are not necessarily predictive of future clinical trial results, and interim results of a clinical trial are not necessarily indicative of final results. Our product candidates may fail to show the desired safety and efficacy in clinical development despite demonstrating positive results in preclinical studies or having successfully advanced through initial clinical trials.

There can be no assurance that the success we achieved in the preclinical studies and Phase 1 clinical trial of ASN100 or the preclinical studies of our other product candidates ultimately will result in success in currently ongoing or potential future clinical trials of these product candidates. In addition, we cannot assure you that we will be able to achieve the same or similar success in our preclinical studies and clinical trials of our other product candidates.

There is a high failure rate for drugs and biologic products proceeding through clinical trials. Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials even after achieving promising results in preclinical studies and earlier-stage clinical trials. Data obtained from preclinical and clinical activities are subject to varying interpretations, which may delay, limit or prevent regulatory approval. In addition, we may experience regulatory delays or rejections as a result of many factors, including changes in regulatory policy during the period of our product candidate development. Any such delays could materially and adversely affect our business, financial condition, results of operations and prospects.

We may find it difficult to enroll and dose patients in our clinical trials, which could delay or prevent us from proceeding with clinical trials of our product candidates.

Identifying and qualifying patients to participate in clinical trials of our product candidates is critical to our success. The timing of our clinical trials depends on our ability to recruit patients to participate as well as to subsequently dose these patients and complete required follow-up periods. For example, in our Phase 2 clinical trial of ASN100, we are seeking to enroll mechanically ventilated patients to screen for levels of *Staphylococcus aureus*, or *S. aureus*, bacteria, but we are only dosing patients in this trial who are heavily colonized with *S. aureus*. As a result, we may experience challenges at trial sites in both enrolling patients for screening, and in the subsequent

identification of enrolled patients who are heavily colonized with *S. aureus* and therefore eligible for dosing in this trial. Our ASN100 Phase 2 clinical trial will also face efforts by competitors to conduct clinical trials for their product candidates in similar indications, which may hamper our ability to enroll a sufficient number of patients in our Phase 2 trial of ASN100. In addition, we have experienced, and may continue to experience enrollment delays related to increased or unforeseen regulatory, legal and logistical requirements at certain clinical trial sites outside of the United States. These delays could be caused by regulatory reviews by non-U.S. regulatory authorities and contractual discussions with individual clinical trial sites, for example. Any delays in enrolling and/or dosing patients in our ongoing or planned clinical trials could result in increased costs, delays in advancing our product candidates, delays in testing the effectiveness of our product candidates or termination of the clinical trials altogether.

We may not be able to identify, recruit, enroll and dose a sufficient number of patients, or those with required or desired characteristics, to complete our clinical trials in a timely manner. Subject enrollment and trial completion is affected by a number of factors, including:

- coordination between us, CROs and any future collaborators in our efforts to enroll and administer the clinical trial;
- size of the patient population and process for identifying patients;
- design of the trial protocol;
- eligibility and exclusion criteria;
- perceived risks and benefits of the product candidate under study;
- availability of competing commercially available therapies and other competing drug candidates' clinical trials;
- time of year in which the trial is initiated or conducted;
- variations in the seasonal incidence of the target indication;
- severity of the disease under investigation;
- ability to obtain and maintain subject consent;
- ability to enroll and treat patients in a timely manner;
- risk that enrolled subjects will drop out before completion of the trial;
- patient referral practices of physicians; and
- ability to monitor subjects adequately during and after treatment.

We are conducting, and intend in the future to conduct, clinical trials for certain of our product candidates at sites outside the United States. The FDA may not accept data from trials conducted in such locations and the conduct of trials outside the United States could subject us to additional delays and expense.

We are conducting, and intend in the future to conduct, one or more of our clinical trials with one or more trial sites that are located outside the United States. For example, we include multiple trial sites outside of the United States in our Phase 2 clinical trial of ASN100.

Although the FDA may accept data from clinical trials conducted outside the United States, acceptance of these data is subject to certain conditions imposed by the FDA. For example, the clinical trial must be well designed and conducted and performed by qualified investigators in accordance with GCP. The FDA must be able to validate the data from the trial through an onsite inspection if necessary. The trial population must also have a similar profile to the U.S. population, and the data must be applicable to the U.S. population and U.S. medical practice in ways that the FDA deems clinically meaningful, except to the extent the disease being studied

does not typically occur in the United States. In addition, while these clinical trials are subject to the applicable local laws, FDA acceptance of the data will be dependent upon its determination that the trials also complied with all applicable U.S. laws and regulations. There can be no assurance that the FDA will accept data from trials conducted outside of the United States. If the FDA does not accept the data from any trial that we conduct outside the United States, it would likely result in the need for additional trials, which would be costly and time-consuming and delay or permanently halt our development of ASN100 or any future product candidates.

In addition, the conduct of clinical trials outside the United States could have a significant adverse impact on us. Risks inherent in conducting international clinical trials include:

- clinical practice patterns and standards of care that vary widely among countries;
- non-U.S. regulatory authority requirements that could restrict or limit our ability to conduct our clinical trials;
- administrative burdens of conducting clinical trials under multiple non-U.S. regulatory authority schema;
- foreign exchange fluctuations; and
- diminished protection of intellectual property in some countries.

We may fail to demonstrate safety and efficacy of our product candidates to the satisfaction of applicable regulatory authorities.

If the results of our clinical trials are inconclusive or if there are safety concerns or serious adverse events associated with our product candidates, we may:

- be delayed in obtaining marketing approval for our product candidates, if at all;
- obtain approval for indications or patient populations that are not as broad as intended or desired;
- obtain approval with labeling that includes significant use or distribution restrictions or safety warnings;
- be subject to changes in the way the product is administered;
- be required to perform additional clinical trials to support approval or be subject to additional post-marketing testing requirements;
- have regulatory authorities withdraw, or suspend, their approval of the product or impose restrictions on its distribution in the form of a modified risk evaluation and mitigation strategy;
- be subject to the addition of labeling statements, such as contraindications or warnings, including a black box warning;
- be sued; or
- experience damage to our reputation.

If serious adverse or undesirable side effects are identified during the development of our product candidates, we may need to abandon or limit our development of that product candidate.

If our product candidates are associated with undesirable side effects or have characteristics that are unexpected, we may need to abandon their development or limit development to certain uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective. For example, the pharmacokinetic properties, such as the longer half-life of ASN100, could lead to side effects that were not observed in our Phase 1 clinical trial and the consequences of such side effects could be more severe than have been seen with other mAbs that have shorter half-lives, or more frequent dosing regimens, or are dosed at lower concentrations than we expect for ASN100. Furthermore, in its currently ongoing Phase 2 clinical trial, ASN100 is being studied in mechanically ventilated patients at high risk for

developing *S. aureus* pneumonia who often have significant underlying disease or conditions that may make them more likely to have side effects from ASN100 treatment. Many compounds that initially showed promise in clinical or earlier stage testing have later been found to cause side effects or raise other safety issues that delayed or prevented further development of the compound.

If we elect or are forced to suspend or terminate any clinical trial of our product candidates, the commercial prospects of such product candidate will be harmed and our ability to generate product revenue from such product candidate will be delayed or eliminated. Any of these occurrences could materially harm our business, financial condition, results of operations and prospects.

The manufacture of biologic products is complex and manufacturers often encounter difficulties in production. If we or any of our third-party manufacturers encounter any loss of our master cell banks or if any of our third-party manufacturers encounter other difficulties, our ability to provide product candidates for clinical trials or products, if approved, to patients could be delayed or halted.

The manufacture of biologic products is complex and requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. We and our third-party manufacturers must comply with current good manufacturing practices, or cGMP, regulations and guidelines for the manufacturing of biologics used in clinical trials and, if approved, marketed products. Manufacturers of biotechnology products often encounter difficulties in production, particularly in scaling up and validating initial production. Furthermore, if microbial, viral or other contaminations are discovered in our product candidates or in the manufacturing facilities in which our product candidates are made, such manufacturing facilities may need to be closed for an extended period of time to investigate and remedy the contamination. Delays in raw materials availability and supply may also extend the period of time required to develop our product candidates.

All of our mAbs are manufactured by starting with cells that are stored in a cell bank. We have one master cell bank for each antibody manufactured in accordance with cGMP and multiple working cell banks and believe we would have adequate backup should any cell bank be lost in a catastrophic event. However, it is possible that we or our third-party manufacturers could lose multiple cell banks and have our manufacturing severely impacted by the need to replace the cell banks. We cannot assure you that any stability or other issues relating to the manufacture of any of our product candidates or products will not occur in the future. Any delay or interruption in the supply of clinical trial supplies could delay the completion of planned clinical trials, increase the costs associated with maintaining clinical trial programs and, depending upon the period of delay, require us to commence new clinical trials at additional expense or terminate clinical trials completely. Any adverse developments affecting clinical or commercial manufacturing of our product candidates or products may result in shipment delays, inventory shortages, lot failures, product withdrawals or recalls or other interruptions in the supply of our product candidates or products. We may also have to take inventory write-offs and incur other charges and expenses for product candidates or products that fail to meet specifications, undertake costly remediation efforts or seek more costly manufacturing alternatives. Accordingly, failures or difficulties faced at any level of our supply chain could adversely affect our business and delay or impede the development and commercialization of any of our product candidates or products and could have an adverse effect on our business, prospects, financial condition and results of operations.

If the market opportunities for our product candidates are smaller than we believe they are, even assuming approval of a drug candidate, our business may suffer.

Our projections of both the number of people who are affected by disease within our target indications, as well as the subset of these people who have the potential to benefit from treatment with our product candidates, are based on our beliefs and estimates. These estimates have been derived from a variety of sources, including the scientific literature, healthcare utilization databases and market research, and may prove to be incorrect. Further, new studies may change the estimated incidence or prevalence of these diseases. The number of patients may turn out to be lower than expected. Likewise, the potentially addressable patient population for each of our

product candidates may be limited or may not be amenable to treatment with our product candidates, and new patients may become increasingly difficult to identify or gain access to, which would adversely affect our results of operations and our business.

We face substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than we do.

The biotechnology and pharmaceutical industries are characterized by rapidly changing technologies, significant competition and a strong emphasis on intellectual property. We face substantial competition from many different sources, including large and specialty pharmaceutical and biotechnology companies, academic research institutions, government agencies and public and private research institutions.

For example, we are aware of two products targeting *S. aureus* cytotoxin in clinical development: Medimmune's MEDI4893 and Aridis Pharmaceuticals' AR301, each of which targets only the cytotoxin Hla and is in Phase 2 clinical development. If ASN100 is approved, it may compete with each of these product candidates. ASN100 may also compete with mAb products that may be developed to target *S. aureus* through different mechanisms of action, including XBiotech's 514G3, which targets *S. aureus* surface Protein A and is in Phase 2 clinical development, and Genentech's RG7861, which is comprised of a *S. aureus* bacterial-surface-targeting mAb attached to an antibiotic and is in Phase 1 clinical development.

If approved for the prevention of respiratory syncytial virus, or RSV, infection, ASN500 would compete with palivizumab, which is marketed by Medimmune as Synagis, the only approved therapy in this indication. ASN500 may also compete with other product candidates currently in clinical development in this indication, including Regeneron Pharmaceuticals' REGN2222, which is in Phase 3 clinical development, and Medimmune's MEDI8897, which is in Phase 2 clinical development.

Many of our potential competitors, alone or with their strategic partners, have substantially greater financial, technical and other resources, such as larger research and development, clinical, marketing and manufacturing organizations. Mergers and acquisitions in the biotechnology and pharmaceutical industries may result in even more resources being concentrated among a smaller number of competitors. Our commercial opportunity could be reduced or eliminated if competitors develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than any products that we may develop. Competitors also may obtain FDA or other regulatory approval for their products more rapidly or earlier than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. Additionally, technologies developed by our competitors may render our potential product candidates uneconomical or obsolete, and we may not be successful in marketing our product candidates against competitors. In addition, the availability of our competitors' products could limit the demand and the prices we are able to charge for any products that we may develop and commercialize.

Risks Related to Dependence on Third Parties

We may enter into collaborations with third parties to develop product candidates. If these collaborations are not successful, our business could be adversely affected.

As part of our strategy, we intend to seek to enter into collaborations with third parties for one or more of our programs or product candidates. Our likely collaborators for any such collaboration arrangements include large and mid-size pharmaceutical companies, regional and national pharmaceutical companies and biotechnology companies. If we enter into any such arrangements with any third parties, we will likely have limited control over the amount and timing of resources that our collaborators dedicate to the development or commercialization of our product candidates. Our ability to generate revenue from these arrangements will depend on our collaborators' abilities to successfully perform the functions assigned to them in these arrangements.

Any collaborations we enter into in the future, may pose several risks, including the following:

- collaborators may have significant discretion in determining the efforts and resources that they will apply to these collaborations;
- collaborators may not perform their obligations as expected;
- the clinical trials conducted as part of these collaborations may not be successful;
- collaborators may not pursue development and/or commercialization of any product candidates that achieve regulatory approval or may elect not to continue or renew development or commercialization programs based on clinical trial results, changes in the collaborators' strategic focus or available funding or external factors, such as an acquisition, that divert resources or create competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for clinical trials, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- we may not have access to, or may be restricted from disclosing, certain information regarding product candidates being developed or commercialized under a collaboration and, consequently, may have limited ability to inform our stockholders about the status of such product candidates;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our product candidates if the collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;
- product candidates developed in collaboration with us may be viewed by any collaborators as competitive with their own product candidates or products, which may cause collaborators to cease to devote resources to the commercialization of our product candidates;
- a collaborator with marketing and distribution rights to one or more of our product candidates that achieve regulatory approval may not commit sufficient resources to the marketing and distribution of any such product candidate;
- disagreements with collaborators, including disagreements over proprietary rights, contract interpretation or the preferred course of development of any product candidates, may cause delays or termination of the research, development or commercialization of such product candidates, may lead to additional responsibilities for us with respect to such product candidates or may result in litigation or arbitration, any of which would be time-consuming and expensive;
- collaborators may not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential litigation;
- disputes may arise with respect to the ownership of intellectual property developed pursuant to our collaborations;
- collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability; and
- collaborations may be terminated for the convenience of the collaborator and, if terminated, we could be required to raise additional capital to pursue further development or commercialization of the applicable product candidates.

If our collaborations do not result in the successful development and commercialization of products, or if one of our collaborators terminates its agreement with us, we may not receive any future research funding or milestone or royalty payments under the collaboration. If we do not receive the funding we expect under these agreements, our development of product candidates could be delayed and we may need additional resources to develop our product candidates.

In addition, if any future collaborator terminates its agreement with us, we may find it more difficult to attract new collaborators and the perception of us in the business and financial communities could be adversely affected. All of the risks relating to product development, regulatory approval and commercialization described in this prospectus also apply to the activities of any future collaborators.

If we are not able to establish collaborations on commercially reasonable terms, we may have to alter our development and commercialization plans.

We may seek collaborations to advance the development of our current or future product candidates. We face significant competition in seeking appropriate collaborators. Whether we reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors. Those factors may include the design or results of clinical trials, the likelihood of approval by the FDA, EMA or other regulatory authorities, the potential market for the subject product candidate, the costs and complexities of manufacturing and delivering such product candidate to patients, the potential of competing products, the existence of uncertainty with respect to our ownership of technology, which can exist if there is a challenge to such ownership without regard to the merits of the challenge, the terms of any existing collaboration agreements, and industry and market conditions generally. The collaborator may also consider alternative product candidates or technologies for similar indications that may be available to collaborate on and whether such collaboration could be more attractive than the one with us for our product candidate.

Collaborations are complex and time-consuming to negotiate, document and execute. In addition, there have been a significant number of business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators.

We may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of the product candidate for which we are seeking to collaborate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase our expenditures and undertake development or commercialization activities at our own expense. If we elect to increase our expenditures to fund development or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms or at all. If we do not have sufficient funds, we may not be able to further develop our product candidates or bring them to market and generate product revenue.

We rely and expect to continue to rely on third parties to conduct our clinical trials and some aspects of our research and preclinical studies, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such trials, research or testing.

We do not independently conduct clinical trials of any of our product candidates. We rely and expect to continue to rely on third parties, such as CROs, clinical data management organizations, medical institutions and clinical investigators, to conduct our clinical trials. In addition, we currently rely and expect to continue to rely on third parties to conduct some aspects of our research and preclinical studies. Any of these third parties may terminate their engagements with us, some in the event of an uncured material breach and some at any time for convenience. If any of our relationships with these third parties terminate, we may not be able to enter into arrangements with alternative third parties or to do so on commercially reasonable terms. Switching or adding additional third parties involves additional cost and requires management's time and focus. In addition, there is a natural transition period when a new third party commences work. As a result, delays may occur in our product development activities. Although we seek to carefully manage our relationships with our third parties, we could encounter similar challenges or delays in the future and these challenges or delays could have a material adverse impact on our business, financial condition and prospects.

Our reliance on third parties for research and development activities will reduce our control over these activities but will not relieve us of our responsibilities. For example, we are responsible for ensuring that each of our studies is conducted in accordance with the applicable protocol, legal and regulatory requirements and scientific standards, and our reliance on third parties does not relieve us of our responsibility to comply with any such requirements and standards. We and these third parties are required to comply with GCP, which are regulations and guidelines enforced by the FDA, the Competent Authorities of the Member States of the European Economic Area and comparable regulatory authorities for all of our products in clinical development. Regulatory authorities enforce these GCPs through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any of these third parties fail to comply with applicable GCPs, the clinical data generated in our clinical trials may be deemed unreliable and the FDA, the EMA, or comparable regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. We cannot assure you that upon inspection by a given regulatory authority, such regulatory authority will determine that any of our clinical trials comply with GCP regulations. In addition, our clinical trials must be conducted with product produced under cGMP regulations. Our failure to comply with these regulations may require us to repeat clinical trials, which would delay the regulatory approval process. We also are required to register ongoing clinical trials and post the results of completed clinical trials on a U.S. government-sponsored database, clinicaltrials.gov, within certain timeframes. Similar requirements are applicable outside the United States. Failure to comply can result in fines, adverse publicity and civil and criminal sanctions.

Furthermore, third parties on whom we rely may also have relationships with other entities, some of which may be our competitors. In addition, these third parties are not our employees, and except for remedies available to us under our agreements with such third parties, we cannot control whether or not they devote sufficient time and resources to our ongoing clinical, non-clinical and preclinical programs. If these third parties do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols, regulatory requirements or for other reasons, our clinical trials may be extended, delayed or terminated and we may not be able to obtain, or may be delayed in obtaining, marketing approvals for our product candidates and will not be able to, or may be delayed in our efforts to, successfully commercialize our products. As a result, our results of operations and the commercial prospects for our products would be harmed, our costs could increase and our ability to generate revenue could be delayed.

Our reliance on third parties to manufacture our product candidates increases the risk that we will not have sufficient quantities of our product candidates or products or such quantities at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.

We do not own or operate manufacturing facilities for the production of clinical or commercial supplies of the product candidates that we are developing or evaluating in our research program. We have limited personnel with experience in drug manufacturing and lack the resources and the capabilities to manufacture any of our product candidates on a clinical or commercial scale. We currently rely on third parties for supply of our product candidates, and our strategy is to outsource all manufacturing of our product candidates and products to third parties.

In order to conduct clinical trials of our product candidates, we will need to have them manufactured in potentially large quantities. Our third-party manufacturers may be unable to successfully increase the manufacturing capacity for any of our product candidates in a timely or cost-effective manner, or at all. In addition, quality issues may arise during scale-up activities and at any other time. For example, ongoing data on the stability of our products may shorten the expiry of our products and lead to clinical trial material supply shortages, and potentially clinical trial delays. If these third-party manufacturers are unable to successfully scale up the manufacture of our product candidates in sufficient quality and quantity, the development, testing and clinical trials of that product candidate may be delayed or infeasible, and regulatory approval or commercial launch of that product candidate may be delayed or not obtained, which could significantly harm our business.

Our use of new third-party manufacturers increases the risk of delays in production or insufficient supplies of our product candidates as we transfer our manufacturing technology to these manufacturers and as they gain experience manufacturing our product candidates. For example, for our ASN100 program, in 2016 we transferred manufacturing technology from a third-party manufacturer that fulfilled our preclinical, Phase 1 and Phase 2 drug supply and drug product requirements to a new third-party manufacturer that is working to improve the manufacturing process as well produce drug product for a potential Phase 3 clinical trial. Any failure or delay of this new third-party manufacturer to successfully and timely produce adequate drug product would result in potentially significant delays to our ASN100 clinical development plan, including the initiation of a potential Phase 3 clinical trial.

Even after a third-party manufacturer has gained significant experience in manufacturing our product candidates or even if we believe we have succeeded in optimizing the manufacturing process, there can be no assurance that such manufacturer will produce sufficient quantities of our product candidates in a timely manner or continuously over time, or at all.

We do not currently have any agreements with third-party manufacturers for the long-term commercial supply of any of our product candidates. In the future, we may be unable to enter into agreements with third-party manufacturers for commercial supplies of our product candidates, or may be unable to do so on acceptable terms. Even if we are able to establish and maintain arrangements with third-party manufacturers, reliance on third-party manufacturers entails risks, including:

- reliance on the third party for regulatory compliance and quality assurance;
- the possible breach of the manufacturing agreement by the third party;
- the possible misappropriation of our proprietary information, including our trade secrets and know-how; and
- the possible termination or nonrenewal of the agreement by the third party at a time that is costly or inconvenient for us.

Third-party manufacturers may not be able to comply with cGMP requirements or similar regulatory requirements outside the United States. Our failure, or the failure of our third-party manufacturers, to comply with applicable requirements could result in sanctions being imposed on us, including fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of product candidates or products, operating restrictions and/or criminal prosecutions, any of which could significantly and adversely affect supplies of our product candidates.

Our product candidates and any products that we may develop may compete with other product candidates and products for access to manufacturing facilities. There are a limited number of manufacturers that operate under cGMP requirements particularly for the development of mAbs, and that might be capable of manufacturing for us.

If the third parties that we engage to supply any materials or manufacture product for our preclinical tests and clinical trials should cease to continue to do so for any reason, we likely would experience delays in advancing these tests and trials while we identify and qualify replacement suppliers or manufacturers and we may be unable to obtain replacement supplies on terms that are favorable to us. In addition, if we are not able to obtain adequate supplies of our product candidates or the substances used to manufacture them, it will be more difficult for us to develop our product candidates and compete effectively.

Our current and anticipated future dependence upon others for the manufacture of our product candidates may adversely affect our future profit margins and our ability to develop product candidates and commercialize any products that receive marketing approval on a timely and competitive basis.

Risks Related to the Commercialization of our Product Candidates

If we are unable to establish sales, medical affairs and marketing capabilities or enter into agreements with third parties to market and sell our product candidates, we may be unable to generate any product revenue.

We do not currently have a sales and marketing organization and have never commercialized a product. To successfully commercialize any products that may result from our development programs, we will need to develop these capabilities, either on our own or with others. The establishment and development of our own commercial and medical science liaison teams or the engagement of a contract sales force to discuss any products we may develop will be expensive and time-consuming and could delay any product launch. Moreover, we cannot be certain that we will be able to successfully develop this capability. We may seek to enter into collaborations with entities regarding our product candidates to utilize their established marketing and distribution capabilities, but we may be unable to enter into such agreements on favorable terms, if at all. If any future collaborators do not commit sufficient resources to commercialize our products, or we are unable to develop the necessary capabilities on our own, we will be unable to generate sufficient product revenue to sustain our business. We compete with many well-funded and profitable pharmaceutical and biotechnology companies that currently have extensive and experienced medical affairs, marketing and sales operations to recruit, hire, train and retain marketing and sales personnel. We also face competition in our search for third parties to assist us with the sales and marketing efforts of our product candidates. Without an internal team or the support of a third party to perform marketing, sales and medical affairs functions, we may be unable to compete successfully against these more established companies.

The hospital formulary approval, insurance coverage and reimbursement status of newly approved products is uncertain. Failure to obtain or maintain adequate hospital formulary approval, insurance coverage and reimbursement for our products, if approved, could limit our ability to market those products and decrease our ability to generate product revenue.

We expect that hospital formulary approval, insurance coverage and reimbursement of our products, if approved, by hospital, government and other third-party payors will be essential for most patients to be able to access these treatments. Accordingly, sales of our product candidates, if approved, will depend substantially on the extent to which the costs of our product candidates will be paid by hospitals, health maintenance, managed care, pharmacy benefit and similar healthcare management organizations, or will be reimbursed by government authorities, private health coverage insurers and other third-party payors. Hospital formulary approval, insurance coverage and reimbursement by other third-party payors may depend upon several factors, including the third-party payor's determination that use of a product is:

- a necessary and covered benefit under its health plan;
- safe, effective and medically necessary;
- appropriate for the specific patient population;
- cost-effective; and
- neither experimental nor investigational.

Obtaining hospital formulary approval, insurance coverage and reimbursement for a product from third-party payors is a time-consuming and costly process that will require us to provide to the hospitals and payors supporting scientific, clinical and cost-effectiveness data. We may not be able to provide data sufficient to gain acceptance with respect to hospital formulary approval, insurance coverage and reimbursement. If hospital formulary approval, insurance coverage and reimbursement are not available, or are available only at limited levels, we may not be able to successfully commercialize our product candidates.

There is significant uncertainty related to hospital formulary approval, insurance coverage and reimbursement of newly approved products. In the United States, third-party payors, including government

payors such as the Medicare and Medicaid programs, play an important role in determining the extent to which new drugs and biologics will be covered and reimbursed. It is difficult to predict what third-party payors will decide with respect to the insurance coverage and reimbursement for our product candidates.

Outside the United States, international operations generally are subject to extensive government price controls and other market regulations, and increasing emphasis on cost-containment initiatives in the European Union, Canada and other countries may put pricing pressure on us. In many countries, the prices of medical products are subject to varying price control mechanisms as part of national health systems. In general, the prices of medicines under such systems are substantially lower than in the United States. Other countries may use different methods to keep the cost of medical products artificially low. Foreign price controls or other changes in pricing regulation could restrict the amount that we are able to charge for our product candidates. Accordingly, in markets outside the United States, the reimbursement for our products may be reduced compared with the United States and may be insufficient to generate commercially reasonable product revenue.

Moreover, increasing efforts by hospital, government and other third-party payors in the United States and abroad to cap or reduce healthcare costs may cause such organizations to limit both coverage and the level of reimbursement for new products approved and, as a result, they may not cover or provide adequate payment for our product candidates. We expect to experience pricing pressures in connection with the sale of any of our product candidates due to the trend toward reducing hospital costs, managed healthcare, the increasing influence of health maintenance organizations and additional legislative changes.

The commercial success of any of our product candidates will depend upon its degree of market acceptance by physicians, patients, hospitals, third-party payors and others in the medical community.

Even with the requisite approvals from the FDA in the United States, EMA in the European Union and other regulatory authorities internationally, the commercial success of our product candidates, if approved, will significantly depend on the acceptance of physicians, hospitals and healthcare payors of our product candidates as medically necessary, cost-effective and safe. Any product that we commercialize may not gain acceptance by physicians, hospitals, healthcare payors and others in the medical community. If these commercialized products do not achieve an adequate level of acceptance, we may not generate significant product revenue and may not become profitable. The degree of market acceptance of our product candidates, if approved for commercial sale, will depend on several factors, including:

- the efficacy and safety of such product candidates as demonstrated in clinical trials;
- the potential and perceived advantages of our product candidates over other treatments;
- the cost effectiveness of treatment relative to alternative treatments;
- the clinical indications for which the product candidate is approved by the FDA, the EMA or other regulatory body;
- the willingness of physicians to prescribe new therapies over the existing standard of care and future new therapies;
- the prevalence and severity of any side effects;
- product labeling or product insert requirements of the FDA, EMA or other regulatory authorities, including any limitations or warnings contained in a product's approved labeling, including any black box warning;
- relative convenience and ease of administration;
- our ability to educate the medical community and third-party payors about the benefit of our product candidates;
- the strength of marketing and distribution support;

- the timing of market introduction of competitive products;
- publicity concerning our products or competing products and treatments; and
- sufficient third-party payor insurance coverage and reimbursement.

Even if a potential product displays a favorable efficacy and safety profile in preclinical studies and clinical trials, market acceptance of the product will not be fully known until after it is launched.

If we obtain approval to commercialize our product candidates outside of the United States, a variety of risks associated with international operations could materially adversely affect our business.

We expect that we will be subject to additional risks in commercializing our product candidates outside the United States, including:

- different regulatory requirements for approval of drugs and biologics in foreign countries;
- reduced protection for intellectual property rights;
- unexpected changes in tariffs, trade barriers and regulatory requirements;
- economic weakness, including inflation, or political instability in particular foreign economies and markets;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenue, and other obligations incident to doing business in another country;
- workforce uncertainty in countries where labor unrest is more common than in the United States;
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad; and
- business interruptions resulting from geopolitical actions, including war and terrorism or natural disasters including earthquakes, typhoons, floods and fires.

Risks Related to Our Business Operations

Our future success depends on our ability to retain key employees, consultants and advisors and to attract, retain and motivate qualified personnel.

We are highly dependent on members of our executive team. The loss of the services of any of them may adversely impact the achievement of our objectives. Any of our executive officers could leave our employment at any time, as all of our employees are "at-will" employees. We currently do not have "key person" insurance on any of our employees. The loss of the services of one or more of our current employees might impede the achievement of our research, development and commercialization objectives.

Recruiting and retaining qualified employees, consultants and advisors for our business, including scientific and technical personnel, also will be critical to our success. Competition for skilled personnel is intense and the turnover rate can be high. We may not be able to attract and retain personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies and academic institutions for skilled individuals. In addition, failure to succeed in preclinical studies, clinical trials or applications for marketing approval may make it more challenging to recruit and retain qualified personnel. The inability to recruit, or loss of services of certain executives, key employees, consultants or advisors, may impede the progress of our research, development and commercialization objectives and have a material adverse effect on our business, financial condition, results of operations and prospects.

If we are unable to manage expected growth in the scale and complexity of our operations, our performance may suffer.

If we are successful in executing our business strategy, we will need to expand our managerial, operational, financial and other systems and resources to manage our operations, continue our research and development activities and, in the longer term, build a commercial infrastructure to support commercialization of any of our product candidates that are approved for sale. Future growth would impose significant added responsibilities on members of management. It is likely that our management, finance, development personnel, systems and facilities currently in place may not be adequate to support this future growth. Our need to effectively manage our operations, growth and product candidates requires that we continue to develop more robust business processes and improve our systems and procedures in each of these areas and to attract and retain sufficient numbers of talented employees. We may be unable to successfully implement these tasks on a larger scale and, accordingly, may not achieve our research, development and growth goals.

Product liability lawsuits against us could cause us to incur substantial liabilities and could limit commercialization of any product candidates that we may develop.

We face an inherent risk of product liability exposure related to the testing of our product candidates in clinical trials and may face an even greater risk if we commercialize any products that we may develop. If we cannot successfully defend ourselves against claims that our product candidates caused injuries, we could incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any product candidates that we may develop;
- loss of revenue;
- substantial monetary awards to trial participants or patients;
- significant time and costs to defend the related litigation;
- withdrawal of clinical trial participants;
- the inability to commercialize any product candidates that we may develop; and
- injury to our reputation and significant negative media attention.

Our insurance coverage may not be adequate to cover all liabilities that we may incur. We anticipate that we will need to increase our insurance coverage each time we commence a clinical trial and if we successfully commercialize any product candidate. Insurance coverage is increasingly expensive. We may not be able to maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise.

Our internal computer systems, or those of any collaborators or contractors or consultants, may fail or suffer security breaches, which could result in a material disruption of our product development programs.

Our internal computer systems and those of any collaborators, contractors or consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. While we have not experienced any such material system failure, accident or security breach to date, if such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our development programs and our business operations, whether due to a loss of our trade secrets or other proprietary information or other similar disruptions. For example, the loss of clinical trial data from completed or future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability, our competitive position could be harmed and the further development and commercialization of our product candidates could be delayed.

Our employees, principal investigators, consultants and commercial partners may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements and insider trading.

We are exposed to the risk of fraud or other misconduct by our employees, principal investigators, consultants and commercial partners. Misconduct by these parties could include intentional failures to:

- comply with FDA regulations or the regulations applicable in the European Union and other jurisdictions;
- provide accurate information to the FDA, the EMA and other regulatory authorities;
- comply with healthcare fraud and abuse laws and regulations in the United States and abroad;
- comply with the U.S. Foreign Corrupt Practices Act, or FCPA, or other anti-corruption laws and regulations;
- report financial information or data accurately; or
- disclose unauthorized activities to us.

In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. These laws and regulations regulate a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Other forms of misconduct could involve the improper use of information obtained in the course of clinical trials or interactions with the FDA, EMA or other regulatory authorities, which could result in regulatory sanctions and cause serious harm to our reputation. We expect to adopt a code of conduct and implement other internal controls applicable to all of our employees, but it is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from government investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, financial condition, results of operations and prospects, including the imposition of significant fines or other sanctions.

The United Kingdom's "Brexit" vote in favor of withdrawing from the European Union could adversely impact our operations, make it more difficult for us to do business in Europe and impose additional regulatory costs and challenges in securing approval of our candidate products.

On June 23, 2016, the electorate in the United Kingdom voted in favor of leaving the European Union, commonly referred to as "Brexit". Thereafter, on March 29, 2017, the country formally notified the European Union of its intention to withdraw pursuant to Article 50 of the Lisbon Treaty. The withdrawal of the United Kingdom from the European Union will take effect either on the effective date of the withdrawal agreement or, in the absence of agreement, two years after the United Kingdom provided its notice of withdrawal.

It appears likely that this withdrawal will involve a process of lengthy negotiations between the United Kingdom and European Union member states to determine the future terms of the United Kingdom's relationship with the European Union. This could lead to a period of considerable uncertainty and volatility, particularly in relation to United Kingdom financial and banking markets. Weakening of economic conditions or economic uncertainties tend to harm our business, and if such conditions emerge in the U.K. or in the rest of Europe, it may have a material adverse effect on our operations and sales.

Currency exchange rates in the pound sterling and the euro with respect to each other and the U.S. dollar have already been adversely affected by Brexit and that may continue to be the case. In addition, depending on the terms of Brexit, the United Kingdom could lose the benefits of global trade agreements negotiated by the European Union on behalf of its members, which may result in increased trade barriers which could make our doing business in Europe more difficult.

We may also face new and additional regulatory costs and challenges from Brexit that could have a material adverse effect on our operations. Since a significant proportion of the regulatory framework in the United Kingdom is derived from European Union directives and regulations, the referendum could materially impact the regulatory regime with respect to the approval of our product candidates in the United Kingdom or the European Union. Any delay in obtaining, or an inability to obtain, any marketing approvals, as a result of Brexit or otherwise, would prevent us from commercializing our product candidates in the United Kingdom and/or the European Union and restrict our ability to generate revenue and achieve and sustain profitability. If any of these outcomes occur, we may be forced to restrict or delay efforts to seek regulatory approval in the United Kingdom and/or European Union for our product candidates, which could significantly and materially harm our business.

Risks Related to Our Intellectual Property

If we are unable to obtain and maintain patent protection for our products and technology, or if the scope of the patent protection obtained is not sufficiently broad or robust, our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to successfully commercialize our products and technology may be adversely affected.

Our success depends, in part, on our ability to obtain and maintain patent protection in the United States and other countries with respect to our product candidates and technology. We and our licensors have sought, and intend to seek, to protect our proprietary position by filing patent applications in the United States and abroad related to our product candidates and technology that are important to our business.

The patent position of biotechnology and pharmaceutical companies generally is highly uncertain, involves complex legal and factual questions and has, in recent years, been the subject of much litigation. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Our pending and future patent applications may not result in patents being issued which protect our technology or product candidates or which effectively prevent others from commercializing competitive technologies and product candidates. Since patent applications in the United States and most other countries are confidential for a period of time after filing, and some remain so until issued, we cannot be certain that we or our licensors were the first to file a patent application relating to any particular aspect of a product candidate. Furthermore, if third parties have filed such patent applications, an interference proceeding in the United States can be initiated by such third party, or by the United States Patent and Trademark Office, or USPTO, itself, to determine who was the first to invent any of the subject matter covered by the patent claims of our applications.

The patent prosecution process is expensive, time-consuming and complex, and we may not be able to file, prosecute, maintain, enforce or license all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection.

Periodic maintenance fees, renewal fees, annuity fees and various other government fees on patents and/or applications will be due to be paid to the USPTO, and various government patent agencies outside of the United States over the lifetime of our licensed patents and/or applications and any patent rights we own or may own in the future. We rely, in part, on our outside counsel or our licensing partners to pay these fees due to the USPTO and to non-U.S. patent agencies. The USPTO and various non-U.S. government patent agencies require compliance with several procedural, documentary, fee payment and other similar provisions during the patent application process. We employ reputable law firms and other professionals to help us comply and we are also dependent on our licensors to take the necessary action to comply with these requirements with respect to our licensed intellectual property. In many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. There are situations, however, in which non-compliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, potential competitors might be able to enter the market and this circumstance could have a material adverse effect on our business.

Filing, prosecuting and enforcing patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States could be less extensive than those in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States. Consequently, we may not be able to prevent third parties from infringing our patents in all countries outside the United States, or from selling or importing products that infringe our patents in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our products and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Even if the patent applications we license or own do issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors or other third parties from competing with us or otherwise provide us with any competitive advantage. Our competitors or other third parties may be able to circumvent our patents by developing similar or alternative technologies or products in a non-infringing manner. For example, there can be no assurance that our issued patents contain and pending applications will contain, if granted, claims of sufficient breadth to cover all antibodies alleged to be biosimilar versions of our product candidates.

The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, and our patents may be challenged in the courts or patent offices in the United States and abroad. Such challenges may result in loss of exclusivity or in patent claims being narrowed, invalidated or held unenforceable, which could limit our ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our technology and product candidates. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our intellectual property may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours.

Changes in patent law could diminish the value of patents in general, thereby impairing our ability to protect our product candidates.

As is the case with other biotechnology and pharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involves both technological and legal complexity, and obtaining and enforcing biopharmaceutical patents is costly, time consuming and inherently uncertain. The U.S. Supreme Court has ruled on several patent cases in recent years, and these decisions have narrowed the scope of patent protection available in certain circumstances or weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our and our licensors' ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents once obtained. Depending on future decisions by the U.S. Congress, the federal courts and the USPTO, as well as similar bodies in foreign jurisdictions, the laws and regulations governing patents could change in unpredictable ways that may weaken our and our licensors' ability to obtain new patents or to enforce existing patents and patents we and our licensors or any collaborators may obtain in the future.

Patent reform legislation enacted in the United States in 2011 could increase the uncertainties and costs surrounding the prosecution of our and our licensors' patent applications and the enforcement or defense of our or our licensors' issued patents. On September 16, 2011, the Leahy-Smith America Invents Act, or the Leahy-Smith Act, was signed into law. The Leahy-Smith Act includes a number of significant changes to U.S. patent law. These include provisions that affect the way patent applications are prosecuted, redefine prior art, may affect patent litigation and switch the U.S. patent system from a "first to invent" system to a "first inventor to file"

system. The USPTO has developed new regulations and procedures to govern administration of the Leahy-Smith Act, and many of the substantive changes to patent law associated with the Leahy-Smith Act, and in particular, the first inventor to file provisions, became effective on March 16, 2013. Accordingly, it is not clear what, if any,
impact the Leahy-Smith Act will have on the operation of our business. However, the Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our or our licensors' patent applications and the enforcement or defense of our or our licensors' issued patents, all of which could have a material adverse effect on our business and financial condition.

Our rights to develop and commercialize our product candidates are subject, in part, to the terms and conditions of licenses granted to us by others, and, if we fail to comply with our obligations under these arrangements, we could lose such intellectual property rights or owe damages to the licensor of such intellectual property.

We are a party to several intellectual property license and option agreements, including agreements with the Bill & Melinda Gates Foundation, or the Gates Foundation, and Adimab, LLC, or Adimab, that are important to our business, and may need to obtain additional licenses from others to advance our research or allow commercialization of our product candidates. These and other licenses may not provide exclusive rights to use such intellectual property and technology in all relevant fields of use and in all territories in which we may wish to develop or commercialize our technology and product candidates in the future. It is possible that we may be unable to obtain additional licenses at a reasonable cost or on reasonable terms, if at all. As a result, we may not be able to prevent competitors from developing and commercializing competitive products in territories included in all of our licenses. In that event, we may be required to expend significant time and resources to redesign our product candidates or the methods for manufacturing them or to develop or license replacement technology, all of which may not be feasible on a technical or commercial basis. If we are unable to do so, we may be unable to develop or commercialize the affected product candidates, which could harm our business significantly.

Our existing license agreements impose, and we expect that future license agreements will impose, various diligence, development and commercialization timelines, milestone payments, royalties and other obligations on us. See "Business—Collaboration and License Agreements." If we fail to comply with our obligations under these agreements, or we are subject to a bankruptcy, the licensor may have the right to terminate the license, in which event we would not be able to market products covered by the license.

For example, we have entered into two agreements with Adimab under which we were granted exclusive options to obtain ownership or exclusive worldwide licenses under specified patents relating to the development and commercialization of monoclonal antibodies, and we have exercised certain of those options to a number of antibodies. See "Business—Collaboration and License Agreements—Adimab, LLC." Our agreements with Adimab impose specified diligence, milestone payment, royalty, asset transfer payment, acquisition payment, prosecution, insurance and other obligations on us. If we fail to comply with our obligations under the licenses, Adimab may have the right to terminate the license agreements, in which event we might not be able to market, and may be required to transfer to Adimab our rights in, any product that is covered by the Adimab agreements, including ASN100. Termination of the license agreements may also result in our having to negotiate a new or reinstated license with less favorable terms and which would have a material adverse impact on our business. Further, under our agreements with Adimab, under certain circumstances, Adimab is permitted to transfer to third parties antibody libraries that may include antibodies that we have licensed from Adimab, as well as certain information regarding certain attributes of such antibodies.

In our existing license agreements, and we expect in future agreements, patent prosecution of our licensed technology is in certain cases controlled solely by the licensor, and we are in certain cases required to reimburse the licensor for their costs of patent prosecution. If our licensors fail to obtain and maintain patent or other protection for the proprietary intellectual property we license from them, we could lose our rights to the intellectual property or our exclusivity with respect to those rights, and our competitors could market competing products covered by the intellectual property. Further, in each of our license agreements we are responsible for

bringing any actions against any third party for infringing the patents we have licensed. Certain of our license agreements also require us to meet development thresholds to maintain the license, including establishing a set timeline for developing and commercializing products and minimum yearly diligence obligations in developing and commercializing the product. Disputes may arise regarding intellectual property subject to a licensing agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- the extent to which our technology and processes infringe the intellectual property of the licensor that is not subject to the licensing agreement;
- the sublicensing of patent and other rights under any collaborative development relationships;
- our diligence obligations under the license agreement and what activities satisfy those diligence obligations;
- the inventorship or ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us and our partners; and
- the priority of invention of patented technology.

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates.

In addition, the agreements under which we currently license intellectual property or technology from third parties are complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology, or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

The exercise by the Gates Foundation of its licenses to certain of our intellectual property and its development and commercialization of products that we are also developing and commercializing could have an adverse impact on our market position.

In April 2017, we entered into a letter agreement with the Gates Foundation. In connection with the letter agreement, the Gates Foundation purchased $8.0 million of shares of our Series D convertible preferred stock, and we committed to use the proceeds from the investment by the Gates Foundation solely to advance the development of a specified antibody program, which involves the monoclonal antibodies ASN-1, ASN-2 and ASN-3 and our product candidate ASN100. We agreed to grant to the Gates Foundation three non-exclusive, sublicensable licenses to research, develop, manufacture, seek regulatory approval for and commercialize antibodies that we or our research contractors discover in specified areas of global health that the Gates Foundation has identified as underinvested or disproportionately impacting poor and vulnerable populations, including ASN100, for the treatment of neonatal sepsis caused by *S. aureus*. Two of these non-exclusive licenses will only be granted upon request from the Gates Foundation, and the third, although it has already been granted, would only be exercisable by the Gates Foundation upon certain "trigger events," as described further in "Business—Collaboration and License Agreements—The Bill & Melinda Gates Foundation."

In February 2017, we entered into a grant agreement with the Gates Foundation. In connection with the grant agreement, the Gates Foundation granted us certain funds, which we are obligated to use to conduct preclinical development of monoclonal antibodies for the prevention of RSV infection in newborns. We have granted the Gates Foundation a non-exclusive, sublicensable license to research and develop, manufacture, seek regulatory approval for and commercialize antibodies developed under this agreement for the benefit of people in developing countries.

The exercise by the Gates Foundation of any of its non-exclusive licenses to certain of our intellectual property (or its right to obtain such licenses), and its development and commercialization of product candidates and products that we are also developing and commercializing, could have an adverse impact on our market position.

We may become involved in lawsuits to protect or enforce our intellectual property, which could be expensive, time consuming and unsuccessful.

Competitors may infringe our patents or the patents of our licensing partners, or we may be required to defend against claims of infringement. To counter infringement or unauthorized use claims or to defend against claims of infringement can be expensive and time consuming. Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses and could distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities. We may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources and more mature and developed intellectual property portfolios. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace.

In addition, many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets and other intellectual property, particularly those relating to biotechnology products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we own, develop or license.

Issued patents covering our product candidates could be found invalid or unenforceable if challenged in court. We may not be able to protect our trade secrets in court.

If one of our licensing partners or we initiate legal proceedings against a third party to enforce a patent covering one of our product candidates, the defendant could counterclaim that the patent covering our product candidate is invalid or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness, written description or non-enablement. In addition, patent validity challenges may, under certain circumstances, be based upon non-statutory obviousness-type double patenting, which, if successful, could result in a finding that the claims are invalid for obviousness-type double patenting or the loss of patent term, including a patent term adjustment granted by the USPTO, if a terminal disclaimer is filed to obviate a finding of obviousness-type double patenting. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld information material to patentability from the USPTO, or made a misleading statement, during prosecution. Third parties also may raise similar claims before administrative bodies in the United States or abroad, even outside the context of litigation. Such mechanisms include re-examination, post grant review, *inter*

partes review and equivalent proceedings in foreign jurisdictions. Such proceedings could result in the revocation or cancellation of or amendment to our patents in such a way that they no longer cover our product candidates. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art of which the patent examiner and we or our licensing partners were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity or unenforceability, we could lose at least part, and perhaps all, of the patent protection on one or more of our product candidates. Such a loss of patent protection could have a material adverse impact on our business.

In addition to the protection afforded by patents, we rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable or that we elect not to patent, processes for which patents are difficult to enforce and any other elements of our product candidate discovery and development processes that involve proprietary know-how, information or technology that is not covered by patents. However, trade secrets can be difficult to protect, and some courts inside and outside the United States are less willing or unwilling to protect trade secrets. We seek to protect our proprietary technology and processes, in part, by entering into confidentiality agreements with our employees, consultants, scientific advisors and contractors. We cannot guarantee that we have entered into such agreements with each party that may have or have had access to our trade secrets or proprietary technology and processes. We also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems. While we have confidence in these individuals, organizations and systems, agreements or security measures may be breached, and we may not have adequate remedies for any breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors.

Third parties may initiate legal proceedings alleging that we are infringing their intellectual property rights, the outcome of which would be uncertain and could have a material adverse effect on the success of our business.

Our commercial success depends upon our ability and the ability of any collaborators to develop, manufacture, market and sell our product candidates and use our proprietary technologies without infringing the proprietary rights and intellectual property of third parties. We cannot provide any assurances that third-party patents do not exist which might be enforced against our current manufacturing methods, product candidates or future methods or products, resulting in either an injunction prohibiting our manufacture or sales, or, with respect to our sales, an obligation on our part to pay royalties and/or other forms of compensation to third parties. The biotechnology and pharmaceutical industries are characterized by extensive and complex litigation regarding patents and other intellectual property rights. We may in the future become party to, or be threatened with, adversarial proceedings or litigation regarding intellectual property rights with respect to our product candidates and technology, including interference proceedings, post grant review and *inter partes* review before the USPTO. The risks of being involved in such litigation and proceedings may also increase as our product candidates approach commercialization and as we gain greater visibility as a public company. Third parties may assert infringement claims against us based on existing patents or patents that may be granted in the future, regardless of their merit. There is a risk that third parties may choose to engage in litigation with us to enforce or to otherwise assert their patent rights against us. Even if we believe such claims are without merit, a court of competent jurisdiction could hold that these third-party patents are valid, enforceable and infringed, which could materially and adversely affect our ability to commercialize any of our product candidates or technologies covered by the asserted third-party patents. In order to successfully challenge the validity of any such U.S. patent in federal court, we would need to overcome a presumption of validity. As this burden is a high one requiring us to present clear and convincing evidence as to the invalidity of any such U.S. patent claim, there is no assurance that a court of competent jurisdiction would invalidate the claims of any such U.S. patent.

If we are found to infringe a third party's valid and enforceable intellectual property rights, we could be required to obtain a license from such third party to continue developing, manufacturing and marketing our

product candidates and technology. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors and other third parties access to the same technologies licensed to us, and it could require us to make substantial licensing and royalty payments. We could be forced, including by court order, to cease developing, manufacturing and commercializing the infringing technology or product candidates. In addition, we could be found liable for monetary damages, including treble damages and attorneys' fees, if we are found to have willfully infringed a patent or other intellectual property right. A finding of infringement could prevent us from manufacturing and commercializing our product candidates or force us to cease some of our business operations, which could materially harm our business. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business, financial condition, results of operations and prospects.

Others may claim an ownership interest in our intellectual property and our product candidates, which could expose us to litigation and have a significant adverse effect on our prospects.

While we are presently unaware of any claims or assertions by third parties with respect to our patents or other intellectual property, we cannot guarantee that a third party will not assert a claim or an interest in any of such patents or intellectual property. For example, a third party may claim an ownership interest in one or more of our, or our licensors', patents or other proprietary or intellectual property rights. A third party could bring legal actions against us and seek monetary damages or enjoin clinical testing, manufacturing or marketing of the affected product candidate or product. If we become involved in any litigation, it could consume a substantial portion of our resources and cause a significant diversion of effort by our technical and management personnel. If any such action is successful, in addition to any potential liability for damages, we could be required to obtain a license to continue to manufacture or market the affected product candidate or product, in which case we could be required to pay substantial royalties or grant cross-licenses to patents. We cannot, however, assure you that any such license would be available on acceptable terms, if at all. Ultimately, we could be prevented from commercializing a product, or forced to cease some aspect of our business operations as a result of claims of patent infringement or violation of other intellectual property rights. Further, the outcome of intellectual property litigation is subject to uncertainties that cannot be adequately quantified in advance, including the demeanor and credibility of witnesses and the identity of any adverse party. This is especially true in intellectual property cases, which may turn on the testimony of experts as to technical facts upon which experts may reasonably disagree. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations or prospects.

If we are unable to protect the confidentiality of our proprietary information, the value of our technology and products could be adversely affected.

Trade secrets and know-how can be difficult to protect. To maintain the confidentiality of trade secrets and proprietary information, we enter into confidentiality agreements with our employees, consultants, collaborators and others upon the commencement of their relationships with us. These agreements require that all confidential information developed by the individual or made known to the individual by us during the course of the individual's relationship with us be kept confidential and not disclosed to third parties. Our agreements with employees and our personnel policies also provide that any inventions conceived by the individual in the course of rendering services to us shall be our exclusive property. However, we may not obtain these agreements in all circumstances, and individuals with whom we have these agreements may not comply with their terms. Thus, despite such agreement, there can be no assurance that such inventions will not be assigned to third parties. In the event of unauthorized use or disclosure of our trade secrets or proprietary information, these agreements, even if obtained, may not provide meaningful protection, particularly for our trade secrets or other confidential information. To the extent that our employees, consultants or contractors use technology or know-how owned by third parties in their work for us, disputes may arise between us and those third parties as to the rights in related inventions. To the extent that an individual who is not obligated to assign rights in intellectual property to us is rightfully an inventor of intellectual property, we may need to obtain an assignment or a license to that

intellectual property from that individual, or a third party or from that individual's assignee. Such assignment or license may not be available on commercially reasonable terms or at all.

Adequate remedies may not exist in the event of unauthorized use or disclosure of our proprietary information. The disclosure of our trade secrets would impair our competitive position and may materially harm our business, financial condition and results of operations. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to maintain trade secret protection could adversely affect our competitive business position. In addition, others may independently discover or develop our trade secrets and proprietary information, and the existence of our own trade secrets affords no protection against such independent discovery. For example, a public presentation in the scientific or popular press on the properties of our product candidates could motivate a third party, despite any perceived difficulty, to assemble a team of scientists having backgrounds similar to those of our employees to attempt to independently reverse engineer or otherwise duplicate our antibody technologies to replicate our success.

We may be subject to claims asserting that our employees, consultants or advisors have wrongfully used or disclosed alleged trade secrets of their current or former employers or claims asserting ownership of what we regard as our own intellectual property.

Many of our employees, consultants or advisors are currently, or were previously, employed at universities or other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees, consultants and advisors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that these individuals, or we, have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such individual's current or former employer, or that patents and applications we have filed to protect inventions of these employees, even those related to one or more of our product candidates, are rightfully owned by their former or current employer. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

In addition, while it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. The assignment of intellectual property rights may not be self-executing or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property.

If our trademarks and trade names are not adequately protected, then we may not be able to build name recognition in our markets of interest and our business may be adversely affected.

We have not yet registered trademarks in our potential markets. Any registered trademarks or trade names may be challenged, circumvented or declared generic or determined to be infringing on other marks. We may not be able to protect our rights to these trademarks and trade names, which we need to build name recognition among potential partners or customers in our markets of interest. At times, competitors may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our registered or unregistered trademarks or trade names. Over the long term, if we are unable to establish name recognition based on our trademarks and trade names, then we may not be able to compete effectively and our business may be adversely affected. Our efforts to enforce or protect our proprietary rights related to trademarks, trade secrets, domain names, copyrights or other intellectual property may be ineffective and could result in substantial costs and diversion of resources and could adversely impact our financial condition or results of operations.

Intellectual property rights do not necessarily address all potential threats.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations, and may not adequately protect our business or permit us to maintain our competitive advantage. For example:

- others may be able to make products that are similar to our product candidates but that are not covered by the claims of the patents that we own or license or may own in the future;
- we, or any partners or collaborators, might not have been the first to make the inventions covered by the issued patent or pending patent application that we license or may own in the future;
- we, or any partners or collaborators, might not have been the first to file patent applications covering certain of our or their inventions;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our owned or licensed intellectual property rights;
- it is possible that our pending licensed patent applications or those that we may own in the future will not lead to issued patents;
- issued patents that we hold rights to may be held invalid or unenforceable, including as a result of legal challenges by our competitors;
- our competitors might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we may not develop additional proprietary technologies that are patentable;
- the patents of others may have an adverse effect on our business; and
- we may choose not to file a patent for certain trade secrets or know-how, and a third party may subsequently file a patent covering such intellectual property.

Should any of these events occur, they could significantly harm our business, financial condition, results of operations and prospects.

Risks Related to Regulatory Approval and Other Legal Compliance Matters

The regulatory approval processes of the FDA, the EMA and comparable foreign authorities are lengthy, time consuming and inherently unpredictable, and if we are ultimately unable to obtain regulatory approval for our product candidates, our business will be substantially harmed.

The time required to obtain approval by the FDA is unpredictable but typically takes many years following the commencement of clinical trials and depends upon numerous factors, including the substantial discretion of the regulatory authorities. In addition, approval policies, regulations or the type and amount of clinical data necessary to gain approval may change during the course of a product candidate's clinical development and may vary among jurisdictions. We have not obtained regulatory approval for any product candidate and it is possible that none of our existing product candidates or any product candidates we may seek to develop in the future will ever obtain regulatory approval.

Our product candidates could fail to receive regulatory approval for many reasons, including the following:

- the FDA may disagree with the design or implementation of our clinical trials;
- we may be unable to demonstrate to the satisfaction of the FDA that a product candidate is safe, pure and potent or effective for its proposed indication;
- results of clinical trials may not meet the level of statistical significance required by the FDA for approval;

- we may be unable to demonstrate that a product candidate's clinical and other benefits outweigh its safety risks;
- FDA may disagree with our interpretation of data from preclinical studies or clinical trials;
- data collected from clinical trials of our product candidates may not be sufficient to support the submission of a biologics license application, or BLA, to the FDA or other submission or to obtain regulatory approval in the United States;
- FDA may find deficiencies with or fail to approve the manufacturing processes or facilities of third-party manufacturers with which we contract for clinical and commercial supplies; and
- the approval policies or regulations of the FDA may significantly change in a manner rendering our clinical data insufficient for approval.

This lengthy approval process as well as the unpredictability of future clinical trial results may result in our failing to obtain regulatory approval to market any of our product candidates, which would significantly harm our business, results of operations and prospects. The FDA has substantial discretion in the approval process, and determining when or whether regulatory approval will be obtained for any of our product candidates. Even if we believe the data collected from clinical trials of our product candidates are promising, such data may not be sufficient to support approval by the FDA.

In addition, even if we were to obtain approval, regulatory authorities may approve any of our product candidates for fewer or more limited indications than we request, may not approve the price we intend to charge for our products, may grant approval contingent on the performance of costly post-marketing clinical trials, or may approve a product candidate with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product candidate. Any of the foregoing scenarios could materially harm the commercial prospects for our product candidates.

We, or any future collaborators, may not be able to obtain orphan drug designation or orphan drug exclusivity for our product candidates.

Regulatory authorities in some jurisdictions, including the United States and Europe, may designate drugs for relatively small patient populations as orphan drugs. Under the Orphan Drug Act, the FDA may designate a product as an orphan drug if it is a drug intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 individuals annually in the United States.

Even if we, or any future collaborators, obtain orphan drug designation for a product candidate, we, or they, may not be able to obtain orphan drug exclusivity for that product candidate. Generally, a product with orphan drug designation only becomes entitled to orphan drug exclusivity if it receives the first marketing approval for the indication for which it has such designation, in which case the FDA or the EMA will be precluded from approving another marketing application for the same drug for that indication for the applicable exclusivity period. The applicable exclusivity period is seven years in the United States and 10 years in Europe. The European exclusivity period can be reduced to six years if a drug no longer meets the criteria for orphan drug designation or if the drug is sufficiently profitable so that market exclusivity is no longer justified. Orphan drug exclusivity may be lost if the FDA or the EMA determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug to meet the needs of patients with the rare disease or condition.

Even if we, or any future collaborators, obtain orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because the FDA has taken the position that, under certain circumstances, another drug with the same active moiety can be approved for the same condition. Specifically, the FDA's regulations provide that it can approve another drug with the same active moiety for the same condition if the FDA concludes that the later drug is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care.

A fast track designation by the FDA may not actually lead to a faster development, regulatory review or approval process.

If a product is intended for the treatment of a serious or life-threatening condition and the product demonstrates the potential to address unmet needs for this condition, the treatment sponsor may apply for FDA fast track designation. In November 2016, the FDA notified us that we obtained fast track designation for ASN100 for the prevention of *S. aureus* pneumonia in mechanically ventilated patients who are at high risk for *S. aureus* pneumonia. Fast track designation does not ensure that we will experience a faster development, regulatory review or approval process compared to conventional FDA procedures. Additionally, the FDA may withdraw fast track designation if it believes that the designation is no longer supported by data from our clinical development program.

Even if we complete the necessary preclinical and clinical studies, the marketing approval process is expensive, time consuming and uncertain and may prevent us or any future collaborators from obtaining approvals for the commercialization of some or all of our product candidates. As a result, we cannot predict when or if, and in which territories, we, or any future collaborators, will obtain marketing approval to commercialize a product candidate.

The research, testing, manufacturing, labeling, approval, selling, marketing, promotion and distribution of drug products are subject to extensive regulation by the FDA, EMA and other regulatory authorities, and regulations may differ from country to country. We, and any future collaborators, are not permitted to market our product candidates in the United States or in other countries until we, or they, receive approval of a BLA from the FDA, approval of a marketing authorization application, or MAA, from the EMA, or marketing approval from other applicable regulatory authorities. Our product candidates are in various stages of development and are subject to the risks of failure inherent in drug development. We have not submitted an application for or received marketing approval for any of our product candidates in the United States, Europe or in any other jurisdiction. We have not yet been successful at conducting and managing the clinical trials necessary to obtain marketing approvals, including FDA approval of a BLA and EMA approval of an MAA.

The process of obtaining marketing approvals, both in the United States and abroad, is lengthy, expensive and uncertain. It may take many years, if approval is obtained at all, and can vary substantially based upon a variety of factors, including the type, complexity and novelty of the product candidates involved.

In addition, changes in marketing approval policies during the development period, changes in or the enactment or promulgation of additional statutes, regulations or guidance or changes in regulatory review for each submitted product application, may cause delays in the approval or rejection of an application. Regulatory authorities have substantial discretion in the approval process and may refuse to accept any application or may decide that our data are insufficient for approval and require additional preclinical, clinical or other studies. In addition, varying interpretations of the data obtained from preclinical and clinical studies could delay, limit or prevent marketing approval of a product candidate. Any marketing approval we, or any future collaborators, ultimately obtain may be limited or subject to restrictions or post-approval commitments that render the approved product not commercially viable.

Any delay in obtaining or failure to obtain required approvals could materially adversely affect our ability or that of any future collaborators to generate revenue from the particular product candidate, which likely would result in significant harm to our financial position and adversely impact our stock price.

Failure to obtain marketing approval in foreign jurisdictions would prevent our product candidates from being marketed abroad.

In order to market and sell our products in the European Union and many other jurisdictions, we, and any future collaborators, must obtain separate marketing approvals and comply with numerous and varying

regulatory requirements. The approval procedure varies among countries and can involve additional testing. The time required to obtain approval may differ substantially from that required to obtain FDA approval. The marketing approval process outside the United States generally includes all of the risks associated with obtaining FDA approval. We, and any future collaborators, may not obtain approvals from regulatory authorities outside the United States on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries or jurisdictions, and approval by one regulatory authority outside the United States does not ensure approval by regulatory authorities in other countries or jurisdictions or by the FDA.

In many countries outside the United States, a product candidate must also be approved for reimbursement before it can be sold in that country. In some cases, the price that we intend to charge for our products, if approved, is also subject to approval. Obtaining non-U.S. regulatory approvals and compliance with non-U.S. regulatory requirements could result in significant delays, difficulties and costs for us and our collaborators and could delay or prevent the introduction of our product candidates in certain countries. In addition, if we or our collaborators fail to obtain the non-U.S. approvals required to market our product candidates outside the United States or if we or our collaborators fail to comply with applicable non-U.S. regulatory requirements, our target market will be reduced and our ability to realize the full market potential of our product candidates will be harmed and our business, financial condition, results of operations and prospects may be adversely affected.

Even if we, or any future collaborators, obtain marketing approvals for our product candidates, the terms of approvals and ongoing regulation of our products may limit how we, or they, manufacture and market our products, which could materially impair our ability to generate revenue.

Once marketing approval has been granted, an approved product and its manufacturer and marketer are subject to ongoing review and extensive regulation. We, and any future collaborators, must therefore comply with requirements concerning advertising and promotion for any of our product candidates for which we or they obtain marketing approval. Promotional communications with respect to prescription drugs are subject to a variety of legal and regulatory restrictions and must be consistent with the information in the product's approved labeling. Thus, we and any future collaborators will not be able to promote any products we develop for indications or uses for which they are not approved.

In addition, manufacturers of approved products and those manufacturers' facilities are required to comply with extensive FDA requirements, including ensuring that quality control and manufacturing procedures conform to cGMPs, which include requirements relating to quality control and quality assurance as well as the corresponding maintenance of records and documentation and reporting requirements. We, our third-party manufacturers, any future collaborators and their third-party manufacturers could be subject to periodic unannounced inspections by the FDA to monitor and ensure compliance with cGMPs.

Accordingly, assuming we, or any future collaborators, receive marketing approval for one or more of our product candidates, we, and any future collaborators, and our and their third-party manufacturers will continue to expend time, money and effort in all areas of regulatory compliance, including manufacturing, production, product surveillance and quality control.

If we, and any future collaborators, are not able to comply with post-approval regulatory requirements, we, and any future collaborators, could have the marketing approvals for our products withdrawn by regulatory authorities and our, or any future collaborators', ability to market any future products could be limited, which could adversely affect our ability to achieve or sustain profitability. Further, the cost of compliance with post-approval regulations may have a negative effect on our operating results and financial condition.

Any of our product candidates for which we, or any future collaborators, obtain marketing approval in the future could be subject to post-marketing restrictions or withdrawal from the market and we, or any future collaborators, may be subject to substantial penalties if we, or they, fail to comply with regulatory requirements or if we, or they, experience unanticipated problems with our products following approval.

Any of our product candidates for which we, or any future collaborators, obtain marketing approval in the future, as well as the manufacturing processes, post-approval studies and measures, labeling, advertising and promotional activities for such product, among other things, will be subject to continual requirements of and review by the FDA, EMA and other regulatory authorities. These requirements include submissions of safety and other post-marketing information and reports, registration and listing requirements, requirements relating to manufacturing, quality control, quality assurance and corresponding maintenance of records and documents, requirements regarding the distribution of samples to physicians and recordkeeping. Even if marketing approval of a product candidate is granted, the approval may be subject to limitations on the indicated uses for which the product may be marketed or to the conditions of approval, including the requirement to implement a Risk Evaluation and Mitigation Strategy, or REMs.

The FDA may also impose requirements for costly post-marketing studies or clinical trials and surveillance to monitor the safety or efficacy of a product. The FDA and other agencies, including the Department of Justice, closely regulate and monitor the post-approval marketing and promotion of products to ensure that they are manufactured, marketed and distributed only for the approved indications and in accordance with the provisions of the approved labeling. The FDA imposes stringent restrictions on manufacturers' communications regarding off-label use and if we, or any future collaborators, do not market any of our product candidates for which we, or they, receive marketing approval for only their approved indications, we, or they, may be subject to warnings or enforcement action for off-label marketing. Violation of the Federal Food, Drug, and Cosmetic Act and other statutes, including the False Claims Act, relating to the promotion and advertising of prescription drugs may lead to investigations or allegations of violations of federal and state healthcare fraud and abuse laws and state consumer protection laws.

In addition, later discovery of previously unknown side effects or other problems with our products or their manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may yield various results, including:

- restrictions on such products, manufacturers or manufacturing processes;
- restrictions on the labeling or marketing of a product;
- restrictions on product distribution or use;
- requirements to conduct post-marketing studies or clinical trials;
- warning letters or untitled letters;
- withdrawal of the products from the market;
- refusal to approve pending applications or supplements to approved applications that we submit;
- recall of products;
- restrictions on coverage by third-party payors;
- fines, restitution or disgorgement of profits or revenue;
- suspension or withdrawal of marketing approvals, including license revocation;
- refusal to permit the import or export of products;
- product seizure; and
- injunctions or the imposition of civil or criminal penalties.

The efforts of the presidential administration to pursue regulatory reform may limit the FDA's ability to engage in oversight and implementation activities in the normal course, and that could negatively impact our business.

The current presidential administration has taken several executive actions, including the issuance of a number of executive orders, that could impose significant burdens on, or otherwise materially delay, the FDA's ability to engage in routine regulatory and oversight activities such as implementing statutes through rulemaking, issuance of guidance and review and approval of marketing applications. On January 30, 2017, President Trump issued an executive order, applicable to all executive agencies, including the FDA, that requires that for each notice of proposed rulemaking or final regulation to be issued in fiscal year 2017, the agency shall identify at least two existing regulations to be repealed, unless prohibited by law. These requirements are referred to as the "two-for-one" provisions. This executive order includes a budget neutrality provision that requires the total incremental cost of all new regulations in the 2017 fiscal year, including repealed regulations, to be no greater than zero, except in limited circumstances. For fiscal years 2018 and beyond, the executive order requires agencies to identify regulations to offset any incremental cost of a new regulation. In interim guidance issued by the Office of Information and Regulatory Affairs within the Office of Management and Budget on February 2, 2017, the administration indicates that the "two-for-one" provisions may apply not only to agency regulations, but also to significant agency guidance documents. It is difficult to predict how these requirements will be implemented, and the extent to which they will impact the FDA's ability to exercise its regulatory authority. If these executive actions impose constraints on the FDA's ability to engage in oversight and implementation activities in the normal course, our business may be negatively impacted.

Our relationships with healthcare providers and physicians and third-party payors will be subject to applicable anti-kickback, fraud and abuse and other healthcare laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm and diminished profits and future earnings.

Healthcare providers, physicians and third-party payors will play a primary role in the recommendation and prescription of any drugs for which we obtain marketing approval. Our future arrangements with third-party payors, healthcare providers and physicians may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we market, sell and distribute any drugs for which we obtain marketing approval. These include the following:

- *Anti-Kickback Statute*—the federal healthcare anti-kickback statute prohibits, among other things, persons from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, order or recommendation or arranging of, any good or service, for which payment may be made under a federal healthcare program such as Medicare and Medicaid;
- *False Claims Act*—the federal False Claims Act imposes criminal and civil penalties, including through civil whistleblower or qui tam actions, against individuals or entities for, among other things, knowingly presenting, or causing to be presented false or fraudulent claims for payment by a federal healthcare program or making a false statement or record material to payment of a false claim or avoiding, decreasing or concealing an obligation to pay money to the federal government, with potential liability including mandatory treble damages and significant per-claim penalties, currently set at $5,500 to $11,000 per false claim;
- *HIPAA*—the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, imposes criminal and civil liability for executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters, and, as amended by the Health Information Technology for Economic and Clinical Health Act and its implementing regulations, also imposes obligations, including mandatory contractual terms and technical safeguards, with respect to maintaining the privacy, security and transmission of individually identifiable health information;

- *Transparency Requirements*—federal laws require applicable manufacturers of covered drugs to report payments and other transfers of value to physicians and teaching hospitals; and
- *Analogous State and Foreign Laws*—analogous state and foreign fraud and abuse laws and regulations, such as state anti-kickback and false claims laws, can apply to sales or marketing arrangements and claims involving healthcare items or services and are generally broad and are enforced by many different federal and state agencies as well as through private actions.

Some state laws require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government and require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures. State and foreign laws also govern the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not pre-empted by HIPAA, thus complicating compliance efforts.

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, damages, fines, imprisonment, exclusion of drugs from government funded healthcare programs, such as Medicare and Medicaid, and the curtailment or restructuring of our operations. If any of the physicians or other healthcare providers or entities with whom we expect to do business is found to be not in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs.

The provision of benefits or advantages to physicians to induce or encourage the prescription, recommendation, endorsement, purchase, supply, order or use of medicinal products is also prohibited in the European Union. The provision of benefits or advantages to physicians is governed by the national anti-bribery laws of European Union Member States, such as the U.K. Bribery Act 2010, or the Bribery Act. Infringement of these laws could result in substantial fines and imprisonment.

Payments made to physicians in certain European Union Member States must be publicly disclosed. Moreover, agreements with physicians often must be the subject of prior notification and approval by the physician's employer, his or her competent professional organization and/or the regulatory authorities of the individual European Union Member States. These requirements are provided in the national laws, industry codes or professional codes of conduct, applicable in the European Union Member States. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines or imprisonment.

The collection and use of personal health data in the European Union is governed by the provisions of the Data Protection Directive. This directive imposes several requirements relating to the consent of the individuals to whom the personal data relates, the information provided to the individuals, notification of data processing obligations to the competent national data protection authorities and the security and confidentiality of the personal data. The Data Protection Directive also imposes strict rules on the transfer of personal data out of the European Union to the United States. Failure to comply with the requirements of the Data Protection Directive and the related national data protection laws of the European Union Member States may result in fines and other administrative penalties. The draft Data Protection Regulation currently going through the adoption process is expected to introduce new data protection requirements in the European Union and substantial fines for breaches of the data protection rules. If the draft Data Protection Regulation is adopted in its current form it may increase our responsibility and liability in relation to personal data that we process and we may be required to put in place additional mechanisms ensuring compliance with the new data protection rules. This may be onerous and adversely affect our business, financial condition, results of operations and prospects.

Recently enacted and future legislation may increase the difficulty and cost for us and any future collaborators to obtain marketing approval of and commercialize our product candidates and affect the prices we, or they, may obtain.

In the United States and some foreign jurisdictions, there have been a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could, among other things, prevent or delay marketing approval of our product candidates, restrict or regulate post-approval activities and affect our ability, or the ability of any future collaborators, to profitably sell any products for which we, or they, obtain marketing approval. We expect that current laws, as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we, or any future collaborators, may receive for any approved products.

In the United States, the Medicare Prescription Drug, Improvement, and Modernization Act of 2003, or Medicare Modernization Act, changed the way Medicare covers and pays for pharmaceutical products. The legislation expanded Medicare coverage for drug purchases by the elderly and introduced a new reimbursement methodology based on average sales prices for physician administered drugs. In addition, this legislation provided authority for limiting the number of drugs that will be covered in any therapeutic class. Cost reduction initiatives and other provisions of this legislation could decrease the coverage and price that we receive for any approved products. While the Medicare Modernization Act applies only to drug benefits for Medicare beneficiaries, private payors often follow Medicare coverage policy and payment limitations in setting their own reimbursement rates. Therefore, any reduction in reimbursement that results from the Medicare Modernization Act may result in a similar reduction in payments from private payors.

In March 2010, then-President Obama signed into law the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively the ACA. Among the provisions of the ACA of importance to our business, including, without limitation, our ability to commercialize and the prices we may obtain for any of our product candidates and that are approved for sale, are the following:

- an annual, non-deductible fee on any entity that manufactures or imports specified branded prescription drugs and biologic products;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program;
- expansion of federal healthcare fraud and abuse laws, including the False Claims Act and the Anti-Kickback Statute, new government investigative powers and enhanced penalties for noncompliance;
- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts off negotiated prices;
- extension of manufacturers' Medicaid rebate liability;
- expansion of eligibility criteria for Medicaid programs;
- expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program;
- new requirements to report financial arrangements with physicians and teaching hospitals;
- a new requirement to annually report drug samples that manufacturers and distributors provide to physicians; and
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research.

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. In August 2011, the Budget Control Act of 2011, among other things, created measures for spending reductions by

Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. These changes included aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, which went into effect in April 2013 and will remain in effect through 2024 unless additional Congressional action is taken. The American Taxpayer Relief Act of 2012, among other things, reduced Medicare payments to several providers and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These new laws may result in additional reductions in Medicare and other healthcare funding and otherwise affect the prices we may obtain for any of our product candidates for which we may obtain regulatory approval or the frequency with which any such product candidate is prescribed or used.

With the new Administration and Congress, there may be additional legislative changes, including potentially repeal and replacement of certain provisions of the ACA. It remains to be seen, however, whether new legislation will be enacted and, if so, precisely what any new legislation will provide and what impact it will have on the availability of healthcare and containing or lowering the cost of healthcare. For example, it is possible that repeal and replacement initiatives, if enacted into law, could ultimately result in fewer individuals having health insurance coverage or in individuals having insurance coverage with less generous benefits. While the timing and scope of any potential future legislation to repeal and replace ACA provisions is highly uncertain in many respects, it is also possible that some of the ACA provisions that generally are not favorable for the research-based pharmaceutical industry could also be repealed along with ACA coverage expansion provisions.

Accordingly, such reforms, if enacted, could have an adverse effect on anticipated revenue from product candidates that we may successfully develop and for which we may obtain marketing approval and may affect our overall financial condition and ability to develop or commercialize product candidates. We expect that the ACA, as well as other healthcare reform measures that may be adopted in the future, may result in additional reductions in Medicare, Medicaid and other healthcare funding, more rigorous coverage criteria, new payment methodologies and additional downward pressure on the price that we receive for any approved product and/or the level of reimbursement physicians receive for administering any approved product we might bring to market. Reductions in reimbursement levels may negatively impact the prices we receive or the frequency with which our products are prescribed or administered. Any reduction in reimbursement from Medicare, Medicaid or other government programs may result in a similar reduction in payments from private payors.

The costs of prescription pharmaceuticals in the United States has also been the subject of considerable discussion in the United States, and members of Congress and the Administration have stated that they will address such costs through new legislative and administrative measures. The pricing of prescription pharmaceuticals is also subject to governmental control outside the United States. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of marketing approval for a product. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidates to other available therapies. If reimbursement of our products is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our ability to generate revenue and become profitable could be impaired.

We are subject to anti-corruption laws, as well as export control laws, customs laws, sanctions laws and other laws governing our operations. If we fail to comply with these laws, we could be subject to civil or criminal penalties, other remedial measures and legal expenses, which could adversely affect our business, results of operations and financial condition.

Our operations are subject to anti-corruption laws, including the Bribery Act, the FCPA and other anti-corruption laws that apply in countries where we do business and may do business in the future. The Bribery Act, FCPA and these other laws generally prohibit us, our officers and our employees and intermediaries from bribing, being bribed or making other prohibited payments to government officials or other persons to obtain or retain business or gain some other business advantage. We may in the future operate in jurisdictions that pose a

high risk of potential Bribery Act or FCPA violations, and we may participate in collaborations and relationships with third parties whose actions could potentially subject us to liability under the Bribery Act, FCPA or local anti-corruption laws. In addition, we cannot predict the nature, scope or effect of future regulatory requirements to which our international operations might be subject or the manner in which existing laws might be administered or interpreted.

We are also subject to other laws and regulations governing our international operations, including regulations administered by the governments of the United Kingdom and the United States, and authorities in the European Union, including applicable export control regulations, economic sanctions on countries and persons, customs requirements and currency exchange regulations, which we collectively refer to as Trade Control Laws.

There is no assurance that we will be completely effective in ensuring our compliance with all applicable anti-corruption laws, including the Bribery Act, the FCPA or other legal requirements, including Trade Control Laws. If we are not in compliance with the Bribery Act, the FCPA and other anti-corruption laws or Trade Control Laws, we may be subject to criminal and civil penalties, disgorgement and other sanctions and remedial measures, and legal expenses, which could have an adverse impact on our business, financial condition, results of operations and liquidity. Likewise, any investigation of any potential violations of the Bribery Act, the FCPA, other anti-corruption laws or Trade Control Laws by U.K., U.S. or other authorities could also have an adverse impact on our reputation, our business, results of operations and financial condition.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could significantly harm our business.

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. From time to time and in the future, our operations may involve the use of hazardous and flammable materials, including chemicals and biological materials, and may also produce hazardous waste products. Although we contract with third parties for the disposal of these materials and waste products, we cannot completely eliminate the risk of contamination or injury resulting from these materials. In the event of contamination or injury resulting from the use or disposal of our hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties for failure to comply with such laws and regulations.

We maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, but this insurance may not provide adequate coverage against potential liabilities. However, we do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us. In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. Current or future environmental laws and regulations may impair our research, development or production efforts, which could adversely affect our business, financial condition, results of operations or prospects. In addition, failure to comply with these laws and regulations may result in substantial fines, penalties or other sanctions.

Risks Related to this Offering and Ownership of Our Common Stock

After this offering, our executive officers, directors and principal stockholders will maintain the ability to control all matters submitted to stockholders for approval.

Assuming the sale by us of shares of common stock in this offering (or shares if the underwriters exercise their option to purchase additional shares to cover over-allotments in full) and based on the number of shares outstanding as of June 30, 2017, assuming the automatic conversion of all outstanding shares of our preferred stock into common stock upon the closing of this offering, our executive officers, directors and stockholders who owned more than 5% of our outstanding common stock before this offering will, in the

aggregate, beneficially own shares representing approximately % of our capital stock (or % if the underwriters exercise their option to purchase additional shares in full), not including any shares purchased by these stockholders in this offering. As a result, if these stockholders were to act together, they would be able to control all matters submitted to our stockholders for approval, as well as our management and affairs. For example, these persons, if they act together, would control the election of directors and approval of any merger, consolidation or sale of all or substantially all of our assets. This concentration of voting power could delay or prevent an acquisition of our company on terms that other stockholders may desire or result in management of our company that our public stockholders disagree with.

A significant portion of our total outstanding shares are restricted from immediate resale but may be sold into the market in the near future, which could cause the market price of our common stock to drop significantly, even if our business is performing well.

Sales of a substantial number of shares of our common stock in the public market could occur at any time, subject to certain restrictions described below. These sales, or the perception in the market that holders of a large number of shares intend to sell shares, could reduce the market price of our common stock. After this offering, we will have outstanding shares of common stock based on the number of shares outstanding as of June 30, 2017, assuming the automatic conversion of all outstanding shares of our preferred stock into common stock upon the closing of this offering (or shares if the underwriters exercise their option to purchase additional shares in full). Of the shares to be outstanding immediately after the closing of this offering, the shares sold in this offering (assuming the underwriters do not exercise their option to purchase additional shares) may be resold in the public market immediately without restriction, unless purchased by our affiliates. The remaining 24,720,621 shares currently are restricted as a result of securities laws or lock-up agreements but will be able to be sold after the offering as described in the "Shares Eligible for Future Sale" and "Underwriting" sections of this prospectus. Moreover, after this offering, holders of an aggregate of approximately 22,966,586 shares of our common stock (which includes shares held by certain of our principal investors and founders, shares issuable upon conversion of our preferred stock) will have rights, subject to certain conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. We intend to register all shares of common stock that we may issue under our equity compensation plans. Once we register these shares, they can be freely sold in the public market upon issuance, subject to volume limitations applicable to affiliates and the lock-up agreements described in the "Underwriting" section of this prospectus.

If you purchase shares of common stock in this offering, you will suffer immediate dilution of your investment.

The initial public offering price of our common stock will be substantially higher than the pro forma as adjusted net tangible book value per share of our common stock. Therefore, if you purchase shares of our common stock in this offering, you will pay a price per share that substantially exceeds our pro forma as adjusted net tangible book value per share after this offering. To the extent outstanding options or warrants are exercised, you will incur further dilution. Based on an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, you will experience immediate dilution of $ per share, representing the difference between our pro forma as adjusted net tangible book value per share after giving effect to this offering and the assumed initial public offering price. See "Dilution."

If securities analysts do not publish research or reports about our business or if they publish negative evaluations of our stock, the price of our stock could decline.

The trading market for our common stock will rely, in part, on the research and reports that industry or financial analysts publish about us or our business. We do not currently have, and may never obtain, research coverage by industry or financial analysts. If no, or few, analysts commence coverage of us, the trading price of our stock would likely decrease. Even if we do obtain analyst coverage, if one or more of the analysts covering

our business downgrade their evaluations of our stock, the price of our stock could decline. If one or more of these analysts cease to cover our stock, we could lose visibility in the market for our stock, which in turn could cause our stock price to decline.

The price of our common stock may be volatile and fluctuate substantially, which could result in substantial losses for purchasers of our common stock in this offering.

Our stock price is likely to be volatile. The stock market in general, and the market for biopharmaceutical companies in particular, has experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, you may not be able to sell your common stock at or above the initial public offering price. The market price for our common stock may be influenced by many factors, including:

- results of clinical trials of our product candidates or those of our competitors;
- the success of competitive products or technologies;
- commencement or termination of collaborations;
- regulatory or legal developments in the United States and other countries;
- developments or disputes concerning patent applications, issued patents or other proprietary rights;
- the recruitment or departure of key personnel;
- the level of expenses related to any of our product candidates or clinical development programs;
- the results of our efforts to discover, develop, acquire or in-license additional product candidates;
- actual or anticipated changes in estimates as to financial results, development timelines or recommendations by securities analysts;
- variations in our financial results or those of companies that are perceived to be similar to us;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors;
- general economic, industry and market conditions; and
- the other factors described in this “Risk Factors” section.

If any of the foregoing matters were to occur, or if our operating results fall below the expectations of investors or securities analysts, the price of our common stock could decline substantially. In the past, following periods of volatility in the market price of a company’s securities, securities class-action litigation often has been instituted against that company. Such litigation, if instituted against us, could cause us to incur substantial costs to defend such claims and divert management’s attention and resources, which could seriously harm our business, financial condition, results of operations and prospects.

An active trading market for our common stock may not develop.

Prior to this offering, there has been no public market for our common stock. The initial public offering price for our common stock will be determined through negotiations with the underwriters. Although we intend to apply to have our common stock listed on The NASDAQ Global Market, an active trading market for our shares may never develop or be sustained following this offering. If an active market for our common stock does not develop, it may be difficult for you to sell shares you purchase in this offering without depressing the market price for the shares, or at all.

If we commit certain material breaches under our agreement with the Gates Foundation, and fail to cure them, we may be required to redeem shares of our stock held by the Gates Foundation and its affiliates.

In the event the Gates Foundation terminates our agreement for certain specified uncured material breaches by us, we will be obligated, among other remedies, to redeem the then-held shares of our stock purchased by the Gates Foundation pursuant to the agreement or to facilitate the purchase of such stock by a third party. For any such redemption, the Gates Foundation stock will be valued at the greater of the original purchase price (plus specified interest) or the fair market value of such stock. If we are required to redeem such shares or to compensate the Gates Foundation, our financial condition could be materially and adversely affected.

We have broad discretion in the use of our cash and cash equivalents, including the net proceeds from this offering, and may not use them effectively.

Our management will have broad discretion in the application of our cash and cash equivalents, including the net proceeds from this offering, and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common stock. The failure by our management to apply these funds effectively could result in financial losses that could have a material adverse effect on our business, cause the price of our common stock to decline and delay the development of our product candidates. Pending their use, we may invest our cash and cash equivalents, including the net proceeds from this offering, in a manner that does not produce income or that loses value. See "Use of Proceeds."

We are an "emerging growth company," and the reduced disclosure requirements applicable to emerging growth companies may make our common stock less attractive to investors.

We are an "emerging growth company," or EGC, as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. We will remain an EGC until the earlier of: (i) the last day of the fiscal year in which we have total annual gross revenue of $1.07 billion or more; (ii) the last day of the fiscal year following the fifth anniversary of the date of the completion of this offering; (iii) the date on which we have issued more than $1 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the Securities and Exchange Commission, or the SEC, which means the first day of the year following the first year in which the market value of our common stock that is held by non-affiliates exceeds $700 million as of June 30. For so long as we remain an EGC, we are permitted and intend to rely on exemptions from certain disclosure requirements that are applicable to other public companies that are not emerging growth companies. These exemptions include:

- being permitted to provide only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure in this prospectus;
- not being required to comply with the auditor attestation requirements in the assessment of our internal control over financial reporting;
- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements;
- reduced disclosure obligations regarding executive compensation; and
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and shareholder approval of any golden parachute payments not previously approved.

We may choose to take advantage of some, but not all, of the available exemptions. We have taken advantage of reduced reporting requirements in this prospectus. In particular, we have not included all of the executive compensation information that would be required if we were not an EGC and we have presented only two years of audited financial statements and correspondingly reduced "Management's Discussion and Analysis

of Financial Condition and Results of Operations" disclosure. We cannot predict whether investors will find our common stock less attractive if we rely on certain or all of these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

In addition, the JOBS Act provides that an EGC may take advantage of an extended transition period for complying with new or revised accounting standards. This allows an EGC to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected not to avail ourselves of this exemption from new or revised accounting standards and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

We will incur increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives.

As a public company, and particularly after we are no longer an EGC, we will incur significant legal, accounting and other expenses that we did not incur as a private company. In addition, the Sarbanes-Oxley Act of 2002 and rules subsequently implemented by the SEC and The NASDAQ Stock Market have imposed various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Our management and other personnel will need to devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations will increase our legal and financial compliance costs and will make some activities more time-consuming and costly. For example, we expect that these rules and regulations may make it more difficult and more expensive for us to obtain director and officer liability insurance.

If we fail to maintain an effective system of internal control over financial reporting, we may not be able to accurately report our financial results or prevent fraud. As a result, stockholders could lose confidence in our financial and other public reporting, which would harm our business and the trading price of our common stock.

Effective internal control over financial reporting is necessary for us to provide reliable financial reports and, together with adequate disclosure controls and procedures, is designed to prevent fraud. Any failure to implement required new or improved controls, or difficulties encountered in their implementation could cause us to fail to meet our reporting obligations. In addition, any testing by us, as and when required, conducted in connection with Section 404 of the Sarbanes-Oxley Act, or Section 404, or any subsequent testing by our independent registered public accounting firm, as and when required, may reveal deficiencies in our internal control over financial reporting that are deemed to be significant deficiencies or material weaknesses or that may require prospective or retroactive changes to our financial statements or identify other areas for further attention or improvement. Inferior internal controls could also cause investors to lose confidence in our reported financial information, which could have a negative effect on the trading price of our common stock.

Pursuant to Section 404, we will be required to furnish a report by our management on our internal control over financial reporting, including an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. However, while we remain an EGC, we will not be required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. To achieve compliance with Section 404 within the prescribed period, we will be engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, potentially engage outside consultants and adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that neither we nor our independent registered public

accounting firm will be able to conclude within the prescribed timeframe that our internal control over financial reporting is effective as required by Section 404. This could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements.

Provisions in our corporate charter documents and under Delaware law could make an acquisition of us, which may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our corporate charter and our by-laws that will become effective upon the closing of this offering may discourage, delay or prevent a merger, acquisition or other change in control of us that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares. These provisions also could limit the price that investors might be willing to pay in the future for shares of our common stock, thereby depressing the market price of our common stock. In addition, because our board of directors is responsible for appointing the members of our management team, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors. Among other things, these provisions:

- establish a classified board of directors such that not all members of the board are elected at one time;
- allow the authorized number of our directors to be changed only by resolution of our board of directors;
- limit the manner in which stockholders can remove directors from the board;
- establish advance notice requirements for stockholder proposals that can be acted on at stockholder meetings and nominations to our board of directors;
- require that stockholder actions must be effected at a duly called stockholder meeting and prohibit actions by our stockholders by written consent;
- limit who may call stockholder meetings;
- authorize our board of directors to issue preferred stock without stockholder approval, which could be used to institute a shareholder rights plan, or so-called “poison pill,” that would work to dilute the stock ownership of a potential hostile acquirer, effectively preventing acquisitions that have not been approved by our board of directors; and
- require the approval of the holders of at least 75% of the votes that all our stockholders would be entitled to cast to amend or repeal certain provisions of our charter or by-laws.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner.

Our certificate of incorporation will provide that the Court of Chancery of the State of Delaware will be the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders’ ability to obtain a favorable judicial forum for disputes with us or our directors, officers, employees or stockholders.

Our certificate of incorporation, which will be effective upon the closing of this offering, will provide that the Court of Chancery of the State of Delaware is the exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a breach of fiduciary duty owed by our directors, officers, other employees or stockholders to the company or our stockholders, any action asserting a claim against us arising pursuant to the Delaware General Corporation Law or as to which the Delaware General Corporation Law confers jurisdiction on the Court of Chancery of the State of Delaware, or any action asserting a claim arising

pursuant to our certificate of incorporation or our by-laws or governed by the internal affairs doctrine. This provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, other employees or other stockholders, which may discourage such lawsuits against us and our directors, officers, other employees or other stockholders. Alternatively, if a court were to find this provision in our certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition.

Because we do not anticipate paying any cash dividends on our capital stock in the foreseeable future, capital appreciation, if any, will be your sole source of gain.

We have never declared or paid cash dividends on our capital stock. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. In addition, our ability to pay cash dividends is currently restricted by the terms of our loan and security agreement with SVB and may be restricted by any future indebtedness. Our ability to pay cash dividends may also, under certain circumstances, be limited under the terms of a letter agreement we have entered into with the Gates Foundation. As a result, capital appreciation, if any, of our common stock will be your sole source of gain for the foreseeable future, and investors seeking cash dividends should not purchase shares of our common stock.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS AND INDUSTRY DATA

This prospectus contains forward-looking statements that involve substantial risks and uncertainties. All statements, other than statements of historical fact, contained in this prospectus, including statements regarding our strategy, future operations, future financial position, future revenue, projected costs, prospects, plans and objectives of management, are forward-looking statements. The words "anticipate," "believe," "continue" "could," "estimate," "expect," "intend," "may," "might," "plan," "potential," "predict," "project," "should," "target," "would," and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

The forward-looking statements in this prospectus include, among other things, statements about:

- our ongoing clinical trials, including our Phase 2 clinical trial of ASN100 for the prevention of *S. aureus* in high-risk, mechanically ventilated patients;
- the initiation, timing, progress and results of our current and future preclinical studies and clinical trials and our research and development programs;
- our estimates regarding expenses, future revenue, capital requirements and need for additional financing;
- our plans to develop and, if approved, subsequently commercialize ASN100 and any other product candidates;
- the timing of and our ability to submit applications for, obtain and maintain regulatory approvals for ASN100 and other product candidates;
- our expectations regarding our ability to fund our operating expenses, capital expenditure requirements and debt service payments with our cash and proceeds from this offering;
- the potential advantages of our product candidates;
- the rate and degree of market acceptance and clinical utility of our products;
- our estimates regarding the potential market opportunity for our product candidates;
- our commercialization, marketing and manufacturing capabilities and strategy;
- our expectations regarding our ability to obtain and maintain intellectual property protection for our product candidates;
- our ability to identify additional products, product candidates or technologies with significant commercial potential that are consistent with our commercial objectives;
- our expectations related to the use of proceeds from this offering;
- the impact of government laws and regulations;
- our competitive position;
- developments relating to our competitors and our industry;
- our ability to establish collaborations or obtain additional funding; and
- our expectations regarding the time during which we will be an emerging growth company under the JOBS Act.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. We have included important factors in the cautionary statements included in this prospectus, particularly in the "Risk Factors" section, that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make.

You should read this prospectus and the documents that we reference in this prospectus and have filed as exhibits to the registration statement of which this prospectus is a part completely and with the understanding that our actual future results may be materially different from what we expect. The forward-looking statements contained in this prospectus are made as of the date of this prospectus, and we do not assume any obligation to update any forward-looking statements except as required by applicable law.

This prospectus includes statistical and other industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties as well as our own estimates of potential market opportunities. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. Our estimates of the potential market opportunities for our product candidates include several key assumptions based on our industry knowledge, industry publications, third-party research and other surveys, which may be based on a small sample size and may fail to accurately reflect market opportunities. While we believe that our internal assumptions are reasonable, no independent source has verified such assumptions.

USE OF PROCEEDS

We estimate that the net proceeds from our issuance and sale of shares of our common stock in this offering will be approximately $ million, assuming an initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. If the underwriters exercise their option to purchase additional shares of our common stock in full, we estimate that the net proceeds from this offering will be approximately $ million.

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the net proceeds to us from this offering by approximately $ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. An increase (decrease) of 1,000,000 shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase (decrease) the net proceeds to us from this offering by approximately $ million, assuming no change in the assumed initial public offering price per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

As of March 31, 2017, we had cash of $2.3 million, and we raised an additional $35.1 million in gross proceeds from the sale of our Series D convertible preferred stock in April 2017. We currently estimate that we will use the net proceeds from this offering, together with our existing cash, as follows:

- approximately $ million to fund the development of ASN100 for the prevention of *S. aureus* pneumonia in mechanically ventilated patients;
- approximately $ million to fund the development of ASN100 for other indications;
- approximately $ million to advance our current pipeline of preclinical candidates and to research and develop additional preclinical product candidates; and
- the remainder for working capital and other general corporate purposes.

This expected use of net proceeds from this offering and our existing cash represents our intentions based upon our current plans and business conditions, which could change in the future as our plans and business conditions evolve. The amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including the progress of our development, the status of and results from clinical trials, the timing of regulatory submissions and the outcome of regulatory review, as well as any collaborations that we may enter into with third parties for our product candidates, and any unforeseen cash needs. As a result, our management will retain broad discretion over the allocation of the net proceeds from this offering.

We believe that the anticipated net proceeds from this offering, together with our existing cash, will enable us to fund our operating expenses, capital expenditure requirements and debt service payments through , including the completion of our ongoing Phase 2 clinical trial of ASN100 and initiation of a subsequent pivotal Phase 3 clinical trial, assuming a successful outcome in our Phase 2 clinical trial. We expect that we will require additional funding to complete the clinical development of ASN100, commercialize ASN100, if we receive regulatory approval, and pursue in-licenses or acquisitions of other product candidates, if any. If we receive regulatory approval for ASN100 or other product candidates, we expect to incur significant commercialization expenses related to product manufacturing, sales, marketing and distribution, depending on where we choose to commercialize ASN100 ourselves.

Pending our use of the net proceeds from this offering, we intend to invest the net proceeds in a variety of capital preservation investments, including short-term, investment-grade, interest-bearing instruments and U.S. government securities.

DIVIDEND POLICY

We have never declared or paid cash dividends on our common stock. We currently intend to retain all available funds and any future earnings to fund the development and expansion of our business and we do not anticipate paying any cash dividends in the foreseeable future. In addition, our ability to pay cash dividends is currently restricted by the terms of our loan and security agreement with Silicon Valley Bank, and future debt or other financing arrangements may contain terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. Our ability to pay cash dividends may also, under certain circumstances, be limited under the terms of a letter agreement we have entered into with the Bill & Melinda Gates Foundation. Any future determination to declare and pay dividends will be made at the discretion of our board of directors and will depend on then-existing conditions, including our results of operations, financial condition, contractual restrictions, capital requirements, business prospects and other factors our board of directors may deem relevant.

CAPITALIZATION

The following table sets forth our cash and our capitalization as of March 31, 2017:

- on an actual basis;
- on a pro forma basis to give effect to:
  - our issuance and sale in April 2017 of an aggregate of 14,220,284 shares of Series D convertible preferred stock for aggregate consideration consisting of $35.1 million in cash and the conversion of an aggregate of $10.5 million of principal and interest outstanding under convertible promissory notes;
  - the automatic conversion of all outstanding shares of our preferred stock, including the shares of Series D convertible preferred stock that we issued and sold in April 2017, into an aggregate of 22,966,586 shares of common stock upon closing of this offering;
  - all outstanding warrants to purchase shares of our preferred stock becoming warrants to purchase 35,549 shares of our common stock upon closing of this offering; and
  - the filing and effectiveness of our amended and restated certificate of incorporation upon closing of this offering; and
- on a pro forma as adjusted basis to give further effect to our issuance and sale of shares of our common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The pro forma and pro forma as adjusted information below is illustrative only, and our capitalization following the closing of this offering will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing. You should read this information together with our consolidated financial statements and related notes appearing at the end of this prospectus and the information set forth under the headings "Selected Consolidated Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations."

	As of March 31, 2017		
	Actual	Pro Forma	Pro Forma As Adjusted
	(in thousands, except share and per share data)		
Cash	$ 2,282	$ 37,335	$
Convertible promissory note, net of discount	$ 8,150	$ —	$
Loans payable, net of discount, including current portion	12,049	12,049	
Warrant liability	47	—	
Derivative liability	2,234	—	
Redeemable convertible preferred stock (Series A-1, A-2, B and C), $0.001 par value; 6,711,755 shares authorized, 6,108,312 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	39,845	—	
Stockholders' equity (deficit):			
Preferred stock, $0.001 par value; no shares authorized, issued or outstanding, actual; 10,000,000 shares authorized and no shares issued or outstanding, pro forma and pro forma as adjusted	—	—	
Common stock, $0.001 par value; 10,000,000 shares authorized, 1,754,035 shares issued and outstanding, actual; 200,000,000 shares authorized, 24,720,621 shares issued and outstanding, pro forma; 200,000,000 shares authorized, shares issued and outstanding, pro forma as adjusted	2	25	
Additional paid-in capital	1,165	86,429	
Accumulated other comprehensive loss	752	752	
Accumulated deficit	(63,773)	(63,773)	
Total stockholders' equity (deficit)	(61,854)	23,433	
Total capitalization	$ 471	$ 35,482	$

Our capitalization following the closing of this offering will depend on the actual initial public offering price and other terms of this offering determined at pricing. A $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted amount of each of cash, additional paid-in capital, total stockholders' equity and total capitalization by $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. An increase (decrease) of 1,000,000 shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted amount of each of cash, additional paid-in capital, total stockholders' equity and total capitalization by $ million, assuming no change in the assumed initial public offering price per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The table above is based on the number of shares of common stock outstanding as of March 31, 2017, and excludes:

- 1,858,244 shares of common stock issuable upon exercise of stock options outstanding as of March 31, 2017, at a weighted average exercise price of $2.21 per share;
- 2,245,450 shares of common stock issuable upon exercise of stock options granted subsequent to March 31, 2017, at an exercise price of $1.17 per share;
- 130,256 shares of common stock available for future issuance under our 2011 Stock Incentive Plan, as amended, or the 2011 Plan, and 7,465 shares of common stock available for future issuance under our 2010 Special Stock Incentive Plan, as amended, in each case as of March 31, 2017;
- 438,170 shares of common stock authorized for future issuance under the 2011 Plan subsequent to March 31, 2017 that remain available for future issuance under the 2011 Plan;
- additional shares of our common stock that will become available under our 2017 Stock Incentive Plan in connection with this offering;
- additional shares of our common stock that will become available under our 2017 Employee Stock Purchase Plan in connection with this offering; and
- 35,549 shares of common stock issuable following the closing of this offering upon the exercise of outstanding warrants as of March 31, 2017, at a weighted average exercise price of $4.36 per share.

DILUTION

If you invest in our common stock in this offering, your ownership interest will be diluted immediately to the extent of the difference between the initial public offering price per share of our common stock and the pro forma as adjusted net tangible book value per share of our common stock immediately after this offering.

Our historical net tangible book value (deficit) as of March 31, 2017 was $(61.9) million, or $(35.29) per share of our common stock. Our historical net tangible book value (deficit) is the amount of our total tangible assets less our total liabilities and the carrying value of our preferred stock, which is not included within stockholders' equity (deficit). Historical net tangible book value (deficit) per share represents historical net tangible book value (deficit) divided by the 1,754,035 shares of our common stock outstanding as of March 31, 2017.

Our pro forma net tangible book value as of March 31, 2017 was $23.4 million, or $0.95 per share of our common stock. Pro forma net tangible book value represents the amount of our total tangible assets less our total liabilities, after giving effect to (i) our issuance and sale in April 2017 of an aggregate of 14,220,284 shares of Series D convertible preferred stock for aggregate consideration consisting of $35.1 million in cash and the conversion of an aggregate of $10.5 million of principal and interest outstanding under convertible promissory notes; (ii) the automatic conversion of all outstanding shares of our preferred stock, including the shares of Series D convertible preferred stock that we issued and sold in April 2017, into an aggregate of 22,966,586 shares of common stock upon closing of this offering; and (iii) all outstanding warrants to purchase shares of our preferred stock becoming warrants to purchase 35,549 shares of our common stock upon closing of this offering. Pro forma net tangible book value per share represents pro forma net tangible book value divided by the total number of shares outstanding as of March 31, 2017, after giving effect to the pro forma adjustments described above.

After giving further effect to our issuance and sale of shares of our common stock in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of March 31, 2017 would have been $ million, or $ per share. This represents an immediate increase in pro forma as adjusted net tangible book value per share of $ to existing stockholders and immediate dilution in pro forma as adjusted net tangible book value per share of $ to new investors purchasing common stock in this offering. Dilution per share to new investors is determined by subtracting pro forma as adjusted net tangible book value per share after this offering from the assumed initial public offering price per share paid by new investors. The following table illustrates this dilution on a per share basis:

Assumed initial public offering price per share		$
Historical net tangible book value (deficit) per share as of March 31, 2017	$(35.29)	
Increase per share attributable to the pro forma adjustments described above	36.24	
Pro forma net tangible book value per share as of March 31, 2017	0.95	
Increase in pro forma net tangible book value per share attributable to new investors purchasing common stock in this offering		
Pro forma as adjusted net tangible book value per share after this offering		
Dilution per share to new investors purchasing common stock in this offering		$

The dilution information discussed above is illustrative only and will change based on the actual initial public offering price and other terms of this offering determined at pricing. A $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) our pro forma as adjusted net tangible book value per share after this offering by $ and dilution per share to new investors purchasing common stock in this

offering by $, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. An increase of 1,000,000 shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase the pro forma as adjusted net tangible book value per share after this offering by $ and decrease the dilution per share to new investors purchasing common stock in this offering by $, assuming no change in the assumed initial public offering price per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. A decrease of 1,000,000 shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would decrease the pro forma as adjusted net tangible book value per share after this offering by $ and increase the dilution per share to new investors purchasing common stock in this offering by $, assuming no change in the assumed initial public offering price and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

If the underwriters exercise their option to purchase additional shares in full, our pro forma as adjusted net tangible book value per share after this offering would be $, representing an immediate increase in pro forma as adjusted net tangible book value per share of $ to existing stockholders and immediate dilution in pro forma as adjusted net tangible book value per share of $ to new investors purchasing common stock in this offering, assuming an initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus.

The following table summarizes, as of March 31, 2017, on the pro forma as adjusted basis described above, the total number of shares of common stock purchased from us on an as converted to common stock basis, the total consideration paid or to be paid, and the average price per share paid or to be paid by existing stockholders and by new investors in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, before deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. As the table shows, new investors purchasing common stock in this offering will pay an average price per share substantially higher than our existing stockholders paid.

	Shares Purchased		Total Consideration		Average Price Per Share
	Number	Percent	Amount	Percent	
	(in thousands, except share and per share amounts)				
Existing stockholders	24,720,621	%	$85,076,925	%	$ 3.44
New investors					$
Total		100.0%	$	100.0%	

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the total consideration paid by new investors by $ million and, in the case of an increase, would increase the percentage of total consideration paid by new investors by percentage points and, in the case of a decrease, would decrease the percentage of total consideration paid by new investors by percentage points, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same. An increase (decrease) of 1,000,000 shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase (decrease) the total consideration paid by new investors by $ million and, in the case of an increase, would increase the percentage of total consideration paid by new investors by percentage points and, in the case of a decrease, would decrease the percentage of total consideration paid by new investors by percentage points, assuming no change in the assumed initial public offering price per share.

The table above assumes no exercise of the underwriters' option to purchase additional shares in this offering. If the underwriters' exercise their option to purchase additional shares in full, the number of shares of

our common stock held by existing stockholders would be reduced to % of the total number of shares of our common stock outstanding after this offering, and the number of shares of common stock held by new investors participating in the offering would be increased to % of the total number of shares of our common stock outstanding after this offering.

The discussion and tables above are based on the number of shares of our common stock outstanding as of March 31, 2017, and exclude:

- 1,858,244 shares of common stock issuable upon exercise of stock options outstanding as of March 31, 2017, at a weighted average exercise price of $2.21 per share;
- 2,245,450 shares of common stock issuable upon exercise of stock options granted subsequent to March 31, 2017, at an exercise price of $1.17 per share;
- 130,256 shares of common stock available for future issuance under our 2011 Stock Incentive Plan, as amended, or the 2011 Plan, and 7,465 shares of common stock available for issuance under our 2010 Special Stock Incentive Plan, as amended, in each case as of March 31, 2017;
- 438,170 shares of common stock authorized for future issuance in connection with this offering under the 2011 Plan subsequent to March 31, 2017 that remain available for future issuance under the 2011 Plan;
- additional shares of our common stock that will become available under our 2017 Stock Incentive Plan in connection with this offering;
- additional shares of our common stock that will become available under our 2017 Employee Stock Purchase Plan in connection with this offering; and
- 35,549 shares of common stock issuable following the closing of this offering upon the exercise of outstanding warrants as of March 31, 2017, at a weighted average exercise price of $4.36 per share.

To the extent that stock options are exercised, new stock options are issued under our equity incentive plans, or we issue additional shares of common stock in the future, there will be further dilution to investors participating in this offering. In addition, we may choose to raise additional capital because of market conditions or strategic considerations, even if we believe that we have sufficient funds for our current or future operating plans. If we raise additional capital through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

SELECTED CONSOLIDATED FINANCIAL DATA

You should read the following selected consolidated financial data together with our consolidated financial statements and the related notes appearing at the end of this prospectus and the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of this prospectus. We have derived the consolidated statement of operations data for the years ended December 31, 2015 and 2016 and the consolidated balance sheet data as of December 31, 2015 and 2016 from our audited consolidated financial statements appearing at the end of this prospectus. The consolidated statement of operations data for the three months ended March 31, 2016 and 2017 and the consolidated balance sheet data as of March 31, 2017 have been derived from our unaudited consolidated financial statements appearing at the end of this prospectus and have been prepared on the same basis as the audited consolidated financial statements. In the opinion of management, the unaudited data reflects all adjustments, consisting only of normal recurring adjustments, necessary for a fair statement of the financial information in those statements. Our historical results are not necessarily indicative of results that may be expected in any future period, and our results for any interim period are not necessarily indicative of results that may be expected for any full year.

	Year Ended December 31,		Three Months Ended March 31,	
	2015	2016	2016	2017
	(in thousands, except per share amounts)			
Consolidated Statement of Operations Data:				
Operating expenses:				
Research and development	$ 12,706	$ 17,831	$ 2,529	$ 4,391
General and administrative	2,119	6,515	1,340	1,436
Total operating expenses	14,825	24,346	3,869	5,827
Loss from operations	(14,825)	(24,346)	(3,869)	(5,827)
Other income (expense):				
Grant and incentive income	2,155	2,390	762	700
Interest expense	(472)	(2,515)	(511)	(1,019)
Change in fair value of warrant liability	1	39	—	—
Change in fair value of derivative liability	—	1,388	52	762
Loss on extinguishment of debt	—	(35)	—	—
Other income (expense), net	(77)	104	66	(1)
Total other income, net	1,607	1,371	369	442
Net loss	(13,218)	(22,975)	(3,500)	(5,385)
Accretion of redeemable convertible preferred stock to redemption value	(19)	(25)	(5)	(7)
Net loss attributable to common stockholders	$(13,237)	$(23,000)	$(3,505)	$(5,392)
Net loss per share attributable to common stockholders—basic and diluted[(1)]	$ (7.62)	$ (13.12)	$ (2.00)	$ (3.07)
Weighted average common shares outstanding—basic and diluted[(1)]	1,736	1,753	1,750	1,754
Pro forma net loss per share attributable to common stockholders—basic and diluted (unaudited)[(1)]		$ (3.04)		$ (0.69)
Pro forma weighted average common shares outstanding—basic and diluted (unaudited)[(1)]		7,571		7,862

(1) See Note 15 to our consolidated financial statements appearing at the end of this prospectus for further details on the calculation of basic and diluted net loss per share attributable to common stockholders and on the calculation of pro forma basic and diluted net loss per share attributable to common stockholders.

	As of December 31,		As of March 31,
	2015	2016	2017
	(in thousands)		
Consolidated Balance Sheet Data:			
Cash	$ 6,759	$ 3,035	$ 2,282
Working capital (deficit)[1]	1,710	(6,344)	(12,136)
Total assets	9,510	7,604	10,975
Convertible promissory notes, net of discount	2,240	2,863	8,150
Loans payable, net of discount, including current portion	4,954	12,426	12,049
Warrant liability	26	47	47
Derivative liability	1,793	2,593	2,234
Redeemable convertible preferred stock	29,948	39,838	39,845
Total stockholders' deficit	(34,322)	(56,562)	(61,854)

(1) We define working capital (deficit) as current assets less current liabilities.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations together with our consolidated financial statements and the related notes and the other financial information included elsewhere in this prospectus. Some of the information contained in this discussion and analysis or set forth elsewhere in this prospectus, including information with respect to our plans and strategy for our business and related financing, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the "Risk Factors" section of this prospectus, our actual results could differ materially from the results described in or implied by these forward-looking statements.

Overview

We are a clinical-stage biopharmaceutical company focused on applying monoclonal antibody immunotherapies to address serious infectious diseases. We believe that our monoclonal antibodies, or mAbs, offer a novel approach to address serious infections. Unlike antibiotics that propagate resistance, disrupt both disease-causing and beneficial bacteria and have adverse off-target effects, mAbs have the ability to precisely bind only to the intended target, thereby avoiding these undesired consequences. Our lead product candidate, ASN100, is a first-in-class mAb therapeutic in Phase 2 clinical development for the prevention of *Staphylococcus aureus* pneumonia in high-risk, mechanically ventilated patients, a potentially life-threatening and costly infection for which there are no approved preventive therapies. In addition to ASN100, our preclinical pipeline is comprised of mAbs targeting multiple serious bacterial and viral pathogens, including respiratory syncytial virus, or RSV.

Since our inception in 2010, we have devoted substantially all of our resources to organizing and staffing our company, business planning, raising capital, acquiring or discovering product candidates and securing related intellectual property rights, conducting discovery, research and development activities for our programs and planning for potential commercialization. We do not have any products approved for sale and have not generated any revenue from product sales.

Since our inception, we have received significant proceeds from outside sources to fund our operations. We have funded our operations through March 31, 2017 primarily with proceeds from the following sources:

- net cash proceeds of $35.3 million from sales of our preferred stock;
- gross proceeds of $14.4 million from borrowings under convertible promissory notes;
- proceeds of $9.5 million from borrowings under a loan and security agreement with Silicon Valley Bank, or SVB, which, as amended, we refer to as the 2012 Loan Agreement;
- proceeds of $9.0 million and $8.2 million of grant and loan proceeds, respectively, from our funding agreements with Österreichische Forschungsförderungsgesellschaft mbH, or FFG;
- proceeds of $3.0 million of research and development incentive payments received from the Austrian government; and
- proceeds of $1.6 million from a grant agreement with the Bill & Melinda Gates Foundation, or the Gates Foundation.

In April 2017, we received gross cash proceeds of $35.1 million from the sale of our Series D convertible preferred stock.

Since our inception, we have incurred significant operating losses. Our ability to generate product revenue sufficient to achieve profitability will depend heavily on the successful development and eventual commercialization of one or more of our current or future product candidates and programs. Our net losses were $13.2 million and

$23.0 million for the years ended December 31, 2015 and 2016, respectively, and were $3.5 million and $5.4 million for the three months ended March 31, 2016 and 2017, respectively. As of March 31, 2017, we had an accumulated deficit of $63.8 million. We expect to continue to incur significant expenses for at least the next several years as we advance our product candidates from discovery through preclinical development and clinical trials and seek regulatory approval of our product candidates. In addition, if we obtain marketing approval for any of our product candidates, we expect to incur significant commercialization expenses related to product manufacturing, marketing, sales and distribution. We may also incur expenses in connection with the in-licensing or acquisition of additional product candidates. Furthermore, upon the closing of this offering, we expect to incur additional costs associated with operating as a public company, including significant legal, accounting, investor relations and other expenses that we did not incur as a private company.

As a result, we will need substantial additional funding to support our continuing operations and pursue our growth strategy. Until such time as we can generate significant revenue from product sales, if ever, we expect to finance our operations with proceeds from outside sources, with a majority of such proceeds to be derived from sales of equity, including the anticipated net proceeds from this offering. We also plan to pursue additional funding from outside sources, including proceeds from our existing grant and potential future grant agreements with the Gates Foundation; our expansion of, or our entry into, new borrowing arrangements; grants and loans under our existing funding agreements with FFG; research and development incentive payments from the Austrian government; and our entry into potential future collaboration agreements for one or more of our programs. We may be unable to raise additional funds or enter into such other agreements or arrangements when needed on favorable terms, or at all. If we fail to raise capital or enter into such agreements as, and when, needed, we may have to significantly delay, scale back or discontinue the development and commercialization of one or more of our product candidates or delay our pursuit of potential in-licenses or acquisitions.

Because of the numerous risks and uncertainties associated with product development, we are unable to predict the timing or amount of increased expenses or when or if we will be able to achieve or maintain profitability. Even if we are able to generate product sales, we may not become profitable. If we fail to become profitable or are unable to sustain profitability on a continuing basis, then we may be unable to continue our operations at planned levels and be forced to reduce or terminate our operations.

As of March 31, 2017, we had cash of $2.3 million. In April 2017, we received gross cash proceeds of $35.1 million from the sale of our Series D convertible preferred stock. We believe that the anticipated net proceeds from this offering, together with our existing cash, will enable us to fund our operating expenses, capital expenditure requirements and debt service payments through . We have based this estimate on assumptions that may prove to be wrong, and we could exhaust our available capital resources sooner than we expect. See "—Liquidity and Capital Resources."

Without giving effect to the anticipated net proceeds from this offering, we expect that our existing cash will be sufficient to fund our operating expenses, capital expenditure requirements and debt service payments through April 30, 2018. To finance our operations beyond that point, we will need to raise additional capital, which cannot be assured. We have concluded that this circumstance raises substantial doubt about our ability to continue as a going concern within one year after the August 10, 2017 issuance date of our financial statements for the year ended December 31, 2016. See Note 1 to our consolidated financial statements appearing at the end of this prospectus for additional information on our assessment.

Similarly, in its report on our financial statements for the year ended December 31, 2016, our independent registered public accounting firm included an explanatory paragraph stating that our recurring losses from operations since inception and required additional funding to finance our operations raise substantial doubt about our ability to continue as a going concern.

Components of Our Results of Operations

Revenue

To date, we have not generated any revenue from any sources, including from product sales, and we do not expect to generate any revenue from the sale of products in the near future. If our development efforts for our product candidates are successful and result in regulatory approval or license agreements with third parties, we may generate revenue in the future from product sales.

We recognize proceeds received from grants under our funding agreements with FFG, our research and development incentives from the Austrian government and our grant agreement with the Gates Foundation as other income, rather than as revenue. See "—Critical Accounting Policies and Significant Judgments and Estimates—Government Contracts, Grant Agreements and Incentive Programs."

Operating Expenses

Research and Development Expenses. Research and development expenses consist primarily of costs incurred in connection with the discovery and development of our product candidates. We expense research and development costs as incurred. These expenses include:

- expenses incurred under agreements with contract research organizations, or CROs, that are primarily engaged in the oversight and conduct of our clinical trials; contract manufacturing organizations, or CMOs, that are primarily engaged to provide preclinical and clinical drug substance and product for our research and development programs, as well as investigative sites and consultants that conduct our clinical trials, preclinical studies and other scientific development services;
- the cost of acquiring and manufacturing preclinical and clinical trial materials, including manufacturing validation batches;
- employee-related expenses, including salaries and benefits, travel and stock-based compensation expense for employees engaged in research and development functions;
- costs related to compliance with regulatory requirements;
- facilities-related expenses, which include direct depreciation costs and allocated rent and maintenance of facilities and other operating costs; and
- payments made under third-party licensing or option agreements.

We recognize external development costs based on an evaluation of the progress to completion of specific tasks using information provided to us by our service providers. Nonrefundable advance payments for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses. Such amounts are recognized as an expense as the goods are delivered or the related services are performed, or until it is no longer expected that the goods will be delivered or the services rendered.

Our direct research and development expenses are tracked on a program-by-program basis for our product candidates and consist primarily of external costs, such as fees paid to outside consultants, CROs, CMOs and central laboratories in connection with our preclinical development, process development, manufacturing and clinical development activities. Our direct research and development expenses by program also include fees incurred under license or option agreements. We do not allocate employee costs or facility expenses, including depreciation or other indirect costs, to specific programs because these costs are deployed across multiple programs and, as such, are not separately classified. We use internal resources primarily to conduct our research and discovery as well as for managing our preclinical development, process development, manufacturing and clinical development activities. These employees work across multiple programs and, therefore, we do not track their costs by program.

The table below summarizes our research and development expenses incurred by program:

	Year Ended December 31,		Three Months Ended March 31,	
	2015	2016	2016	2017
	(in thousands)			
ASN100	$ 5,846	$ 9,722	$ 551	$ 2,482
ASN200	—	138	11	7
ASN300	333	59	18	2
ASN400	807	166	140	17
ASN500	—	3	—	28
Unallocated research and development expenses	5,720	7,743	1,809	1,855
Total research and development expenses	$12,706	$17,831	$ 2,529	$ 4,391

Research and development activities are central to our business model. Product candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later-stage clinical trials. As a result, we expect that our research and development expenses will increase substantially over the next several years as we increase personnel costs, including stock-based compensation, continue our ongoing Phase 2 clinical trial of ASN100, seek to advance one or more additional product candidates, advance our preclinical programs and prepare regulatory filings for our product candidates.

The successful development and commercialization of our product candidates is highly uncertain. At this time, we cannot reasonably estimate or know the nature, timing and costs of the efforts that will be necessary to complete the preclinical and clinical development of any of our product candidates or when, if ever, material net cash inflows may commence from any of our product candidates. This uncertainty is due to the numerous risks and uncertainties associated with product development and commercialization, including the uncertainty of:

- successful enrollment and completion of clinical trials;
- a safety, tolerability and efficacy profile that is satisfactory to the U.S. Food and Drug Administration, or FDA, or any non-U.S. regulatory authority for marketing approval;
- timely receipt of marketing approvals from applicable regulatory authorities;
- the performance of our future collaborators, if any;
- the extent of any required post-marketing approval commitments to applicable regulatory authorities;
- establishment and maintenance of arrangements with third-party manufacturers for both clinical and any future commercial manufacturing;
- adequate ongoing availability of raw materials and drug product for clinical development and any commercial sales;
- obtaining and maintaining patent, trade secret protection and regulatory exclusivity, both in the United States and internationally;
- protection of our rights in our intellectual property portfolio;
- successful launch of commercial sales following any marketing approval;
- a continued acceptable safety profile following any marketing approval;
- commercial acceptance by the patient community, the medical community and third-party payors; and
- our ability to compete with other therapies.

We may never succeed in achieving regulatory approval for any of our product candidates. We may obtain unexpected results from our clinical trials. We may elect to discontinue, delay or modify clinical trials of some product candidates or focus on others. Any changes in the outcome of any of these variables with respect to the development of our product candidates in preclinical and clinical development could mean a significant change in the costs and timing associated with the development of these product candidates. For example, if the FDA or another regulatory authority were to delay our planned start of clinical trials or require us to conduct clinical trials or other testing beyond those that we currently expect or if we experience significant delays in enrollment in any of our planned clinical trials, we could be required to expend significant additional financial resources and time on the completion of clinical development of that product candidate. Drug commercialization will take several years and millions of dollars in development costs.

General and Administrative Expenses. General and administrative expenses consist primarily of salaries and benefits, travel and stock-based compensation expense for personnel in executive, finance and administrative functions. General and administrative expenses also include professional fees for legal, patent, consulting, accounting and audit services.

We anticipate that our general and administrative expenses will increase in the future as we increase our headcount to support our continued research activities and development of our product candidates. We also anticipate that we will incur increased accounting, audit, legal, regulatory, compliance and director and officer insurance costs as well as investor and public relations expenses associated with being a public company. Additionally, if and when we believe a regulatory approval of a product candidate appears likely, we anticipate an increase in payroll and other employee-related expenses as a result of our preparation for commercial operations, especially as it relates to the sales and marketing of that product candidate.

Other Income (Expense), Net

Grant and Incentive Income. Grant and incentive income consists of grant income recognized in connection with grants we receive under our funding agreements with FFG, or the FFG Grants, including the imputed benefit of FFG loans at below-market interest rates; incentive income received in connection with the research and development incentive program provided by the Austrian government; and grant income received under our grant agreement with the Gates Foundation.

Interest Expense. Interest expense consists of interest on outstanding borrowings under the 2012 Loan Agreement, convertible promissory notes and loans from FFG as well as amortization of debt discount and debt issuance costs.

In April 2017, in connection with the sale of our Series D convertible preferred stock, all of the outstanding principal and accrued interest under the convertible promissory notes that we issued in 2016 and 2017 was automatically converted into shares of Series D convertible preferred stock. As a result, in periods subsequent to this conversion, we will incur no interest expense related to convertible promissory notes.

Change in Fair Value of Warrant Liability. In connection with the 2012 Loan Agreement, we issued to SVB warrants to purchase shares of our preferred stock. We classify the warrants as a liability on our consolidated balance sheet. We remeasure this warrant liability to fair value at each reporting date and recognize changes in the fair value of the warrant liability as a component of other income (expense), net in our consolidated statement of operations. We will continue to recognize changes in the fair value of the warrant liability until the warrants are exercised, expire or qualify for equity classification.

Upon the closing of this offering, the preferred stock warrants will become exercisable for common stock instead of preferred stock, and the remeasured fair value of the warrant liability will be reclassified to additional paid-in capital. As a result, following the closing of this offering, we will no longer recognize changes in the fair value of the warrant liability as other income (expense) in our consolidated statement of operations.

Change in Fair Value of Derivative Liability. We have issued convertible promissory notes that contain a contingent put option and a conversion feature, each of which meets the definition of a derivative instrument. We classify these derivative instruments as a liability on our consolidated balance sheet. We remeasure this derivative liability to fair value at each reporting date and recognize changes in the fair value of the derivative liability as a component of other income (expense), net in our consolidated statement of operations.

In April 2017, in connection with the sale of our Series D convertible preferred stock, the convertible promissory notes that we issued in 2016 and 2017 were automatically converted into shares of Series D convertible preferred stock. Subsequent to this conversion, no convertible promissory notes remained outstanding. As a result, subsequent to this conversion, we will not have a derivative liability recorded on our consolidated balance sheet and we will no longer recognize changes in the fair value of the derivative liability in our consolidated statement of operations.

Loss on the Extinguishment of Debt. In April 2016, in connection with the sale of our Series C convertible preferred stock, all of the outstanding principal and accrued interest under the convertible promissory notes that we issued in 2015 was automatically converted into shares of Series C convertible preferred stock. We recorded a loss on extinguishment of debt related to this conversion.

Other Income (Expense). Other income (expense), net consists primarily of realized and unrealized foreign currency transaction gains and losses.

Income Taxes

Since our inception, we have not recorded any U.S. federal or state income tax benefits or any foreign income tax benefits for the net losses we have incurred in each year or for our earned research and development tax credits, due to our uncertainty of realizing a benefit from those items. As of December 31, 2016, we had U.S. federal and state net operating loss carryforwards of $8.3 million and $4.4 million, respectively, which begin to expire in 2030 and 2035, respectively. In addition, as of December 31, 2016, we had foreign net operating loss carryforwards of $40.1 million, which do not expire. As of December 31, 2016, we also had U.S. federal and state research and development tax credit carryforwards of $0.2 million and $0.1 million, respectively, which begin to expire in 2031 and 2035, respectively. We have recorded a full valuation allowance against our net deferred tax assets at each balance sheet date.

Results of Operations

Comparison of the Three Months Ended March 31, 2016 and 2017

The following table summarizes our results of operations for the three months ended March 31, 2016 and 2017:

	Three Months Ended March 31,		
	2016	2017	Change
	(in thousands)		
Operating expenses:			
Research and development	$ 2,529	$ 4,391	$ 1,862
General and administrative	1,340	1,436	96
Total operating expenses	3,869	5,827	1,958
Loss from operations	(3,869)	(5,827)	(1,958)
Other income (expense):			
Grant and incentive income	762	700	(62)
Interest expense	(511)	(1,019)	(508)
Change in fair value of warrant liability	—	—	—
Change in fair value of derivative liability	52	762	710
Loss on extinguishment of debt	—	—	—
Other income (expense), net	66	(1)	(67)
Total other income, net	369	442	73
Net loss	$(3,500)	$(5,385)	$(1,885)

Research and Development Expenses.

	Three Months Ended March 31,		
	2016	2017	Change
	(in thousands)		
Direct research and development expenses by program:			
ASN100	$ 551	$ 2,482	$1,931
ASN200	11	7	(4)
ASN300	18	2	(16)
ASN400	140	17	(123)
ASN500	—	28	28
Unallocated research and development expenses:			
Personnel related (including stock-based compensation)	1,190	1,354	164
Other	619	501	(118)
Total research and development expenses	$ 2,529	$ 4,391	$1,862

Research and development expenses were $2.5 million for the three months ended March 31, 2016, compared to $4.4 million for the three months ended March 31, 2017. The increase of $1.9 million was primarily due to an increase of $1.9 million in direct costs for our ASN100 program.

The increase in direct costs for our ASN100 program was primarily due to CRO fees for the oversight and conduct of our Phase 2 clinical trial of ASN100 as well as investigator fees for that same clinical trial, which was initiated in January 2017.

General and Administrative Expenses. General and administrative expenses were $1.3 million for the three months ended March 31, 2016, compared to $1.4 million for the three months ended March 31, 2017. The

increase of $0.1 million was primarily due to an increase of $0.3 million in personnel-related costs (including an increase in stock-based compensation of $0.1 million), which was partially offset by a decrease of $0.2 million in professional fees. The increase in personnel-related costs was due to the hiring of additional personnel in our general and administrative functions, including the hiring of our Chief Financial Officer and Chief Business Officer in March 2016, to support the build-out of our U.S. operations in anticipation of the initiation of our Phase 2 clinical trial of ASN100. The decrease in professional fees was due to our use in the three months ended March 31, 2016 of a temporary Chief Financial Officer and of outside consultants to aid with preparation for a government grant application.

Other Income (Expense), Net. Other income, net was $0.4 million for the three months ended March 31, 2016, compared to $0.4 million for the three months ended March 31, 2017. The increase of $0.1 million in other income, net was primarily due to a $0.8 million gain being recognized for the three months ended March 31, 2017 as a result of a decrease in the fair value of the derivative liability associated with our convertible promissory notes. The gain recognized for the change in the fair value of the derivative liability was partially offset by an increase in interest expense of $0.5 million due to interest on borrowings we made in February and August 2016 under the 2012 Loan Agreement and our issuance of convertible promissory notes in April 2016 and January 2017 as well as a decrease in grant and incentive income of $0.1 million from the FFG Grants.

Comparison of the Years Ended December 31, 2015 and 2016

The following table summarizes our results of operations for the years ended December 31, 2015 and 2016:

	Year Ended December 31,		
	2015	2016	Change
		(in thousands)	
Operating expenses:			
Research and development	$ 12,706	$ 17,831	$ 5,125
General and administrative	2,119	6,515	4,396
Total operating expenses	14,825	24,346	9,521
Loss from operations	(14,825)	(24,346)	(9,521)
Other income (expense):			
Grant and incentive income	2,155	2,390	235
Interest expense	(472)	(2,515)	(2,043)
Change in fair value of warrant liability	1	39	38
Change in fair value of derivative liability	—	1,388	1,388
Loss on extinguishment of debt	—	(35)	(35)
Other income (expense), net	(77)	104	181
Total other income, net	1,607	1,371	(236)
Net loss	$(13,218)	$ (22,975)	$(9,757)

Research and Development Expenses.

	Year Ended December 31,		
	2015	2016	Change
	(in thousands)		
Direct research and development expenses by program:			
ASN100	$ 5,846	$ 9,722	$3,876
ASN200	—	138	138
ASN300	333	59	(274)
ASN400	807	166	(641)
ASN500	—	3	3
Unallocated research and development expenses:			
Personnel related (including stock-based compensation)	3,726	5,451	1,725
Other	1,994	2,292	298
Total research and development expenses	$12,706	$17,831	$5,125

Research and development expenses were $12.7 million for the year ended December 31, 2015, compared to $17.8 million for the year ended December 31, 2016. The increase of $5.1 million was primarily due to increases of $3.9 million in direct costs for our ASN100 program, $2.0 million in unallocated research and development expenses and $0.1 million in direct costs for our ASN200 program, all partially offset by decreases of $0.6 million in direct costs for our ASN400 program and $0.3 million in direct costs for our ASN300 program.

The increase in direct costs for our ASN100 program was primarily due to costs incurred for CRO fees for preparations for our Phase 2 clinical trial of ASN100, which was initiated in January 2017.

The decreases in direct costs for our ASN300 and ASN400 programs were due to management's determination in the first half of 2016 to focus our financial resources toward the clinical development of ASN100.

The increase in unallocated research and development expenses was due to an increase of $1.7 million in personnel-related costs (including an increase in stock-based compensation of $0.3 million) and an increase of $0.3 million in other costs, which primarily related to facility and other overhead expenses. The increase in personnel-related costs was primarily due to the hiring of additional personnel in our research and development functions, particularly those responsible for partnering with CROs on the conduct and oversight of our Phase 2 clinical trial of ASN100, including the hiring of our Chief Medical Officer and our Senior Vice President of Clinical Operations during the first half of 2016.

General and Administrative Expenses. General and administrative expenses were $2.1 million for the year ended December 31, 2015, compared to $6.5 million for the year ended December 31, 2016. The increase of $4.4 million was primarily due to increases of $2.2 million in personnel-related costs (including an increase in stock-based compensation of $0.3 million), $1.6 million in professional fees, $0.2 million in corporate communication and investor relations expenses, $0.2 million in facility-related costs and $0.2 million of infrastructure costs. The increase in personnel-related costs was due to the hiring of additional personnel in our general and administrative functions, including the appointment of our President and Chief Executive Officer and the hiring of our Chief Financial Officer and Chief Business Officer during the first half of 2016 as well as the hiring of personnel for other finance and accounting positions in mid-2016, as we began building out our U.S. operations in anticipation of the initiation of our Phase 2 clinical trial of ASN100. Professional fees increased due to legal costs incurred in connection with maintaining and registering worldwide patents and costs associated with our ongoing business operations. The increase in corporate communication and investor relations expenses related to establishing our website and communications and marketing programs. The increase in infrastructure costs related to establishing our principal executive offices and building out our U.S. operations in Waltham, Massachusetts.

Other Income (Expense), Net. Other income, net was $1.6 million for the year ended December 31, 2015, compared to $1.4 million for the year ended December 31, 2016. The decrease of $0.2 million in other income, net was primarily due to an increase in interest expense of $2.0 million due to interest on borrowings we made in February and August 2016 under the 2012 Loan Agreement and our issuance of convertible promissory notes in April 2016. The increase was partially offset by a $1.4 million gain that we recognized for the year ended December 31, 2016 as a result of a decrease in the fair value of the derivative liability associated with our convertible promissory notes, a $0.2 million increase in grant and incentive income primarily attributable to income recognized under the research and development incentive program provided by the Austrian government and a $0.2 million increase in other income, net, primarily related to foreign currency transaction gains.

Liquidity and Capital Resources

Since our inception, we have not generated any revenue from any sources, including from product sales, and have incurred significant operating losses and negative cash flows from our operations. We have funded our operations to date primarily with proceeds from the sale of preferred stock, borrowings under convertible promissory notes, borrowings under the 2012 Loan Agreement, proceeds received from loans and grants under funding agreements with FFG, research and development incentive payments received from the Austrian government and proceeds from a grant agreement with the Gates Foundation. Through March 31, 2017, we had received net cash proceeds of $35.3 million from sales of our preferred stock, gross proceeds of $14.4 million from borrowings under convertible promissory notes, proceeds of $9.5 million from borrowings under the 2012 Loan Agreement with SVB, $9.0 million and $8.2 million of grant and loan proceeds, respectively, from our funding agreement with FFG, $3.0 million of research and development incentive payments received from the Austrian government and $1.6 million of proceeds from our grant agreement with the Gates Foundation. In April 2017, we received gross cash proceeds of $35.1 million from the sale of our Series D convertible preferred stock.

Cash Flows

The following table summarizes our cash flows for each of the periods presented:

	Year Ended December 31,		Three Months Ended March 31,	
	2015	2016	2016	2017
	(in thousands)			
Net cash used in operating activities	$(10,816)	$(21,639)	$(6,053)	$(3,511)
Net cash used in investing activities	(247)	(138)	(56)	(1,586)
Net cash provided by financing activities	11,505	18,147	3,223	4,336
Effect of exchange rate changes on cash	(122)	(94)	10	8
Net increase (decrease) in cash	$ 320	$ (3,724)	$(2,876)	$ (753)

Operating Activities. During the three months ended March 31, 2017, operating activities used $3.5 million of cash, resulting from our net loss of $5.4 million, partially offset by net non-cash charges of $0.4 million and net cash provided by changes in our operating assets and liabilities of $1.5 million. Net cash provided by changes in our operating assets and liabilities for the three months ended March 31, 2017 consisted primarily of a $1.5 million increase in unearned income, a $1.3 million increase in accounts payable and a $1.1 million increase in accrued expenses, partially offset by a $1.9 million increase in prepaid expenses and other current assets and a $0.5 million increase in grant and incentive receivables. The increase in unearned income was primarily due to the payment of $1.6 million we received in March 2017 under our grant agreement with the Gates Foundation, which is recognized as grant income as we incur qualifying expenses under the agreement. The increases in accounts payable and accrued expenses were primarily due to increases in clinical trial costs associated with our Phase 2 clinical trial of ASN100. The increase in prepaid expenses and other current assets was primarily due to prepayments for clinical materials related to our Phase 2 clinical trial of ASN100. The increase in grant and incentive receivables was due to an increase in the amount of our qualifying expenditures as well as the timing of receipt of cash from FFG Grants.

During the three months ended March 31, 2016, operating activities used $6.1 million of cash, resulting from our net loss of $3.5 million and net cash used by changes in our operating assets and liabilities of $3.2 million, partially offset by net non-cash charges of $0.6 million. Net cash used by changes in our operating assets and liabilities for the three months ended March 31, 2016 consisted primarily of a $3.2 million increase in prepaid expenses and other current assets due to prepayments for clinical materials related to our Phase 2 clinical trial of ASN100, a $0.2 million increase in grant and incentive receivables and a $0.1 million decrease in unearned income related to FFG grant income, all partially offset by a $0.3 million increase in accounts payable, which was due to an increase in research, development and clinical trial activities performed by CROs and CMOs.

During the year ended December 31, 2016, operating activities used $21.6 million of cash, resulting from our net loss of $23.0 million and net cash used by changes in our operating assets and liabilities of $0.5 million, partially offset by net non-cash charges of $1.9 million. Net cash used by changes in our operating assets and liabilities for the year ended December 31, 2016 consisted primarily of a $1.3 million increase in prepaid expenses and other current assets, a $0.9 million increase in other assets and a $0.2 million decrease in unearned income, all partially offset by a $1.3 million increase in accounts payable, a $0.5 million increase in accrued expenses and a $0.2 million decrease in grant and incentive receivables. The increase in prepaid expenses and other current assets was primarily due to prepayments for clinical material associated with our Phase 2 clinical trial of ASN100 and payments for process development activities for clinical material. The increase in other assets was due to prepaid investigator fees for our Phase 2 clinical trial of ASN100. The decrease in unearned income was due to the timing of our recognition of grant income related to the imputed benefit of FFG loans at below-market rates of interest. The increase in accounts payable was primarily due to an increase in research, development and clinical trial activities performed by CROs. The increase in accrued expenses was primarily due to increased accrued CRO fees for our Phase 2 clinical trial of ASN100 and accrued bonuses due to an increase in headcount. The decrease in grant and incentive receivables was due to a decrease of $0.4 million in receivables from FFG Grants, partially offset by an increase of $0.2 million in research and development incentive receivables from the Austrian government.

During the year ended December 31, 2015, operating activities used $10.8 million of cash, resulting from our net loss of $13.2 million, partially offset by net non-cash charges of $1.0 million and net cash provided by changes in our operating assets and liabilities of $1.4 million. Net cash provided by changes in our operating assets and liabilities for the year ended December 31, 2015 consisted primarily of a $0.8 million increase in accrued expenses, which was due to an increase in professional fees and personnel costs associated with establishing our principal executive offices and building out our U.S. operations in Waltham, Massachusetts and a $0.7 million increase in unearned income related to FFG grant income.

Investing Activities. During the three months ended March 31, 2017, we used $1.6 million of cash in investing activities, consisting primarily of a $1.6 million increase in restricted cash as a result of funding received under our grant agreement with the Gates Foundation.

During the three months ended March 31, 2016, we used $0.1 million of cash in investing activities, consisting of purchases of property and equipment.

During the year ended December 31, 2016, we used $0.1 million of cash in investing activities, consisting of $0.1 million in purchases of property and equipment and an increase in restricted cash of $0.1 million attributable to the letter of credit associated with our operating leases.

During the year ended December 31, 2015, we used $0.2 million of cash in investing activities, consisting primarily of purchases of property and equipment.

Financing Activities. During the three months ended March 31, 2017, net cash provided by financing activities was $4.3 million, primarily consisting of proceeds of $4.9 million from our issuance of convertible

promissory notes in January 2017, partially offset by $0.6 million of principal repayments under the 2012 Loan Agreement.

During the three months ended March 31, 2016, net cash provided by financing activities was $3.2 million, consisting primarily of net proceeds of $3.5 million from borrowings under the 2012 Loan Agreement, partially offset by $0.3 million of principal repayments under the 2012 Loan Agreement.

During the year ended December 31, 2016, net cash provided by financing activities was $18.1 million, primarily consisting of net proceeds of $7.0 million from borrowings under the 2012 Loan Agreement, proceeds of $5.5 million from our issuance of convertible promissory notes in April 2016, net cash proceeds of $5.4 million from our issuance of Series C convertible preferred stock in April 2016 and proceeds of $0.5 million from loans under our funding agreements with FFG, all partially offset by $0.3 million of principal repayments under the 2012 Loan Agreement.

During the year ended December 31, 2015, net cash provided by financing activities was $11.5 million, primarily consisting of net proceeds of $7.0 million from our issuance of Series B convertible preferred stock, net proceeds of $4.0 million from our issuance of convertible promissory notes in December 2015 and proceeds of $1.5 million from loans under our funding agreements with FFG, all partially offset by $1.0 million of principal repayments under the 2012 Loan Agreement.

2012 Loan Agreement

On December 7, 2012, we entered into the 2012 Loan Agreement with SVB, which, as amended, provided for aggregate borrowings of up to $7.0 million in the form of term loans. In February and August 2016, we borrowed the full $7.0 million available to us under the agreement. Following the August 2016 borrowing, no additional amounts remained available for borrowing under the 2012 Loan Agreement. As of December 31, 2016 and March 31, 2017, the outstanding principal amount under the 2012 Loan Agreement was $7.0 million and $6.4 million, respectively.

Borrowings under the 2012 Loan Agreement bear interest at a rate per annum equal to the greater of 3.25% and The Wall Street Journal prime rate, in each case minus 0.25%; provided, however, that in an event of default, as defined in the 2012 Loan Agreement, the interest rate applicable to borrowings under the agreement will be increased by 4.0%. Under the agreement, we were required to make monthly interest-only payments through December 1, 2016 and are required to make 36 equal monthly payments of principal, plus accrued interest, from January 1, 2017 through December 1, 2019, when all unpaid principal and interest becomes due and payable. We may voluntarily prepay all, but not less than all, of the outstanding principal at any time prior to the maturity date, subject to a prepayment fee, which ranges from 0% to 2% of the outstanding principal. A final payment fee of $0.4 million is due upon the earlier to occur of the maturity of the loan or the prepayment of all outstanding principal.

In connection with the 2012 Loan Agreement, between December 2012 and August 2016, we issued to SVB a warrant to purchase an aggregate of 11,013 shares of Series A-2 convertible preferred stock at an exercise price of $4.54 per share and a warrant to purchase an aggregate of 14,502 shares of Series B convertible preferred stock at an exercise price of $7.24 per share. The warrants became exercisable in connection with our borrowings under the 2012 Loan Agreement and are fully exercisable. The warrant to purchase shares of Series A-2 convertible preferred stock expires on December 6, 2022, and the warrant to purchase shares of Series B convertible preferred stock expires on February 18, 2026.

Borrowings under the 2012 Loan Agreement are collateralized by a pledge of 65% of the outstanding capital stock of our subsidiary in Austria. The 2012 Loan Agreement contains customary affirmative and negative covenants, including restrictions on our ability to pay dividends and encumber our intellectual property, but does not contain any financial covenants.

FFG Loans

Between September 2011 and March 2017, we entered into a series of funding agreements with FFG that provided for loans and grants to fund qualifying research and development expenditures of our Austrian subsidiary on a project-by-project basis, as approved by FFG. As of December 31, 2016 and March 31, 2017, the outstanding principal amount under loans from FFG was $8.0 million and $8.2 million, respectively, based on our actual spending for qualified expenditures.

Amounts due under the FFG loans bear interest at varying fixed rates ranging from 0.75% to 2.0% per annum. Interest is payable semi-annually in arrears, with all accrued interest and principal due upon maturity. The FFG loans mature at varying dates between June 2020 and June 2022. In the event that the underlying program research results in a scientific or technical failure, the principal then outstanding under any loan may be forgiven by FFG and converted to non-repayable grant funding on a project-by-project basis. The FFG loans contain no affirmative, negative or financial covenants and are not secured by any of our assets.

As of March 31, 2017, the funding agreements with FFG are expected to provide us additional loans of approximately $0.2 million and additional grants of approximately $0.3 million if and when we incur specified amounts of qualifying expenditures.

Convertible Promissory Notes

Between December 2015 and January 2017, we issued an aggregate of $14.4 million of convertible promissory notes, all of which were subsequently converted into shares of our convertible preferred stock. A description of each issuance and conversion is provided below.

In December 2015, we issued an aggregate of $4.0 million of convertible promissory notes, or the 2015 Notes. The 2015 Notes accrued interest at a rate of 0.56% per annum, with a maturity date of December 16, 2016, unless earlier converted under the terms of the 2015 Notes. All principal and interest accrued under the 2015 Notes was converted into shares of Series C convertible preferred stock in connection with our sale of Series C convertible preferred stock in April 2016.

In April 2016, we issued an aggregate of $5.5 million of convertible promissory notes, or the 2016 Notes, which accrued interest at a rate of 0.7% per annum and had a maturity date of October 12, 2017, unless earlier converted under the terms of the 2016 Notes. All principal and interest accrued under the 2016 Notes was converted into shares of Series D convertible preferred stock in connection with our sale of Series D convertible preferred stock in April 2017.

In January 2017, we issued an aggregate of $4.9 million of convertible promissory notes, or the 2017 Notes. The 2017 Notes accrued interest at a rate of 0.96% per annum, with a maturity date of October 12, 2017, unless earlier converted under the terms of the 2017 Notes. All principal and interest accrued under the 2017 Notes was converted into shares of Series D convertible preferred stock in connection with our sale of Series D convertible preferred stock in April 2017.

Funding Requirements

We expect our expenses to increase substantially in connection with our ongoing activities, particularly as we advance the preclinical activities and clinical trials of our product candidates. In addition, upon the closing of this offering, we expect to incur additional costs associated with operating as a public company. Our expenses will also increase as we:

- leverage our programs to advance other product candidates into preclinical and clinical development;
- seek regulatory approvals for any product candidates that successfully complete clinical trials;

- establish a sales, marketing, medical affairs and distribution infrastructure to commercialize any product candidates for which we may obtain marketing approval and intend to commercialize on our own or jointly;
- hire additional clinical, quality control and scientific personnel;
- expand our operational, financial and management systems and increase personnel, including personnel to support our clinical development, manufacturing and commercialization efforts and our operations as a public company;
- maintain, expand and protect our intellectual property portfolio; and
- acquire or in-license other product candidates and technologies.

We believe that the anticipated net proceeds from this offering, together with our existing cash, will enable us to fund our operating expenses, capital expenditure requirements and debt service payments through , including the completion of our ongoing Phase 2 clinical trial of ASN100 and initiation of a subsequent pivotal Phase 3 clinical trial, assuming a successful outcome in our Phase 2 clinical trial. We have based these estimates on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we expect. We expect that we will require additional funding to complete the clinical development of ASN100, commercialize ASN100, if we receive regulatory approval, and pursue in-licenses or acquisitions of other product candidates. If we receive regulatory approval for ASN100 or other product candidates, we expect to incur significant commercialization expenses related to product manufacturing, sales, marketing and distribution, depending on where we choose to commercialize ASN100 ourselves.

Because of the numerous risks and uncertainties associated with research, development and commercialization of pharmaceutical product candidates, we are unable to estimate the exact amount of our working capital requirements. Our future funding requirements will depend on and could increase significantly as a result of many factors, including:

- the scope, progress, results and costs of researching and developing our product candidates, and conducting preclinical studies and clinical trials;
- the costs, timing and outcome of regulatory review of our product candidates;
- the costs of future activities, including product sales, medical affairs, marketing, manufacturing and distribution, for any of our product candidates for which we receive marketing approval;
- the costs of manufacturing commercial-grade product and necessary inventory to support commercial launch;
- the ability to receive additional non-dilutive funding, including grants from organizations and foundations;
- the revenue, if any, received from commercial sale of our products, should any of our product candidates receive marketing approval;
- the costs of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending intellectual property-related claims;
- our ability to establish and maintain collaborations on favorable terms, if at all;
- the extent to which we acquire or in-license other product candidates and technologies; and
- the timing, receipt and amount of sales of, or milestone payments related to or royalties on, our current or future product candidates, if any.

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our cash needs through a combination of public or private equity offerings, debt financings, government funding, collaborations,

strategic partnerships or marketing, distribution or licensing arrangements with third parties. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest may be materially diluted, and the terms of such securities could include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing and preferred equity financing, if available, may involve agreements that include restrictive covenants that limit our ability to take specified actions, such as incurring additional debt, making capital expenditures or declaring dividends. In addition, additional debt financing would result in increased fixed payment obligations.

If we raise funds through governmental funding, collaborations, strategic partnerships or marketing, distribution or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, reduce or eliminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Contractual Obligations and Commitments

The following table summarizes our contractual obligations as of March 31, 2017 and the effects that such obligations are expected to have on our liquidity and cash flows in future periods:

	Payments Due by Period				
	Total	Less than 1 Year	1 to 3 Years	4 to 5 Years	More than 5 Years
			(in thousands)		
Manufacturing commitments[1]	$ 1,114	$ 1,114	$ —	$ —	$ —
Debt obligations[2]	26,104	13,138	4,950	5,939	2,077
Operating lease commitments[3]	2,635	958	1,180	497	—
Total	$29,853	$15,210	$ 6,130	$6,436	$ 2,077

(1) Amounts in the table reflect commitments for costs associated with our external CMO, which we engaged to manufacture clinical trial materials. Manufacturing commitments include agreements that are enforceable and legally binding on us and that specify all significant terms, including fixed or minimum quantities to be purchased; fixed, minimum or variable price provisions; and the approximate timing of the transaction.

(2) Amounts in the table reflect the contractually required principal and interest payable as of March 31, 2017 pursuant to outstanding borrowings under the 2012 Loan Agreement, convertible promissory notes and loans from FFG. The loans from FFG and the convertible promissory notes bear interest at fixed rates. The table reflects interest payments due under these agreements at the contractually required rates of interest, as well as a final payment of $0.4 million due under the 2012 Loan Agreement upon repayment of all outstanding amounts under the agreement. The 2012 Loan Agreement bears interest at a variable rate of interest equal to the greater of 3.25% and The Wall Street Journal prime rate, in each case minus 0.25%. The table reflects interest payments due under the 2012 Loan Agreement calculated using an interest rate of 3.75%, which was the applicable interest rate as of March 31, 2017. In April 2017, in connection with the sale of our Series D convertible preferred stock, all of the convertible promissory notes, including principal and accrued interest in the aggregate amount of $10.5 million, were converted into 3,420,404 shares of our Series D convertible preferred stock.

(3) Amounts in the table reflect minimum payments due for our leases of office, laboratory and other space under operating leases that expire between January 2019 and April 2021. Amounts in the table also reflect noncancelable payments due for our lease of an animal-use facility, which is cancelable by either party upon six months' written notice.

We enter into contracts in the normal course of business with CROs and other third parties for clinical trials and preclinical research studies and testing. These contracts are cancelable by us upon prior notice. Payments due

upon cancellation consist only of payments for services provided or expenses incurred, including noncancelable obligations of our service providers, up to the date of cancellation. These payments are not included in the preceding table as the amount and timing of such payments are not known.

We have not included any contingent payment obligations, such as milestone payments and royalties, in the preceding table as the amount, timing and likelihood of such payments are not known. Such contingent payment obligations are described below.

Under our collaboration agreement with Adimab, we have agreed to pay royalties of a mid single-digit percentage based on net sales by us or our affiliates of products that use or are based on any antibody discovered or optimized under the agreement, any derivative or modified version of any such antibody, or any sequence information as to any such antibody. In addition, if we sell or license to any third party, or otherwise grant rights to any third party to, any of the products for which we are obligated to pay Adimab royalties, either alone or as part of a package including specified patents not directed to these antibodies, we are obligated to pay Adimab either the same royalties on net sales of such products by such third party, or a percentage, in the low to mid double digits, of the payments we receive from such third parties that are attributable to such grant of rights. In April 2017, we entered into a letter agreement with the Gates Foundation pursuant to which we licensed to the Gates Foundation certain rights under our ASN100 program. We have no payment obligations under the Adimab collaboration agreement with respect to sales of certain antibody products if they are sold at cost in developing countries under our letter agreement with the Gates Foundation. However, if such products are sold in developing countries for an amount that exceeds cost, then the amount of such excess over cost will be subject to the royalty payment obligations described above.

If we (or one of our affiliates with rights under the agreement) undergo a change in control and, at the time of such change in control, we have not sold or licensed to third parties all of our rights in antibodies for which we are obligated to pay Adimab royalties under the agreement, then we are obligated to either pay Adimab a percentage, in the mid double digits, of the payments we receive from that change in control that are reasonably attributable to those rights and certain patents arising from the collaboration, or require our acquirer and all of its future third-party collaborators to pay to Adimab royalties at a mid single-digit percentage of net sales based on those rights. If we grant rights to a third party under certain patents that are not directed to the antibodies for which we are obligated to pay Adimab royalties, we are also obligated to pay Adimab, in place of royalties or a percentage of payments received from the third party, a lump sum in the high six digits.

Under our option and license agreement with Adimab, if we exercise our option to obtain rights to certain RSV antibodies, we are obligated to pay Adimab an option fee of $0.3 million and make clinical and regulatory milestone payments of up to $24.4 million as well as royalty payments on a product-by-product and country-by-country basis of a mid single-digit percentage based on net sales by us, our affiliates, licensees or sublicensees of products based on certain RSV antibodies during the applicable term for such product in that country.

In February 2017, we entered into a grant agreement with the Gates Foundation pursuant to which we have no payment obligations under the Adimab option and license agreement with respect to sales of products based on licensed RSV antibodies to the extent they are sold at cost in developing countries. However, if such products are sold in developing countries for an amount that exceeds cost, then the amount of such excess will be subject to the royalty payment obligations described in the preceding paragraph.

In April 2017, we entered into a letter agreement with the Gates Foundation pursuant to which, if the Gates Foundation terminates the agreement for certain specified uncured material breaches by us, we will be required, among other remedies, to redeem the then-held shares of our stock purchased by the Gates Foundation pursuant to the agreement or to facilitate the purchase of such stock by a third party. For any such redemption, the Gates Foundation stock will be valued at the greater of the original purchase price (plus specified interest) or the fair market value of such stock.

Critical Accounting Policies and Significant Judgments and Estimates

Our consolidated financial statements are prepared in accordance with generally accepted accounting principles in the United States. The preparation of our consolidated financial statements and related disclosures requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue, costs and expenses and the disclosure of contingent assets and liabilities in our financial statements. We base our estimates on historical experience, known trends and events and various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. We evaluate our estimates and assumptions on an ongoing basis. Our actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are described in more detail in Note 2 to our consolidated financial statements appearing at the end of this prospectus, we believe that the following accounting policies are those most critical to the judgments and estimates used in the preparation of our consolidated financial statements.

Government Contracts, Grant Agreements and Incentive Programs

We recognize proceeds received from grants under our funding agreements with FFG, research and development incentives from the Austrian government and our grant agreement with the Gates Foundation as other income, rather than as revenue, because the corresponding agreements contain no specified performance obligations other than to conduct research on a particular program or in a particular field and contain no obligations to deliver specified products or technology.

Income from grants and incentives is recognized in the period during which the related qualifying expenses are incurred, provided that the conditions under which the grants or incentives were provided have been met. For grants under the funding agreements with FFG and for proceeds under the research and development incentive program from the Austrian government, we recognize grant and incentive income in an amount equal to the qualifying expenses we incur in each period multiplied by the applicable reimbursement percentage. For grants received under our grant agreement with the Gates Foundation, we recognize grant income in an amount equal to the qualifying expenses incurred in each period, up to the amount previously funded by the Gates Foundation.

Grant funding that has been received by us in advance of incurring qualifying expenses is recorded in our consolidated balance sheet as unearned income. Grant and incentive income recognized upon incurring qualifying expenses in advance of receipt of grant funding or proceeds from research and development incentives is recorded in our consolidated balance sheet as grant and incentive receivables.

The loans we have received under the funding agreements with FFG bear interest at rates that are below market rates of interest. We account for the imputed benefit arising from the difference between a market rate of interest and the rate of interest charged by FFG as additional grant funding from FFG, and we record interest expense for the FFG loans at a market rate of interest. On the date that FFG loan proceeds are received, we recognize the portion of the loan proceeds allocated to grant funding as a discount to the carrying value of the loan and as unearned income, which is subsequently recognized as additional grant income over the term of the funding agreement.

Accrued Research and Development Expenses

As part of the process of preparing our consolidated financial statements, we are required to estimate our accrued research and development expenses. This process involves reviewing open contracts and purchase orders, communicating with our personnel to identify services that have been performed on our behalf and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of actual costs. The majority of our service providers invoice us in arrears for services performed, on a pre-determined schedule or when contractual milestones are met; however, some

require advanced payments. We make estimates of our accrued expenses as of each balance sheet date in the consolidated financial statements based on facts and circumstances known to us at that time. We periodically confirm the accuracy of these estimates with the service providers and make adjustments if necessary. Examples of estimated accrued research and development expenses include fees paid to:

- vendors, including central laboratories, in connection with preclinical development activities;
- CROs and investigative sites in connection with preclinical and clinical studies; and
- CMOs in connection with drug substance and drug product formulation of preclinical and clinical trial materials.

We base our expenses related to preclinical studies and clinical trials on our estimates of the services received and efforts expended pursuant to quotes and contracts with multiple research institutions and CROs that conduct and manage preclinical studies and clinical trials on our behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. There may be instances in which payments made to our vendors will exceed the level of services provided and result in a prepayment of the expense. Payments under some of these contracts depend on factors such as the successful enrollment of patients and the completion of clinical trial milestones. In accruing service fees, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from the estimate, we adjust the accrual or the amount of prepaid expenses accordingly. Although we do not expect our estimates to be materially different from amounts actually incurred, our understanding of the status and timing of services performed relative to the actual status and timing of services performed may vary and may result in reporting amounts that are too high or too low in any particular period. To date, there have not been any material adjustments to our prior estimates of accrued research and development expenses.

Stock-Based Compensation

We measure stock options and other stock-based awards granted to employees and directors based on the fair value on the date of the grant and recognize the corresponding compensation expense of those awards over the requisite service period, which is generally the vesting period of the respective award. We have only issued stock-based awards with service-based vesting conditions and record the expense for these awards using the straight-line method.

For stock-based awards granted to consultants and non-employees, we recognize compensation expense over the period during which services are rendered by such consultants and non-employees until completed. At the end of each financial reporting period prior to completion of the service, the fair value of these awards is remeasured using the then-current fair value of our common stock and updated assumption inputs in the Black-Scholes option-pricing model.

We estimate the fair value of each stock option grant using the Black-Scholes option-pricing model, which uses as inputs the fair value of our common stock and assumptions we make for the volatility of our common stock, the expected term of our stock options, the risk-free interest rate for a period that approximates the expected term of our stock options and our expected dividend yield.

Determination of the Fair Value of Common Stock. As there has been no public market for our common stock to date, the estimated fair value of our common stock has been determined by our board of directors as of the date of each option grant, with input from management, considering third-party valuations of our common stock as well as our board of directors' assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent third-party valuation through the date of the grant. These third-party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants' Accounting and Valuation Guide, *Valuation of Privately-*

Held-Company Equity Securities Issued as Compensation. Our common stock valuations were prepared using the option-pricing method, or OPM, which used a market approach to estimate our enterprise value. The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company's securities changes. Under this method, the common stock has value only if the funds available for distribution to stockholders exceeded the value of the preferred stock liquidation preferences at the time of the liquidity event, such as a strategic sale or a merger. A discount for lack of marketability of the common stock is then applied to arrive at an indication of value for the common stock. These third-party valuations were performed at various dates, which resulted in valuations of our common stock of $2.44 per share as of December 31, 2015, $2.75 per share as of April 22, 2016, $1.57 per share as of December 31, 2016 and $1.17 as of April 24, 2017. Our board of directors considered various objective and subjective factors to determine the fair value of our common stock as of each grant date, including:

- the prices at which we sold preferred stock and the superior rights and preferences of the preferred stock relative to our common stock at the time of each grant;
- the progress of our research and development programs, including the status of preclinical studies and planned clinical trials for our product candidates;
- our stage of development and our business strategy;
- external market conditions affecting the biotechnology industry, and trends within the biotechnology industry;
- our financial position, including cash on hand, and our historical and forecasted performance and operating results;
- the lack of an active public market for our common stock and our preferred stock;
- the likelihood of achieving a liquidity event, such as an initial public offering, or IPO, or a sale of our company in light of prevailing market conditions; and
- the analysis of IPOs and the market performance of similar companies in the biopharmaceutical industry.

The assumptions underlying these valuations represent management's best estimates, which involve inherent uncertainties and the application of management judgment. As a result, if factors or expected outcomes change and we use significantly different assumptions or estimates, our stock-based compensation expense could be materially different.

Following the closing of this offering, the fair value of our common stock will be determined based on the quoted market price of our common stock.

Options Granted. The following table sets forth by grant date the number of shares subject to options granted from January 1, 2016 through June 30, 2017, the per share exercise price of the options, the fair value of common stock per share on each grant date, and the per share estimated fair value of the options:

Grant Date	Number of Shares Subject to Options Granted	Per Share Exercise Price of Options	Fair Value per Common Share on Grant Date	Per Share Estimated Fair Value of Options
February 4, 2016	71,500	$ 2.44	$ 2.44	$ 1.60
February 4, 2016	16,000	$ 2.44	$ 2.44	$ 1.29
July 20, 2016	930,250	$ 2.75	$ 2.75	$ 1.78
September 28, 2016	80,000	$ 2.75	$ 2.75	$ 1.81
June 19, 2017	2,245,450	$ 1.17	$	$

Valuation of Warrant Liability

In connection with the 2012 Loan Agreement, we issued to SVB warrants to purchase shares of our preferred stock. We classify the warrants as a liability on our consolidated balance sheet because these warrants are free-standing financial instruments that may require us to transfer assets upon exercise. The warrant liability was initially recorded at fair value upon the date of each warrant issuance and is subsequently remeasured to fair value at each reporting date. Changes in the fair value of the warrant liability are recognized as a component of other income (expense), net in the consolidated statement of operations. We will continue to recognize changes in the fair value of the warrant liability until the warrants are exercised, expire or qualify for equity classification.

We utilize the Black-Scholes option-pricing model, which incorporates assumptions and estimates, to value these warrants. We assess these assumptions and estimates on a quarterly basis as additional information impacting the assumptions is obtained. Estimates and assumptions impacting the fair value measurement include the fair value per share of the underlying equity instruments issuable upon exercise of the warrants, remaining contractual term of the warrants, risk-free interest rate, expected dividend yield and expected volatility of the underlying preferred stock by taking into consideration our most recent sales of our convertible preferred stock and additional factors that we deem relevant. We have historically been a private company and lack company-specific historical and implied volatility information of our stock. Therefore, we estimate expected stock volatility based on the historical volatility of publicly traded peer companies for a term equal to the remaining contractual term of the warrants. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve for time periods approximately equal to the remaining contractual term of the warrants. We have estimated a 0% dividend yield based on the expected dividend yield and the fact that we have never paid or declared dividends.

Upon the closing of this offering, the preferred stock warrants will become exercisable for common stock instead of preferred stock, and the remeasured fair value of the warrant liability will be reclassified to additional paid-in capital. As a result, following the closing of this offering, we will no longer recognize changes in the fair value of the warrant liability as other income (expense) in our consolidated statement of operations.

Valuation of Derivative Liability

We have issued convertible promissory notes that contain a contingent put option and a conversion feature, each of which meets the definition of a derivative instrument. We classify these derivative instruments as a liability on our consolidated balance sheet because the contingent put option provides for the accelerated repayment of the notes at a substantial premium upon the occurence of specified events and the conversion feature is not clearly and closely related to its host instrument and meets the definition of a derivative. The derivative liability was initially recorded at its fair value upon issuance of the convertible promissory notes and is subsequently remeasured to fair value at each reporting date. Changes in the fair value of the derivative liability are recognized as a component of other income (expense), net in our consolidated statement of operations. We will continue to recognize changes in the fair value of the derivative liability until the convertible promissory notes are converted to equity or otherwise extinguished.

The fair value of the derivative liability was determined using the probability-weighted expected return method, or PWERM, which considered as inputs the type, timing and probability of occurrence of a change-of-control event, future equity financing and cash settlement of the convertible promissory notes; the potential amount of the payment under each of the potential settlement scenarios; and the risk-adjusted discount rate reflecting the expected risk profile for each of the potential settlement scenarios. The estimates are based, in part, on subjective assumptions and could differ materially in the future. Changes to these assumptions could have a significant impact on the fair value of the derivative liability.

In April 2017, in connection with the sale of our Series D convertible preferred stock, the convertible promissory notes that we issued in 2016 and 2017 were automatically converted into shares of Series D convertible preferred stock. Subsequent to this conversion, no convertible promissory notes remained

outstanding. As a result, subsequent to this conversion, we will not have a derivative liability recorded on our consolidated balance sheet and we will no longer recognize changes in the fair value of the derivative liability in our consolidated statement of operations.

Emerging Growth Company Status

The Jumpstart Our Business Startups Act of 2012 permits an "emerging growth company" such as us to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies until those standards would otherwise apply to private companies. We have irrevocably elected to "opt out" of this provision and, as a result, we will comply with new or revised accounting standards when they are required to be adopted by public companies that are not emerging growth companies.

Off-Balance Sheet Arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the Securities and Exchange Commission.

Recently Issued Accounting Pronouncements

A description of recently issued accounting pronouncements that may potentially impact our financial position and results of operations is disclosed in Note 2 to our consolidated financial statements appearing at the end of this prospectus.

Quantitative and Qualitative Disclosures about Market Risks

Interest Rate Risk

As of December 31, 2016 and March 31, 2017, we had $7.0 million and $6.4 million of borrowings outstanding under the 2012 Loan Agreement. Borrowings under the 2012 Loan Agreement bear interest at a rate per annum equal to the greater of 3.25% and The Wall Street Journal prime rate, in each case minus 0.25%, which was 3.50% as of December 31, 2016 and 3.75% as of March 31, 2017. Based on the principal amounts outstanding as of December 31, 2016 and March 31, 2017, an immediate 10% change in the interest rate would not have a material impact on our debt-related obligations, financial position or results of operations.

As of December 31, 2016 and March 31, 2017, we had $5.5 million and $10.4 million of borrowings outstanding under our convertible promissory notes and we had $8.0 million and $8.2 million, respectively, of borrowings outstanding under the FFG loans. Amounts outstanding under these agreements bear interest at fixed interest rates and, therefore, do not expose us to interest rate risk.

Foreign Currency Exchange Risk

We are exposed to foreign exchange rate risk. Our headquarters are located in the United States, where the majority of our general and administrative expenses are incurred in U.S. dollars. The majority of our research and development costs are incurred by our subsidiary in Austria, whose functional currency is the euro. During the year ended December 31, 2015 and the three months ended March 31, 2017, we incurred foreign currency transaction losses of $0.1 million and less than $0.1 million, respectively. During the year ended December 31, 2016 and the three months ended March 31, 2016, we recognized foreign currency transaction gains of less than $0.1 million and $0.1 million, respectively. These gains and losses primarily related to unrealized and realized foreign currency gains and losses as a result of transactions entered into by our U.S. entity in currencies other than the U.S. dollar. These foreign currency transaction gains and losses were recorded as a component of other income (expense), net in our consolidated statements of operations. We believe that a 10% change in the exchange rate between the U.S. dollar and the euro would not have a material impact on our financial position or results of operations.

As we continue to grow our business, our results of operations and cash flows will be subject to fluctuations due to changes in foreign currency exchange rates, which could adversely impact our results of operations. To date, we have not entered into any foreign currency hedging contracts to mitigate our exposure to foreign currency exchange risk.

BUSINESS

Overview

We are a clinical-stage biopharmaceutical company focused on applying monoclonal antibody immunotherapies to address serious infectious diseases. We believe that our monoclonal antibodies, or mAbs, offer a novel approach to address serious infections. Unlike antibiotics that propagate resistance, disrupt both disease-causing and beneficial bacteria and have adverse off-target effects, mAbs have the ability to precisely bind only to the intended target, thereby avoiding these undesired consequences. Our lead product candidate, ASN100, is a first-in-class mAb therapeutic in Phase 2 clinical development for the prevention of *Staphylococcus aureus*, or *S. aureus,* pneumonia in high-risk, mechanically ventilated patients, a potentially life-threatening and costly infection for which there are no approved preventive therapies. In addition to ASN100, our preclinical pipeline is comprised of mAbs targeting multiple serious bacterial and viral pathogens, including respiratory syncytial virus, or RSV.

Monoclonal antibodies are a well-established therapeutic class across many disease areas; however, they have yet to be broadly utilized for the prevention or treatment of acute bacterial and viral infections, where they hold the potential to address serious unmet medical needs. Our expertise lies in applying our deep understanding of the pathogenesis of infection paired with our ability to access some of the most advanced mAb discovery techniques and platforms available today. We have used this expertise to discover and develop novel mAbs with multiple mechanisms of action and high potency against their intended targets.

Our lead product candidate, ASN100, is a combination of two fully human mAbs that we are developing to address *S. aureus* cytotoxins, which are bacterial toxins that destroy human cells. Only recently has it become fully understood that *S. aureus* bacteria propagate disease in the lung through the production of up to six pathogenic cytotoxins that damage human lung tissue and destroy human immune cells. Antibiotics do not address these cytotoxins and can actually increase their production. ASN100 was developed specifically to neutralize the six cytotoxins critical to *S. aureus* pneumonia pathogenesis, a scientific advancement that has not previously been achieved.

S. aureus is the leading cause of pneumonia in mechanically ventilated patients in the United States and the second leading cause of pneumonia in this patient population in Europe. There are more than one million mechanically ventilated patients in the United States each year, most of whom are treated in intensive care units, or ICUs. Based on published epidemiology data, up to 20% of these patients are at high risk of progressing to *S. aureus* pneumonia, even when best-available prevention strategies are used. Despite the availability of antibiotic treatments, outcomes of ventilator-associated pneumonia, or VAP, are poor, with high mortality rates and incremental hospital costs of approximately $40,000 per case. We believe ASN100 has the potential to improve the standard of care from suboptimal prevention and treatment to efficient and effective pre-emptive therapy. Moreover, given its product profile, ASN100 aligns well with accepted preventive hospital quality measures and antimicrobial stewardship efforts to reduce infections and antibiotic use.

In early 2017, we initiated a Phase 2 clinical trial of ASN100 for the prevention of *S. aureus* pneumonia in high-risk, mechanically ventilated patients. We plan to enroll 354 patients in this double-blind, placebo-controlled superiority trial. The primary endpoint is the proportion of patients who develop *S. aureus* pneumonia during the 21-day period following a single dose of ASN100 as compared to placebo. The superiority design of the trial differs from traditional antibiotic trials, which are consistently designed to demonstrate non-inferiority compared to the applicable standard of care. We expect to report top-line results from full completion of the trial in the second half of 2018, preceded by an analysis by an independent data monitoring committee of the power of the trial for statistical significance, which will take place when approximately one-third of patients have been treated. We expect to report the results of this power analysis in the first half of 2018. Assuming positive top-line safety and efficacy results, we expect to use these data to design a pivotal Phase 3 clinical trial as well as inform the potential clinical development of ASN100 in additional indications.

In a Phase 1 dose-ranging trial in healthy volunteers, ASN100 was well tolerated across all doses tested, including doses greater than twice the dose selected for the Phase 2 clinical trial, and no dose-limiting toxicities were observed. ASN100 plasma half-life exceeded three weeks and lung concentrations were above levels required for cytotoxin neutralization based on pharmacokinetic and pharmacodynamic modeling. Based on these results, we believe that a single preventive dose of ASN100 may be able to safely neutralize *S. aureus* cytotoxins and prevent pneumonia in high-risk, mechanically ventilated patients.

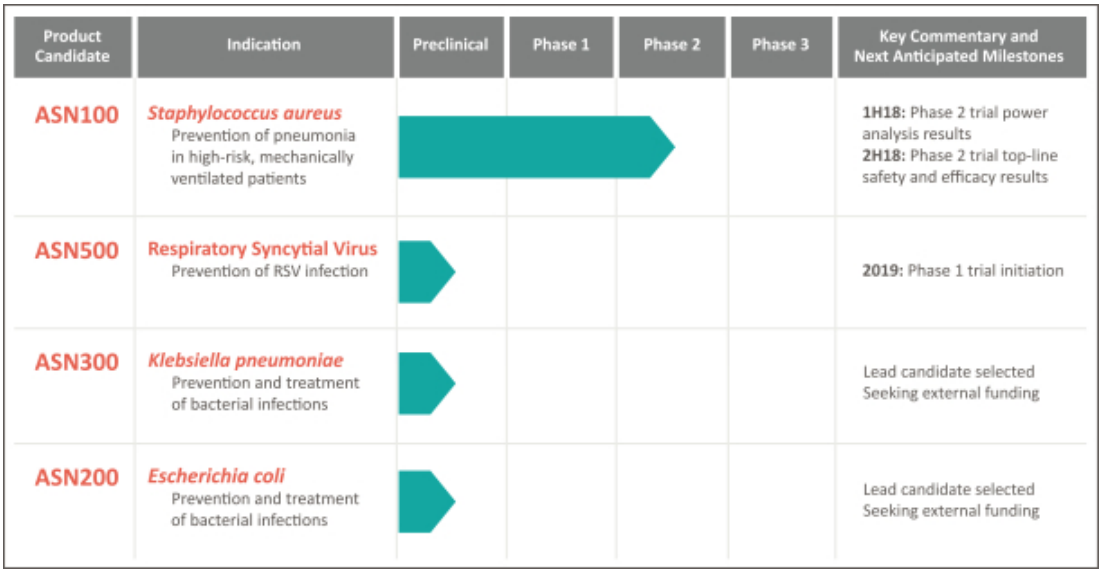
Our second program, ASN500, targets RSV, a virus that afflicts in aggregate over two million young children and elderly and immunocompromised patients annually in the United States, and can cause serious respiratory tract infections. We are currently evaluating mAbs that have exhibited exceptionally high potency against RSV in a laboratory setting, which may support development of a preventive therapy for use in multiple high-risk patient populations not addressed by the currently approved therapy. We expect to advance this mAb into Phase 1 clinical trials in 2019.

We have assembled a proven management team with years of highly relevant experience to enable the successful advancement of our product candidates. Our team has been collectively involved in the discovery, development and commercialization of over 20 marketed anti-infective drugs and biologics. Several members of our team previously held management positions at Cubist Pharmaceuticals, a leading anti-infective company that was acquired by Merck in 2015, and Bristol-Myers Squibb. Our programs are derived from the expertise of our founding scientists, who are widely recognized experts in mAb discovery, and the capabilities of our broader scientific team, which span immunology, bacterial and viral pathogenesis and monoclonal antibody drug discovery.

We are backed by leading life sciences investors, including OrbiMed, Polaris and SV Health Partners. We have also received funding from the Bill & Melinda Gates Foundation, or the Gates Foundation. Our clinical and scientific advisory boards are comprised of preeminent experts in infectious diseases, critical care and bacterial and viral pathogenesis.

Our Pipeline

The following chart summarizes information about our product candidates and programs.



Our Strategy

Our goal is to be a leader in the discovery, development and commercialization of monoclonal antibody immunotherapies for serious infectious diseases. Our strategy includes the following key components:

- **Rapidly advance our lead product candidate, ASN100, through clinical development and regulatory approval.** We believe ASN100 has the potential to improve clinical and health-economic outcomes and healthcare quality measures by improving the standard of care from suboptimal prevention and treatment to efficient and effective pre-emptive therapy. In early 2017, we initiated a Phase 2 clinical trial of ASN100 for the prevention of *S. aureus* pneumonia in high-risk, mechanically ventilated patients. We plan to enroll 354 patients in this double-blind, placebo-controlled superiority trial. The superiority design of the trial differs from traditional antibiotic trials, which are consistently designed to demonstrate non-inferiority compared to the applicable standard of care. Assuming positive results from the Phase 2 clinical trial, we expect to use these data to design a pivotal Phase 3 clinical trial as well as inform the potential clinical development of ASN100 in additional indications.
- **Apply our expertise in *S. aureus* pathogenesis to expand the indications for ASN100.** In addition to pneumonia, *S. aureus* is a leading cause of many other prevalent serious infections. The cytotoxins targeted by ASN100 are relevant to the pathogenesis of many of these particular infections. We are currently evaluating ASN100 in preclinical models of selected *S. aureus* infections, and if supported by the data generated in these studies as well as from our ongoing Phase 2 clinical trial of ASN100, we intend to initiate additional clinical trials in other *S. aureus* infection indications.
- **Pursue a rapid development strategy for advancing ASN500 into clinical trials.** We are seeking to rapidly advance our highest priority preclinical program, ASN500, for RSV prevention. We believe ASN500 has the potential to offer benefits over existing therapies in terms of potency, dosing strategy, manufacturing and route of administration, to better serve both new and existing target populations globally. We expect to advance this mAb into Phase 1 clinical trials in 2019.
- **Maximize the global commercial value of ASN100 and ASN500.** We have retained global commercialization rights to all of our product candidates. We expect to commercialize ASN100, if approved, directly using a specialized ICU-targeted sales force in the United States as well as potentially in Europe. In other markets, we plan to evaluate the merits of entering into commercialization agreements with partners who have local market expertise and capabilities. For ASN500, we may seek to enter into one or more strategic relationships if we pursue RSV indications beyond the hospital setting.

The Need for New Approaches for the Management of Infectious Diseases

The management of infectious diseases is a global problem that is inadequately addressed by currently marketed anti-infective drugs. Infections remain among the leading causes of preventable deaths worldwide, cause significant morbidity and place a substantial cost burden on healthcare systems. For decades, the standard of care for bacterial infections has been antibiotic-based treatment. However, the extensive use of antibiotics has led to the spread of antibiotic resistance, rendering these therapies increasingly ineffective in addressing serious infections and resulting in a global health crisis.

Despite the fact that outcomes of many serious infections remain poor, the current approach to many of these infections is to treat rather than proactively prevent them. Currently marketed antibiotics are often inappropriate for preventive therapy for a variety of reasons. For example, as the lack of specificity of antibiotics results in the propagation of resistance and indiscriminate damage to beneficial host bacteria, often referred to as a patient's microbiome, as well as adverse off-target effects. In addition, for certain viral diseases, preventive vaccinations are not available to many in-need patient populations or are ineffective. For example, the low potency and short half-life of currently available RSV antibody prophylaxis leads to high cost and the need for monthly injections, and is therefore used only in the highest-risk newborns in developed countries, leaving many young children and elderly and immunocompromised patients unserved and at risk of infection. We believe that our highly potent and selective mAb

product candidates have the potential to yield safe and effective preventive therapies while addressing the shortcomings of current therapies.

Our Approach: Monoclonal Antibodies

Monoclonal antibodies offer the potential to prevent and treat serious infections, while reducing the threat of antibiotic resistance and supporting hospital quality and antimicrobial stewardship initiatives. We are developing our mAb immunotherapies to minimize the shortcomings associated with currently approved anti-infective therapies. Unlike antibiotics, which target bacteria indiscriminately, our mAbs selectively target disease-causing bacteria indirectly by disarming their pathogenic processes, as is the case with ASN100, and also in some cases directly by targeting cell surface molecules.

Our lead mAb programs target two important pathogens: *S. aureus*, the most prevalent hospital pathogen in many serious acute infections, with high rates of antibiotic resistance and poor clinical and health-economic outcomes, and RSV, a respiratory pathogen that can cause serious lower respiratory infections requiring hospitalization in young children and elderly and immunocompromised patients.

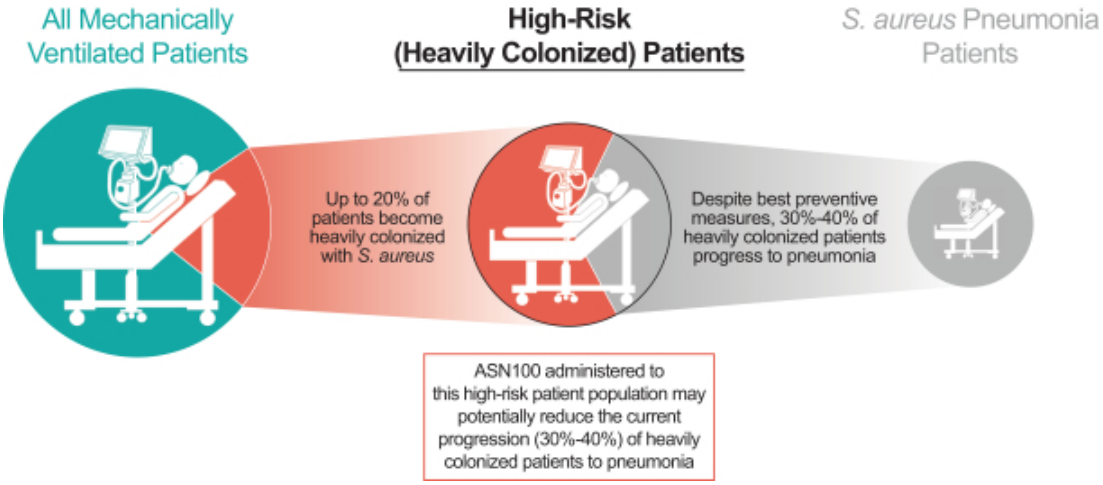
Our Product Candidates

Our Lead Product Candidate: ASN100

ASN100, a first-in-class monoclonal antibody product candidate, is a combination of two fully human mAbs that are co-administered intravenously to neutralize the six cytotoxins critical to *S. aureus* pneumonia pathogenesis. By specifically targeting only these cytotoxins, we believe ASN100 can prevent infection and avoid the shortcomings of antibiotics. ASN100 is currently in a Phase 2 clinical trial for the prevention of *S. aureus* pneumonia in high-risk, mechanically ventilated patients.

S. aureus in Mechanically Ventilated Patients

Mechanical ventilation is used to assist or replace spontaneous breathing in patients who need respiratory support while recovering from medical conditions, surgical procedures or traumatic events. There are over one million mechanically ventilated patients each year in the United States. The endotracheal tube used to deliver oxygen from a ventilator to a patient's lungs serves as a conduit through which *S. aureus* and other pathogens can readily transit from the patient's normal microflora and external environment to invade and persist in the lungs. We refer to the presence of *S. aureus* in the lungs without the signs and symptoms of active infection as colonization. *S. aureus* typically appears as one of the first colonizing bacteria within eight days of the initiation of mechanical ventilation. Based on published epidemiology data, up to 20% of mechanically ventilated patients become heavily colonized with *S. aureus* in their respiratory secretions, putting them at high risk of progressing to *S. aureus* pneumonia, which occurs at a rate of 30% to 40% in this patient population, even when best-available prevention strategies are used.



VAP is a preventable hospital-acquired infection that is responsible for significant clinical and health economic consequences. The specific adverse consequences of VAP, whether caused by *S. aureus* or any other pathogen, include high mortality, significant resource and cost burden to ICUs and negative impact on hospital quality metrics. In particular, all-cause mortality associated with VAP ranges from 20% to 50% and hospital stays are extended by approximately 12 days with associated incremental cost to the hospital of approximately $40,000 per case, despite the use of best-available antibiotic treatment. Given the serious outcomes associated with VAP, costly time- and resource-intensive prevention strategies are routinely employed in ICUs. These activities can take up to four hours of nursing time per patient per day and interfere with other critical patient care activities. Due to the potential undesirable consequences of antibiotic therapy and documented lack of efficacy in addressing colonization, the Infectious Diseases Society of America, or IDSA, and the American Thoracic Society, or ATS, recommend against providing preventive antibiotic therapy in heavily colonized patients, leaving no therapeutic options for proactively addressing this serious infection.

S. aureus Pneumonia – Mechanism of Disease

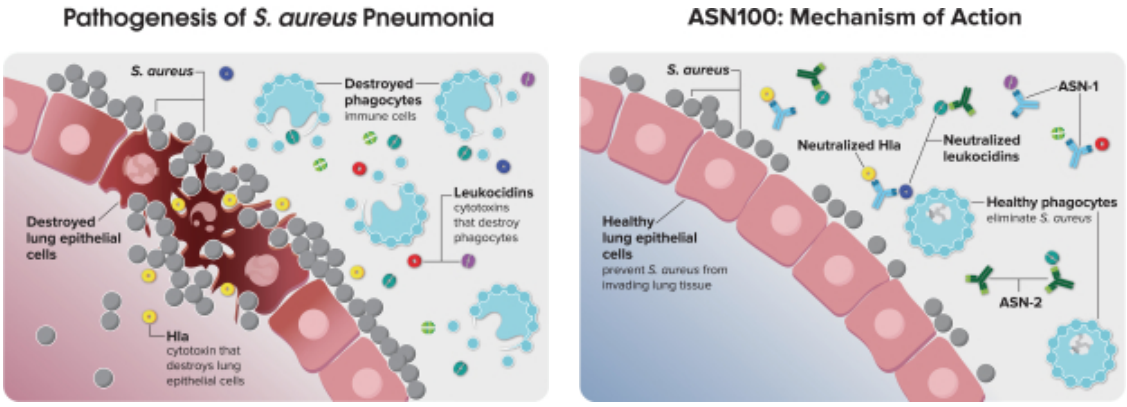
Recently, it has been discovered that *S. aureus* bacteria propagate disease in the lung through the production of up to six pathogenic cytotoxins that damage human lung tissue and destroy human immune cells. These cytotoxins comprise alpha-hemolysin, or Hla, and five leukocidins. Hla damages lung epithelial cells, allowing *S. aureus* to penetrate the lung epithelium, the cellular lining of lung tissue. This facilitates progression to pneumonia and other systemic infections. Leukocidins are cytotoxins that destroy human immune cells, eliminating patients' ability to harness their immune systems to eradicate *S. aureus* through phagocytosis, the natural process of human immune

cells, or phagocytes, ingesting and eliminating harmful pathogens. *S. aureus* can produce up to five potent leukocidins: HlgAB, HlgCB, Panton-Valentine Leukocidin (PVL), LukED and LukGH.

Cytotoxin expression varies by *S. aureus* strain type and within strains over time. The vast majority of *S. aureus* strains carry the genes necessary to produce Hla and three of the leukocidins (HlgAB, HlgCB and LukGH). Up to 75% of strains carry the genes necessary to produce LukED, and up to 10% of strains carry the genes necessary to produce PVL. In order to broadly address *S. aureus* disease-causing potential, or virulence, in the lung, we believe that all six cytotoxins must be comprehensively and consistently addressed.

Our Solution: ASN100

ASN100 utilizes a novel, anti-cytotoxin approach to prevent both tissue damage and the destruction of phagocytes caused by *S. aureus* cytotoxins, thereby reducing the virulence, invasiveness and pathogenicity of *S. aureus*. ASN100 is a combination of two co-administered fully human mAbs, ASN-1 and ASN-2, that together neutralize the six *S. aureus* cytotoxins critical to *S. aureus* pneumonia pathogenesis. ASN-1 is unique among known mAbs in its ability to neutralize Hla and four of the five leukocidins. ASN-2 is the only mAb in development that neutralizes LukGH, the fifth and most potent leukocidin. Together, these mAbs are able to protect both the integrity of lung epithelial cells and phagocytes, potentially preventing *S. aureus* bacteria from invading lung tissue and allowing phagocytes to eliminate *S. aureus*. The pathogenesis of *S. aureus* pneumonia and the mechanism of action of ASN100 are depicted in the figures below.



Our mAbs were generated by applying our deep understanding of the pathogenesis of infection to identify antibody targets, paired with our ability to access state-of-the-art mAb discovery tools to effectively engage these targets. For example, in the case of ASN100, we identified and characterized the six *S. aureus* cytotoxin targets, revealing a common feature of five of these cytotoxins, Hla and four leukocidins. We then selected ASN-1, after interrogation of approximately 10 billion human mAb sequences, as the only mAb able to bind to and neutralize these five distinct targets, which it is able to do with high affinity. The sixth cytotoxin target, LukGH, has multiple sequence variants, and we selected ASN-2 for its high affinity and ability to bind to and neutralize all known sequence variants. We own or have the exclusive rights to these antibodies and antibody targets.

Key Advantages of ASN100

Multiple antibiotics are approved for the treatment of *S. aureus* pneumonia in mechanically ventilated patients, but none are approved for its prevention. In addition to the inherent limitations of targeting treatment rather than prevention, antibiotics leave bacterial virulence factors unaddressed while their lack of specificity can result in the propagation of antibiotic resistance, cause indiscriminate damage to the patient's microbiome and result in other off-target adverse safety effects. In light of suboptimal clinical outcomes associated with

antibiotics for *S. aureus* pneumonia and the resulting healthcare costs and burden, we believe that a new therapeutic paradigm is needed and that ASN100 will offer the following specific benefits:

- **First-in-class therapeutic with novel mechanism of action.** ASN100 is the first and only therapy in development that neutralizes all six of the cytotoxins critical to the pathogenesis of *S. aureus* pneumonia, thereby protecting both lung epithelial cells and human immune cells. Other anti-cytotoxin monoclonal antibodies currently in development for *S. aureus* target only one of these six cytotoxins, Hla. We believe that, if ASN100 is approved, its novel mechanism of action will enable it to improve the standard of care from suboptimal prevention and treatment to efficient and effective pre-emptive therapy.
- **Mitigates the risk of resistance.** ASN100 precisely and specifically targets *S. aureus* cytotoxins and not the bacteria directly. Therefore, we expect ASN100 will mitigate the risk of resistance in *S. aureus* strains and normal microbiome bacteria that is typically observed with antibiotics. Additionally, we believe that ASN100 will be effective in neutralizing all six *S. aureus* cytotoxins implicated in pneumonia pathogenesis regardless of the antibiotic resistance profile of the strain of *S. aureus*.
- **Well tolerated with no off-target effects.** ASN100, a fully human monoclonal antibody product candidate, precisely targets only pathogenic *S. aureus* cytotoxins. In preclinical studies, ASN100 demonstrated no effect on human cell targets. In a Phase 1 clinical trial, ASN100 was well tolerated with no dose-limiting toxicities observed. The precise nature of ASN100's mechanism to specifically target and neutralize *S. aureus* cytotoxins also allows the patient's microbiome to remain unaffected by this therapy.
- **Clinical trials designed for superiority.** With no therapies approved for the prevention of *S. aureus* pneumonia, our Phase 2 clinical trial evaluating ASN100 has been designed and powered to demonstrate superiority to placebo and we expect that any Phase 3 clinical trial of ASN100 will be similarly designed and powered for superiority. This is in contrast to antibiotics, which treat infections only after they occur and are consistently benchmarked to be non-inferior to the applicable standard of care. Due to the superiority design of our ASN100 clinical trials, we believe that positive findings would provide a compelling demonstration to hospitals and health systems of the clinical and health-economic advantages of ASN100.
- **One-time dosing and seamless integration with current preventive practices.** ASN100 is being developed as a single-dose therapeutic to protect a targeted set of patients who are at high risk for *S. aureus* pneumonia. As part of daily ventilator hygiene practice, respiratory secretions are cleared from patients' endotracheal tubes frequently and can be readily tested for the presence of heavy *S. aureus* colonization using standard microbiologic diagnostics, allowing for easy identification of these patients. For these reasons, ASN100 has the potential to be easily integrated into, and to improve the effectiveness of, current inefficient and inadequate preventive approaches.
- **Positive impact on health economic and quality metrics.** We believe that ASN100 has the potential to show a meaningful and quantifiable impact on important health economic and hospital quality metrics. Specifically, we believe that ASN100 may demonstrate a reduction in *S. aureus* pneumonia rates and related lengths of ICU stay and days on mechanical ventilation, ultimately saving hospital costs and improving quality of care.

Phase 2 Clinical Trial

In early 2017, we dosed the first patient with ASN100 in our Phase 2 clinical trial for the prevention of *S. aureus* pneumonia in high-risk, mechanically ventilated patients. This trial is a double-blind, placebo-controlled superiority trial evaluating the efficacy and safety of ASN100 administered as a single dose. We plan to enroll 354 patients in the United States, Europe and multiple additional countries, randomized in a 1:1 ratio between study drug and placebo. The superiority design of the trial differs from traditional antibiotic trials, which are consistently designed to demonstrate non-inferiority compared to the applicable standard of care. The primary efficacy endpoint of the trial is the proportion of patients who develop *S. aureus* pneumonia through 21 days after dosing. The trial is designed to detect a statistically significant 50% reduction in the occurrence of

S. aureus pneumonia in the ASN100 arm when compared to placebo pneumonia rates based on published epidemiology data. Secondary endpoints include 28-day all-cause mortality, as well as length of stay in the ICU and days on mechanical ventilation. We will also gather ASN100 safety and pharmacokinetics data, including data on the pharmacokinetics of ASN100 in the lung, the site of infection. The trial is being conducted under an investigational new drug application, or IND, that we submitted to the Food and Drug Administration, or FDA, in July 2016 for the development of ASN100 for the treatment and prevention of *S. aureus* infections.

We expect to report top-line results from full completion of the trial in the second half of 2018, preceded by an analysis by an independent data monitoring committee of the power of the trial for statistical significance, which will take place when approximately one-third of patients have been treated. We expect to report the results of this power analysis in the first half of 2018. Assuming positive top-line safety and efficacy results from our Phase 2 trial, we expect to use these data to design a pivotal Phase 3 clinical trial as well as inform the potential clinical development of ASN100 in additional indications.

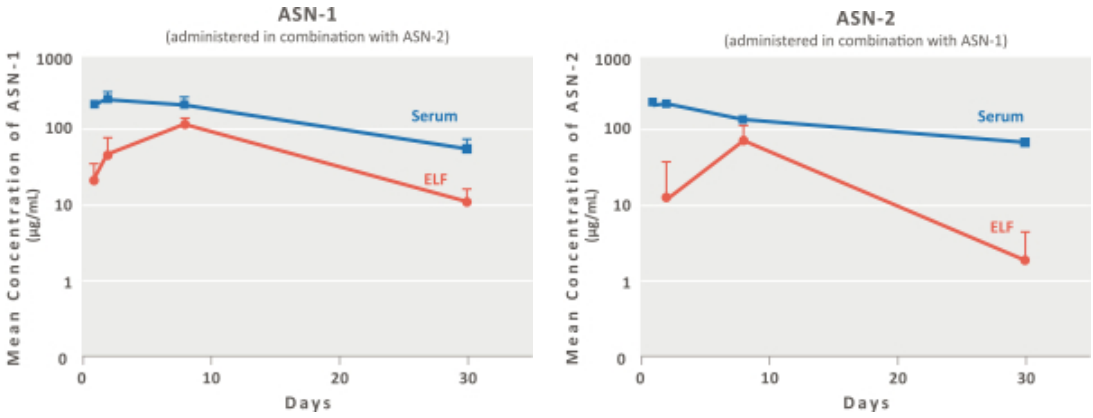
Phase 1 Clinical Data

We successfully completed a Phase 1 single ascending dose clinical trial in 52 healthy volunteers to assess the safety, tolerability and pharmacokinetics of ASN100, both in the bloodstream and the lung. Forty-two volunteers received one dose of ASN-1 alone, ASN-2 alone or ASN-1 and ASN-2 in combination as ASN100, at doses of up to 4,000 mg of ASN-1 and ASN-2 alone and up to 8,000 mg of ASN100 (4,000 mg of each of ASN-1 and ASN-2 co-administered). Thirty volunteers were randomized to receive active drug while 10 healthy volunteers received placebo. Twelve additional volunteers were treated in two open-label cohorts with ASN100 to gain more safety data and sample lung epithelial lining fluid, or ELF, by bronchoalveolar lavage to determine ASN100 lung penetration at 3,600 mg and 8,000 mg doses.

ASN100 was demonstrated to be well tolerated and no dose-limiting toxicities were observed. A total of 91 treatment-emergent adverse events were reported. Of these treatment-emergent adverse events, 68 occurred in 34 of 42 (81%) volunteers receiving ASN-1, ASN-2 or ASN100 and the remaining 23 occurred in 9 of 10 (90%) volunteers receiving placebo. All treatment-emergent adverse events were transient, mild or moderate in severity and resolved without intervention. No increase in adverse events was seen with dose escalation. Two mild treatment-emergent adverse events were possibly related to study drug: one headache (200 mg of ASN-1) and one report of fatigue (8,000 mg of ASN100). No infusion-related or hypersensitivity reactions were observed for ASN-1, ASN-2 or ASN100. All volunteers completed all study assessments. Anti-drug antibody responses after dosing were measured out to 10 months following dosing and no generation of anti-drug antibodies was observed in any volunteer tested.

The pharmacokinetic data supported single-dose administration of ASN100 based on a greater than three-week half-life for both ASN-1 and ASN-2 administered alone or in combination as ASN100. Furthermore, as depicted in the figure below, in a sample of six patients dosed with 3,600 mg of ASN100, both ASN-1 and ASN-2 were detected in lung ELF out to 30 days after dosing. These concentrations were well above those required to neutralize cytotoxins in *in vitro* and *in vivo* studies as supported by pharmacokinetic and pharmacodynamic modeling. To our knowledge, ASN100 is the first mAb product candidate to be measured and reported in human lung ELF, an important and well-recognized measure for dose selection in traditional anti-infective drug development, supporting potential efficacy of ASN100 in the target indication.

ASN100 Phase 1 Pharmacokinetics in Serum and Lung Epithelial Fluid



Our approach to dose selection for ASN100 was based on tolerability and serum and ELF pharmacokinetics in healthy volunteers, as well as response in animal models of *S. aureus* pneumonia. These data all informed a pharmacokinetic and pharmacodynamics model that supported the ASN100 Phase 2 dose of 3,600 mg, or approximately 40 mg/kg. This dose is two times the highest dose needed to protect 100% of animals in the most challenging *in vivo* studies, has been well tolerated in healthy volunteers and we believe it is adequate to address the potential variability in patient lung physiology and *S. aureus* cytotoxin levels.

Preclinical Studies

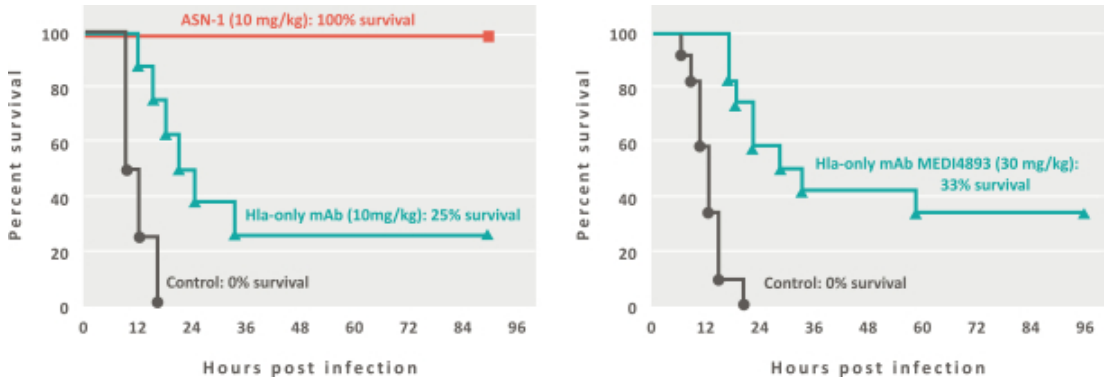
We tested ASN100 in preclinical efficacy studies against a variety of common and highly virulent *S. aureus* strains known to produce high levels of cytotoxins, including antibiotic-resistant strains. Such preclinical assays for anti-infective products are generally predictive of clinical efficacy, particularly in the case of an extensively studied pathogen such as *S. aureus.* We also conducted investigational new drug application, or IND, enabling pharmacology and toxicology studies and the results, combined with the results of our preclinical efficacy studies, support the potential use of ASN100 for the prevention of *S. aureus* pneumonia in high-risk, mechanically ventilated patients. The results of these preclinical studies are summarized below.

Preclinical Efficacy Studies

In Vivo Studies. The activity of ASN-1 was demonstrated across a variety of animal models and strains of *S. aureus*, including the previously established and clinically predictive rabbit model of lethal *S. aureus* pneumonia. In this model, study drug was dosed 24 hours prior to the introduction of a large inoculum of live *S. aureus* directly into the lung. Published results from this model using a prevalent and virulent methicillin-resistant *S. aureus*, or MRSA, strain are shown in the figure on the left below. All of the rabbits treated with 10 mg/kg of ASN-1 survived, while only 25% of rabbits treated with 10 mg/kg of a comparator mAb that targets only Hla survived and no rabbits treated with a control mAb survived. In a separately published study of

MEDI4893, a mAb that targets only Hla, in this same model with the same MRSA strain, only 33% of rabbits survived when dosed with 30 mg/kg of MEDI4893, as shown in the figure on the right below.

Efficacy of ASN-1 and Comparator mAbs in Lethal *S. aureus* Pneumonia Model



Consistent with these data, in independently conducted studies of ASN100 in this same model against four additional *S. aureus* strains, we observed 100% survival during the relevant time period for this acute pneumonia model, for all rabbits receiving 20 mg/kg of ASN100 (10 mg/kg of each of ASN-1 and ASN-2).

In addition to prevention models, the activity of ASN100 in combination with antibiotics was also studied in an animal model of pneumonia treatment. In this model, ASN100 exhibited notable potentiation of antibiotics' effects at sub-therapeutic doses across three antibiotic classes.

Overall, the data from our *in vivo* studies of ASN100 suggest that neutralizing bacterial cytotoxins prevents *S. aureus* pneumonia, highlight the importance of broad neutralization of the six cytotoxins critical to *S. aureus* pneumonia pathogenesis and support the use of ASN100 in patients receiving concomitant antibiotics.

In Vitro Studies. Results from *in vitro* experiments across a wide variety of *S. aureus* strains demonstrated that ASN100 consistently neutralized the six targeted *S. aureus* cytotoxins thereby protecting both human lung epithelial cells from destruction by Hla and human phagocytes from destruction by the five leukocidins critical to *S. aureus* pneumonia pathogenesis. *In vitro* experiments also demonstrated that a 1:1 ratio of ASN-1 and ASN-2, the two mAbs comprising ASN100, was optimal to consistently neutralize all five of the leukocidins and protect human phagocytes across a wide variety of *S. aureus* strains. ASN-1 was also tested in a human tracheobronchial epithelial tissue culture model to assess the role of Hla neutralization in preventing lung tissue damage, demonstrating complete protection of lung epithelial tissue from cytotoxin damage in this model.

Non-Clinical Safety Studies

We conducted i*n vivo* toxicology studies of ASN100 in rats. No clinical observations, no body weight changes and no macroscopic or microscopic effects that were considered related to study treatment were seen when ASN100 was administered at doses of 300 mg/kg and 600 mg/kg. Based on these results, we determined a no-observed-effect level of ASN100 of 600 mg/kg, which is approximately 10-fold higher than the dose being studied in our ongoing Phase 2 clinical trial of ASN100. Additionally, an *in vitro* study of ASN-1, ASN-2 and ASN100 demonstrated no human tissue cross-reactivity, as we expected given that ASN-1 and ASN-2 specifically target bacterial cytotoxins.

Commercial Rationale and Strategy

We believe there is a significant commercial opportunity for ASN100 for the prevention of *S. aureus* pneumonia in high-risk, mechanically ventilated patients. If ASN100 is approved, we expect to focus our initial

commercial efforts in the United States and potentially Europe, which we believe represent the largest market opportunities for ASN100. In other markets, we plan to evaluate the merits of entering into commercialization agreements with partners who have local market expertise and capabilities.

We plan to deploy a highly targeted sales force to promote ASN100 to ICU healthcare professionals. The ICU is a contained setting within most hospitals and the burden of VAP is borne entirely by this unit. A single-dose administration of ASN100 has the potential to be readily and easily integrated into and improve the effectiveness of current inefficient and inadequate preventive approaches. We also believe that ASN100 uptake will not be limited by traditional restrictive hospital anti-infective usage policies.

Hospitalizations involving mechanical ventilations represent approximately 12% of all hospital costs in the United States. Moreover, in their published guidelines, the IDSA and the ATS estimate incremental cost associated with VAP infections to be approximately $40,000 per patient in the United States. We believe that the potential advantages of ASN100, including superior clinical outcomes and measurable health-economic benefits, will drive significant physician demand.

We believe that the current hospital reimbursement environment in the United States and Europe will also support our commercialization efforts for ASN100. In addition to seeking to control costs, hospitals are facing increasing pressure to improve quality of care metrics. For example, one of the largest payors in the United States, Medicare, has increased the use of financial incentives to improve quality of care across many metrics as well as the use of penalties for suboptimal performance. These quality measures include, but are not limited to, the ability of a hospital to prevent hospital-acquired infections and reduce readmissions. These programs can cost individual hospitals millions of dollars in lost Medicare reimbursement per year.

Additional Indications and Markets

S. aureus is a leading cause of many serious infections beyond VAP and cytotoxins often play a key role in these infections. We believe the unique attributes of ASN100 could be applied to additional indications to expand the potential use of ASN100 to prevent or treat other serious *S. aureus* infections in patients at high risk of infection. Potential indications we are currently considering include: *S. aureus* pneumonia treatment, *S. aureus* pulmonary exacerbations in patients with cystic fibrosis, *S. aureus* bloodstream infections, *S. aureus* infections in high-risk surgical patients and certain serious complicated skin and skin structure infections caused by *S. aureus*. We anticipate that the data from our current ASN100 development program, including the results of the Phase 2 clinical trial, will continue to inform the development of ASN100 in these or other indications.

Our RSV Program: ASN500

Our ASN500 program, comprised of highly potent mAbs targeting RSV, is currently in its lead-optimization phase. We believe ASN500, which we are developing for the prevention of RSV infection, will have the potential to offer benefits over existing preventive therapies in terms of potency, dosing strategy, manufacturing and route of administration, to better serve both new and existing target populations globally. We expect to advance this mAb, once selected, into Phase 1 clinical trials in 2019.

RSV is a highly contagious virus that infects nearly every child at least once by the age of two and is a major cause of hospitalization due to respiratory infection in young children and elderly and immunocompromised patients. RSV infections can lead to serious respiratory complications, such as croup, pneumonia and bronchiolitis, as well as, in extreme cases, death. In the United States, an estimated 2.1 million children under the age of five with RSV infection require medical attention each year, and of these, approximately 60,000 are hospitalized. In the elderly and high-risk adult populations in the United States, RSV infection accounts for an estimated 180,000 hospitalizations and 14,000 deaths per year. Prophylaxis for RSV infection with an approved mAb product is used, but only to a limited extent, in the United States and in some other middle-to-high income countries in a narrow population of extremely premature infants or in those with congenital heart disease. This product’s high cost and

requirement for monthly dosing limit its use in resource-constrained settings. As such, there remains a need for novel, cost-effective approaches to the management of RSV infection in multiple large patient populations.

Other Preclinical Programs

Gram-negative bacteria are responsible for some of the most lethal hospital-acquired infections, such as bloodstream infections and pneumonia. Due to increasing antibiotic resistance, there are few remaining effective treatment options for these serious infections, necessitating new approaches. Our Gram-negative programs, ASN200 for *Escherichia coli* and ASN300 for *Klebsiella pneumoniae* apply a precise and multi-modal mAb approach against novel targets to allow for potential use in both preventive and treatment settings, with a goal of providing safe and effective alternatives to small molecule antibiotics, particularly against multi-drug resistant strains. We have selected lead development candidates for our ASN200 and ASN300 programs and are currently seeking external funding to further the preclinical development of these programs.

Competition

The biopharmaceutical industry is characterized by rapidly advancing technologies, intense competition and strong emphasis on proprietary products. While we believe that our technology, knowledge, experience and scientific resources provide us with competitive advantages, we face potential competition from many sources, including major pharmaceutical, specialty pharmaceutical and biotechnology companies, academic institutions and government agencies and public and private research institutions. Any product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future.

Some of our competitors, either alone or with their strategic partners, have substantially greater financial, technical and human resources and significantly greater experience in the discovery and development of product candidates, obtaining FDA and other regulatory approvals of treatments and commercializing those treatments. These same competitors may invent technology that competes with our product candidates.

Mergers and acquisitions in the biotechnology and pharmaceutical industries may result in even more resources being concentrated among a smaller number of our competitors. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and subject registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies.

We expect any products that we develop and commercialize to compete on the basis of, among other things, efficacy, safety, health-economic benefit, convenience of administration and delivery, price, the level of generic or biosimilar competition and the availability of adequate reimbursement from government and other third-party payors.

Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than any products that we may develop. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. In addition, we expect that our products, if approved, will be priced at a premium over competitive generic products and our ability to compete may be affected in many cases by insurers or other third-party payors seeking to encourage the use of generic products.

ASN100

There are currently no therapies approved for the prevention of *S. aureus* pneumonia in high-risk, mechanically ventilated patients. We are aware of two mAb products targeting *S. aureus* cytotoxin in clinical development,

Medimmune's MEDI4893 and Aridis Pharmaceuticals' AR301, each of which targets only the cytotoxin Hla and is in Phase 2 clinical development. ASN100 may also compete with mAb products that may be developed to target *S. aureus* through different mechanisms of action, including XBiotech's 514G3, which targets *S. aureus* surface Protein A and is in Phase 2 clinical development, and Genentech's RG7861, which is comprised of a *S. aureus* bacterial-surface-targeting mAb attached to an antibiotic and is in Phase 1 clinical development.

ASN500

If approved for the prevention of RSV infection, ASN500 would compete with palivizumab, which is marketed by Medimmune as Synagis, the only approved therapy in this indication. ASN500 may also compete with other product candidates currently in clinical development in this indication, including Regeneron Pharmaceuticals' REGN2222, which is in Phase 3 clinical development, and Medimmune's MEDI8897, which is in Phase 2 clinical development.

Sales and Marketing

In light of our stage of development, we have not yet established a commercial organization or distribution capabilities. We have retained worldwide commercial rights for our product candidates. If our product candidates receive marketing approval, we plan to commercialize them in the United States and potentially in Europe with our own focused, specialty sales force. We would expect to conduct most of the build-out of this organization following the approval of a biologics license application, or BLA, in the United States or similar marketing authorization in Europe of any of our product candidates. We expect to explore commercialization of ASN100 and potentially other product candidates in certain markets outside the United States, including the European Union, utilizing a variety of collaboration, distribution and other marketing arrangements with one or more third parties.

Manufacturing

We currently contract with third parties for the manufacture of our product candidates for preclinical studies and clinical trials and intend to do so in the future. We do not own or operate manufacturing facilities for the production of clinical or commercial quantities of our product candidates. We currently have no plans to build our own clinical or commercial scale manufacturing capabilities. To meet our projected needs for commercial manufacturing, third parties with whom we currently work will need to increase their scale of production or we will need to secure alternate suppliers. Although we rely on contract manufacturers, we have personnel with manufacturing experience to oversee our relationships with contract manufacturers.

We utilized a single contract manufacturer to produce ASN100 drug product for our completed Phase 1 clinical trial and our ongoing Phase 2 clinical trial. We are currently in the process of transitioning to a new contract manufacturer of ASN100 drug product for our planned Phase 3 clinical trial and we have transferred to this new contract manufacturer the manufacturing technology utilized at our prior contract manufacturer. While we believe that this new contract manufacturer is capable of producing sufficient quantities of drug product to support our planned Phase 3 clinical trial, we also believe that there are a number of alternative third-party manufacturers that have similar capabilities that would be capable of providing sufficient quantities of drug product for the planned trial. However, should our new contract manufacturer not be able to provide sufficient quantities of drug product for our planned Phase 3 trial, we would be required to seek another contract manufacturer to provide this drug product, likely resulting in a delay in such Phase 3 trial.

Our current product candidates are mAbs. Therefore, the manufacturing process involves the genetic engineering of a parental host cell line to isolate a cell that produces the antibody. Once the cell or clone (colony of cells derived from a single cell) is isolated, a cell bank is produced under prescribed and documented conditions. The cell bank, preserved frozen, is tested as required by regulations to demonstrate that the engineered cell line is free from potentially harmful impurities and contaminants, such as viruses.

The drug substance manufacturing process begins with the thaw of vials from the cell bank and growth of these cells in established media until sufficient cells are cultured to inoculate a production bioreactor. The cells in the production bioreactor are grown in media and under controlled and monitored conditions that stimulate the production of the antibody into the culture media. The production bioreactor is cultured for an established time period and is then harvested by filtration to remove the cells from the culture media.

The antibody solution is purified through a number of steps to remove known process- and product-derived impurities. The technologies employed include ultrafiltration and column and membrane chromatography. Additional steps are performed to inactivate or remove viruses. The final step of the drug substance process adjusts the antibody concentration and produces the final formulation to be used for drug product production. The drug substance is tested to meet pre-established criteria for purity, potency and safety, and is then periodically tested to demonstrate stability upon storage as required by regulations. The drug substance is stored at prescribed temperatures, typically refrigerated or frozen.

The drug product is produced by sterilization filtration of the drug substance solution, followed by aseptic filling into glass vials and then stoppered. The drug product is subjected to release testing for purity, potency and safety according to pre-established specifications. Drug product lots are periodically tested to demonstrate stability over the established storage expiry period. The drug product is stored and shipped under temperature-controlled conditions, typically refrigerated, to sites designated for clinical trial testing, or eventually to commercial pharmaceutical logistics providers.

Intellectual Property

Our success depends significantly on our ability to obtain and maintain proprietary protection for our product candidates, technology and know-how, to operate without infringing the proprietary rights of others and to prevent others from infringing our proprietary rights. We seek to protect our proprietary position by, among other methods, filing U.S. and certain non-U.S. patent applications related to our product candidates, proprietary technology, inventions and improvements that are important to the development of our business. We also rely on trade secrets, know-how, continuing technological innovation and in-licensing opportunities to develop and maintain our proprietary position.

As of July 14, 2017, our patent portfolio included:

- Our ASN100 patent portfolio, which includes seven patent families that we solely own. The first family includes one issued European patent, one pending patent application in the United States and nine pending patent applications in other non-U.S. jurisdictions. We expect that any patents that issue in this first family will expire in April 2033. The second family includes one pending patent application in the United States and 11 pending patent applications in Europe and other non-U.S. jurisdictions. We expect that any patents that issue in this second family will expire in May 2034. The third family includes one pending patent application in the United States and 13 pending patent applications in Europe and other non-U.S. jurisdictions. We expect that any patents that issue in this third family will expire in October 2034. The fourth family includes one pending patent application in the United States and 13 pending patent applications in Europe and other non-U.S. jurisdictions. We expect that any patents that issue in this fourth family will expire in December 2034. The fifth family includes one pending patent application in the United States and four pending patent applications in Europe and other non-U.S. jurisdictions. We expect that any patents that issue in this fifth family will expire in August 2035. The sixth and seventh families each include a pending Patent Cooperation Treaty, or PCT, application. We expect that any patents that issue in the sixth and seventh families will expire in April 2036.
- Our ASN500 patent portfolio, which includes two patent families that we have an exclusive option to license from Adimab. Each family includes one U.S. provisional patent application. We expect that any patents that issue from applications that claim priority to these provisional patent applications and are filed within one year following the applicable provisional application filing date, will expire in October 2037.

- Our ASN200 patent portfolio, which includes two patent families that we solely own. The first family includes two pending patent applications in the United States and 13 pending patent applications in Europe and other non-U.S. jurisdictions. We expect that any patents that issue in this first family will expire in January 2034. The second family includes one pending patent application in the United States and 13 pending patent applications in Europe and other non-U.S. jurisdictions. We expect that any patents that issue in this second family will expire in December 2034.
- Our ASN300 patent portfolio, which includes three patent families that we solely own and two patent families that are co-owned by Max Planck Gesellschaft. The first solely owned family includes one pending PCT application. We expect that any patents that issue in this first solely owned family will expire in June 2036. The second solely owned family includes one pending PCT application, one pending patent application in the United States and 11 pending patent applications in Europe and other non-U.S. jurisdictions. We expect that any patents that issue in this second solely owned family will expire in November 2035. The third solely owned family includes one pending PCT application. We expect that any patents that issue in this third solely owned family will expire in October 2036. The co-owned families each include one pending European patent application in the case of the fourth family and one pending European patent application in the case of the fifth family. We expect that any patents that issue in these co-owned families will expire in August 2037.

The term of individual patents depends upon the legal term for patents in the countries in which they are granted. In most countries, including the United States, the patent term is generally 20 years from the earliest claimed filing date of a non-provisional patent application in the applicable country. In the United States, a patent's term may, in certain cases, be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the U.S. Patent and Trademark Office in examining and granting a patent, or may be shortened if a patent is terminally disclaimed over a commonly owned patent or a patent naming a common inventor and having an earlier expiration date. The Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Act, permits a patent term extension of up to five years beyond the expiration date of a U.S. patent as partial compensation for the length of time the drug is under regulatory review while the patent is in force. A patent term extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, only one patent applicable to each regulatory review period may be extended and only those claims covering the approved drug, a method for using it or a method for manufacturing it may be extended. We cannot provide any assurance that any patent term extension with respect to any U.S. patent will be obtained and, if obtained, what the duration of such extension may be.

Similar provisions are available in the European Union and certain other non-U.S. jurisdictions to extend the term of a patent that covers an approved drug. In the future, if and when our product candidates receive approval by the FDA or non-U.S. regulatory authorities, we expect to apply for patent term extensions on issued patents covering those products, depending upon the length of the clinical trials for each drug and other factors. The expiration dates referred to above are without regard to potential patent term extension or other market exclusivity that may be available to us. However, we cannot provide any assurances that any such patent term extension of a non-U.S. patent will be obtained and, if obtained, the duration of such extension.

Trade Secrets

In addition to patents, we rely, in some circumstances, on trade secrets to protect our technology. However, trade secrets can be difficult to protect. We seek to protect our proprietary technology and processes, and obtain and maintain ownership of certain technologies, in part, by confidentiality and invention assignment agreements with our employees, consultants, scientific advisors and contractors. We also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems.

Collaboration and License Agreements

Adimab, LLC

We are developing antibodies discovered by Adimab, LLC, or Adimab, in our ASN100 and ASN500 monoclonal antibody programs.

Adimab Collaboration Agreement. In May 2011, we entered into a collaboration agreement with Adimab, which, as amended, and together with certain applicable option exercise letters we have sent to Adimab, we refer to as the Adimab Collaboration Agreement. We are developing antibodies discovered under the Adimab Collaboration Agreement in our ASN100 monoclonal antibody program.

Under the Adimab Collaboration Agreement, Adimab and Arsanis were required to use reasonable efforts to conduct certain research, which we funded, to discover and optimize antibodies directed against targets selected by us. Intellectual property arising from the research is generally owned by the party that invents or creates the applicable intellectual property, although certain categories of intellectual property are specifically assigned to one party or the other. For example, patent rights relating to improvements to Adimab's background platform technology or specifically covering the sequence of an antibody that, in each case, are invented in the course of the research are assigned to Adimab. Prior to our exercise of an option (as described in the next paragraph), (1) we and Adimab each grant the other a non-exclusive license to the relevant intellectual property we own to allow each party to carry out its rights and obligations in connection with the research, and (2) except for Adimab's retained right to continue using and licensing its own libraries (as described further below), each party agrees not to practice or license the patents arising out of the research that it owns for any purpose other than to carry out its rights and obligations in connection with the research.

With respect to each target that was the subject of the research, we had an exclusive option to obtain, with respect to a specified number of antibodies directed against such target and discovered or optimized by Adimab, (1) ownership of certain patent rights relating to such antibodies (including patent rights specifically covering the sequences of such antibodies) and (2) exclusive and non-exclusive licenses, with the right to grant sublicenses, in all human therapeutic, prophylactic and diagnostic areas, which we refer to as the licensed field, under certain patent rights and know-how (including non-exclusive licenses to certain patent rights and know-how covering or relating to Adimab's background platform technology), to research, develop, make, have made, use, sell, offer to sell, import and export such antibodies and products based on such antibodies (but not for antibody discovery purposes). In addition, upon exercise of each option, certain contractual restrictions on our ability to prosecute, practice and license certain patents owned by us that arose out of the research were eliminated. All of our options under the Adimab Collaboration Agreement have expired, or are in the process of being exercised, or, with respect to multiple targets and hundreds of antibodies, have already been exercised. The assigned and exclusively and non-exclusively licensed patent rights resulting from these option exercises are described in more detail above under " —Intellectual Property."

Under the Adimab Collaboration Agreement, for each target for which we have exercised an option, we are required to use commercially reasonable efforts to develop and commercialize at least one product in major markets. If we do not fulfill these diligence obligations, Adimab may consider it a material breach, allowing Adimab to terminate the Adimab Collaboration Agreement with respect to such target and all associated products.

Regardless of the assignments and licenses granted by Adimab under the Adimab Collaboration Agreement, Adimab is not required to remove any antibodies from its libraries or to restrict itself from either adding any antibodies to its libraries or providing those libraries to third parties (even if those libraries contain antibodies for which we have exercised an option). Adimab may also freely disclose to third parties certain information (including information received from us) regarding certain attributes of the antibodies discovered or optimized under the research program. Accordingly, Adimab retains a non-exclusive, royalty-free, sublicensable right under certain patents created under the research program to transfer to third parties libraries that may include antibodies

discovered under the research program (including antibodies for which we have exercised our option) and to conduct any activity with respect to antibodies for which we do not exercise our option.

Under the Adimab Collaboration Agreement, as of June 30, 2017, we had paid Adimab approximately $4.3 million in the aggregate, consisting of upfront payments and reimbursement for research conducted by Adimab. We are obligated to pay Adimab royalties at a mid single-digit percentage of net sales, made by us or our affiliates, of products based on antibodies for which we have exercised our option, or products that use or are based on any antibody discovered or optimized under the agreement, any derivative or modified version of any such antibody, or any sequence information as to any such antibody.

If we (or one of our affiliates with rights under the agreement) undergo a change in control and, at the time of such change in control, we have not sold or licensed to third parties all of our rights in antibodies for which we are obligated to pay Adimab royalties under the agreement (which rights we refer to as undesignated rights), then we are obligated to either pay Adimab a percentage, in the mid double digits of the payments we receive from that change in control that are reasonably attributable to those undesignated rights and certain patents arising from the collaboration, or require our acquirer and all of its future third party collaborators to pay to Adimab the royalties described in the preceding paragraphs with respect to net sales of all products based on those undesignated rights. If we grant rights to a third party under certain patents that are not directed to the antibodies for which we are obligated to pay Adimab royalties (as described above), we are also obligated to pay Adimab, in place of royalties or a percentage of payments received from the third party, a lump sum in the high six digits.

If we sell or license to any third party, or otherwise grant rights to any third party to, any of the products for which we are obligated to pay Adimab royalties (as described above), either alone or as part of a package including specified patents not directed to these antibodies, we are obligated to pay Adimab either the same royalties on net sales of such products by such third party, or a percentage, in the low to mid double digits of the payments we receive from such third parties that are attributable to such grant of rights. In April 2017, we entered into a letter agreement with the Gates Foundation (described in more detail below), pursuant to which we licensed to the Gates Foundation certain rights under our ASN100 program.

Notwithstanding the payment obligations described in the preceding paragraphs, we have no payment obligations under the Adimab Collaboration Agreement with respect to sales of certain antibody products if they are sold at cost in developing countries under our April 2017 letter agreement with the Gates Foundation. However, if such products are sold in developing countries for an amount that exceeds cost, then the amount of such excess over cost will be subject to the royalty payment obligations described above.

Under the Adimab Collaboration Agreement, each party generally controls the prosecution and maintenance of the intellectual property it owns, but we control the prosecution and maintenance of patents covering antibodies for which we have exercised our option (except to the extent that such patents cover Adimab's background platform technology or any improvements to that technology), which we refer to as the antibody patents, regardless of which party owns those patents. After we exercise an option, we must use commercially reasonable efforts to conduct such prosecution and maintenance, including by filing and maintaining, in the major markets and all other countries where it is commercially reasonable to do so, at least one patent directed to the antibodies for which we have exercised our option, and must collaborate with Adimab with respect to such prosecution and maintenance. We have the first right to enforce the antibody patents against infringers in the licensed field, though our right to settle such infringement cases is limited.

If we or any of our affiliates challenges the validity, enforceability or scope of any of the licensed patents, then our payment obligations under the Adimab Collaboration Agreement increase, Adimab obtains the right to prosecute, maintain and enforce all of the exclusively licensed patents, and we must reimburse Adimab for its legal costs in connection with such challenge.

Under the Adimab Collaboration Agreement, we are solely responsible for searching for, identifying and evaluating any third party intellectual property that may be infringed or misappropriated by any antibody

discovered or optimized under the agreement, or any derivative or modified version of such an antibody, and must indemnify Adimab for any third party claims arising from any such infringement or misappropriation.

We have the right to terminate the Adimab Collaboration Agreement for any reason by providing Adimab with a specified amount of prior written notice. Adimab has the right to terminate the Adimab Collaboration Agreement if we materially breach the agreement and fail to cure such breach within a specified cure period, including, as discussed above, for our failure to use commercially reasonable efforts to develop and commercialize at least one product directed at a target for we have exercised an option in major markets. If Adimab terminates the Adimab Collaboration Agreement for our breach, or if we terminate the agreement for our convenience, then we must transfer or license to Adimab certain rights and assets relating to targets and antibodies for which we exercised our option. Adimab is then obligated to make payments to us with respect to these targets and antibodies that are similar to the payments we were required to make to Adimab during the term of the agreement. Certain of our payment obligations relating to specified products and patents arising from the agreement survive expiration or termination of the agreement.

Certain disputes under the Adimab Collaboration Agreement must be resolved through binding arbitration.

Adimab Option and License Agreement. In February 2017, we entered into an option and license agreement with Adimab, which we refer to as the Adimab Option Agreement. We are developing antibodies discovered under the Adimab Option and License Agreement in our ASN500 monoclonal antibody program. We are primarily funding our development of this program with funding received under our February 2017 grant agreement with the Gates Foundation (which is described in greater detail below).

Under the Adimab Option Agreement, Adimab has provided to us certain proprietary antibodies against respiratory syncytial virus, or RSV, which we refer to as the initial RSV antibodies, for our evaluation during a specified option period and has granted us an exclusive, non-sublicensable license under certain Adimab patent rights and know-how during the option period to create, research, optimize, make, have made and use the initial RSV antibodies and modified or derivative forms of the initial RSV antibodies. Adimab has performed affinity maturation of a limited number of the initial RSV antibodies for us and provided us with a specified number of higher-affinity RSV antibodies resulting from those activities. In addition, we are conducting our own research program with respect to these RSV antibodies.

Under the Adimab Option Agreement, we have an exclusive option, exercisable during the option period upon payment of an option fee to Adimab, to require Adimab to assign to us all rights in up to a specified number of RSV antibodies selected by us, which we refer to as the selected RSV antibodies, and certain patent rights owned by Adimab that cover these antibodies, and to obtain from Adimab a non-exclusive license, with the right to grant sublicenses, under certain other patent rights and know-how owned by Adimab, to research, develop, have developed, make, have made, use, sell, offer to sell, import and export products based on the selected RSV antibodies and modified or derivative forms of the selected RSV antibodies, for all indications and uses except for certain diagnostic uses. This license would not include any right or license to use the licensed patent rights or know-how to discover or optimize antibodies. We have agreed not to use the patent rights or know-how assigned or licensed to us for the purpose of researching, developing, manufacturing or commercializing RSV antibodies that are not licensed by us.

If we exercise our option under the Adimab Option Agreement, we are required to use commercially reasonable efforts to develop and commercialize at least one product based on a licensed RSV antibody in major markets. If we materially breach these diligence obligations, Adimab will have the right to terminate the Adimab Option Agreement.

Under the Adimab Option Agreement, regardless of the assignments and licenses granted by Adimab, Adimab is not required to remove any antibodies from its libraries or to restrict itself from either adding any antibodies to its libraries or providing those libraries to third parties (even if those libraries include RSV

antibodies that have been licensed or assigned to us). Under the Adimab Option Agreement, Adimab may also freely disclose to third parties certain information regarding certain attributes of the initial RSV antibodies and modified or derivative forms of the initial RSV antibodies created by Adimab (but not modified or derivative forms created by us). However, Adimab and its affiliates may not provide any third party any isolated RSV antibody that has been licensed or assigned to us or grant any third party any license under any patent to the extent it covers any such antibody. If any third party receives a library containing an RSV antibody that has been licensed or assigned to us and requests intellectual property rights, nucleic acid or amino acid sequences, or additional physical materials with respect to such antibody, Adimab must inform such third party that it cannot grant such rights or provide such information or materials.

Under the Adimab Option Agreement, as of June 30, 2017, we had incurred costs paid or payable to Adimab of approximately $70,000 in the aggregate, consisting of reimbursement for affinity maturation work performed by Adimab and for certain patent prosecution costs incurred by Adimab. If we wish to exercise our option under the Adimab Option Agreement, we are obligated to pay Adimab an option fee of $0.3 million and make clinical and regulatory milestone payments of up to $24.4 million. We are obligated to pay Adimab royalties at a mid single-digit percentage of net sales of products based on the initial RSV antibodies (including modified or derivative forms of those antibodies created by or for Arsanis) by us or any of our affiliates, licensees or sublicensees, regardless of whether these products practice any of the assigned or licensed patents or know-how. If we obtain a license under a third party's patent in order to avoid potential claims of patent infringement based on the way in which Adimab discovered an initial RSV antibody or a modified or derivative form of an initial RSV antibody using Adimab's platform technology, then we have the right to offset a portion of the royalties we pay to the third party against our royalty payment obligations to Adimab with respect to such antibody, subject to certain limitations. If we obtain a license under any third-party patent other than as described in the preceding sentence, we have no right to offset any portion of the royalties we pay to the third party against our royalty payment obligations to Adimab. If there is a specified level of biosimilar competition with respect to any product on which we are obligated to pay Adimab running royalties, the royalties owed to Adimab will be reduced with respect to such product, subject to certain limitations.

Notwithstanding the royalty payment obligations described in the preceding paragraph, we have no payment obligations under the Adimab Option Agreement with respect to sales of products based on licensed RSV antibodies to the extent they are sold at cost in developing countries under the February 2017 grant agreement with the Gates Foundation (which is described in further detail below). However, if such products are sold in developing countries for an amount that exceeds cost, then the amount of such excess will be subject to the royalty payment obligations described in the preceding paragraph.

After exercising our option under the Adimab Option Agreement, we control prosecution, maintenance, enforcement and defense of the assigned patents (with obligations to collaborate with Adimab on such prosecution and maintenance) at our cost, and Adimab controls prosecution, maintenance, enforcement and defense of the licensed patents at its cost.

Under the Adimab Option Agreement, we are solely responsible for searching for, identifying and evaluating any third party intellectual property that may be infringed or misappropriated by any licensed RSV antibody, or any derivative or modified version of such an antibody, and must indemnify Adimab for any third party claims arising from any such infringement or misappropriation.

We have the right to terminate the Adimab Option Agreement for any reason by providing Adimab with a specified amount of prior written notice. Adimab has the right to terminate the Adimab Option Agreement if we materially breach the agreement and fail to cure such breach within a specified cure period, including, as discussed above, for our failure to use commercially reasonable efforts to develop and commercialize at least one product based on a licensed RSV antibody in major markets. If Adimab terminates the Adimab Option Agreement for our breach, or if we terminate the agreement for our convenience, then we must assign certain patents covering certain RSV antibodies to Adimab, grant Adimab a non-exclusive, royalty-free license under

certain other patents, and grant Adimab a time-limited right of first negotiation to obtain an exclusive license to certain patents and know-how and the transfer and assignment of certain regulatory filings and approvals and other related assets related to products based on licensed RSV antibodies. Certain of our payment obligations relating to specified products arising from the agreement survive expiration or termination of the agreement.

Certain disputes under the Adimab Option Agreement must be resolved through binding arbitration.

The Bill & Melinda Gates Foundation

Gates Foundation Grant Agreement. In February 2017, we entered into a grant agreement with the Gates Foundation pursuant to which the Gates Foundation granted us up to $9.3 million to conduct preclinical development of monoclonal antibodies for the prevention of RSV infection in newborns, which we refer to as the RSV project. In return, we have agreed to conduct the RSV project in a manner that ensures that the knowledge and information gained from the project will be promptly and broadly disseminated, and that the products, technologies, materials, processes and other intellectual property resulting from the RSV project (which we collectively refer to as the funded developments) will be made available and accessible at an affordable price to people most in need within developing countries.

To this end, we have granted the Gates Foundation a non-exclusive, perpetual, royalty-free, fully paid up, sublicensable license to make, use, sell, offer to sell, import, distribute, copy, modify, create derivative works, publicly perform and display the funded developments and, to the extent incorporated into a funded development or required to use a funded development, any other technology created outside of the RSV project that was used as part of the RSV project, for the benefit of people in developing countries. We have also agreed to seek prompt publication of data and results developed under the RSV project under "open access" terms and conditions.

The Gates Foundation can modify, suspend or discontinue any payment under the grant agreement, or terminate the grant agreement, if it is not reasonably satisfied with our progress on the RSV project; if there are significant changes to our leadership or other factors that the Gates Foundation reasonably believes may threaten the RSV project's success; if we undergo a change in control; if there is a change in our tax status; if the RSV project is no longer aligned with the Gates Foundation's programmatic strategy; or if we fail to comply with the grant agreement. Any grant funds that have not been used for, or committed to, the RSV project upon the expiration or termination of the agreement must be returned to the Gates Foundation or otherwise used as directed by the Gates Foundation.

Gates Foundation Letter Agreement and Investment. In April 2017, we entered into a letter agreement with the Gates Foundation. In connection with the letter agreement, the Gates Foundation purchased $8.0 million of shares of our Series D convertible preferred stock as a program-related investment, and we committed to use the proceeds from the investment by the Gates Foundation solely to advance the development of a specified monoclonal antibody program, which we refer to as the funded program, that involves the monoclonal antibodies ASN-1, ASN-2 and ASN-3 and our product candidate ASN100. The Gates Foundation's primary objective in making the investment was to further the accomplishment of its charitable purposes, including the relief of the poor, distressed and underprivileged, the advancement of science, and the promotion of health by supporting the development of low-cost drugs to address diseases that have a disproportionate impact on people within developing countries, and to ensure that the knowledge gained using the Gates Foundation's funding is promptly and broadly disseminated and the products developed with such funding are made available and accessible at affordable prices to people most in need within developing countries. We refer to the specific obligations that we assumed in the letter agreement that are intended to further this objective as our global access commitments.

We have agreed to diligently generate and test, in pre clinical animal studies, a product candidate for the prevention of neonatal sepsis caused by *S. aureus* in accordance with an agreed-upon research program. The Gates Foundation has a right to continue funding to develop and launch a final product for the prevention of neonatal sepsis caused by *S. aureus*, and/or to develop a combination monoclonal antibody product for use in the prevention of

neonatal sepsis caused by *S. aureus* and/or other bacterial pathogens. We refer to each of these programs as a funded project. In each case, the Gates Foundation may elect to provide further funding and may request that the further development be co-funded by additional equity investments, subject to requisite approval by our board of directors and/or stockholders, or grants from the Gates Foundation pursuant to its standard grant making terms and processes. The specific level and allocation of any such funding responsibilities will be mutually agreed with the Gates Foundation to fairly allocate expected benefits between developing countries and developed countries in a manner that would not be reasonably likely to have a material adverse effect on our business or operations. Such funding will create an obligation for us, alone or through a third party, to conduct such research, development and launch activities. At the request of the Gates Foundation, we will grant the Gates Foundation a non-exclusive, sublicensable license to any candidates or products developed under any of these programs, and all related technology necessary for the development, production and/or distribution or sale of the relevant product(s), for use in the prevention of neonatal sepsis caused by *S. aureus* and/or other bacterial pathogens. The Gates Foundation would only be permitted to exercise any license to our background intellectual property under specified circumstances, which we collectively call a charitability default, or in the event of any other specified triggering event. A charitability default would occur in the event of our material breach of any of our global access commitments under the letter agreement (other than for regulatory, technical or scientific failure not within our reasonable control or knowledge prior to the letter agreement), our failure to comply with the restrictions on our use of the proceeds from the Gates Foundation investment, or our failure to comply with any related U.S. legal obligations set forth in the letter agreement. Other triggering events that would allow the Gates Foundation to exercise the license to our background intellectual property include if we commit an uncured material breach of any grant agreement for any applicable funded project; if we are unwilling or unable or cease to promptly conduct or complete any of the programs described above in this paragraph; if the Gates Foundation reasonably determines (after good faith discussions with us) that we do not have the ability to conduct or complete our global access commitments under the letter agreement in any material respect; or if we become insolvent or cease to conduct business in the ordinary course. Any exercise by the Gates Foundation of the license described in this paragraph will be subject to payment of applicable royalties under the Adimab Collaboration Agreement and, in certain circumstances, may involve payment of a reasonable royalty to us on sales of applicable products outside of the developing countries.

Under the letter agreement, we have also agreed to conduct up to two additional projects proposed and funded by the Gates Foundation, or a Gates Foundation-supported entity, under the Gates Foundation's standard grant making terms and processes, to identify monoclonal antibody candidates against a target pathogen or antigens associated with a target pathogen, and potentially to further develop such candidates, each of which we refer to as an additional funded project. At the request of the Gates Foundation, such additional funded projects will include a non-exclusive, sublicensable license to the Gates Foundation to any product candidates and related technology resulting from the applicable program, to the extent necessary for the development, production or distribution or sale of the relevant product candidate within the field of use prescribed for such product candidate. The Gates Foundation will not practice any such license for sale or distribution of any product candidate outside of the developing countries unless we or one of our licensees commits a material breach of our global access commitments under the letter agreement. If the Gates Foundation requests that we continue the development of any candidate identified in one of these additional funded projects, the specific level and allocation of any funding responsibilities associated with such development will be mutually agreed with the Gates Foundation to fairly allocate expected benefits between developing countries and developed countries in a manner that would not be reasonably likely to have a material adverse effect on our business or operations.

In addition to the license described above, we have granted to the Gates Foundation and/or Gates Foundation-supported entities, a non-exclusive, non-terminable, royalty-free (except as required under the Adimab Collaboration Agreement), sublicensable license to products, technologies, materials, processes and other intellectual property developed using funds provided by the Gates Foundation or a Gates Foundation-supported entity, or developed in connection with our conduct of any funded project or additional funded project, as well as all of our background intellectual property to utilize and exploit products and services directed at pathogens or other targets subject to any funded project or additional funded project. As with the other license

grants in the letter agreement, the Gates Foundation would only be able to exercise this license if there is a charitability default or other triggering event (as described above).

We are required to obtain and maintain all necessary rights and licenses needed to perform our global access commitments under the letter agreement, and we are required to use reasonable efforts to obtain all necessary licenses in order to enable completion of all applicable products in accordance with such global access commitments. The Gates Foundation will be responsible for costs payable to third parties for such licenses to the extent they are necessary for products in developing countries, provided that the Gates Foundation has consented to the terms of the applicable license and the applicable license agreements meet certain specified requirements.

We are required to work with the Gates Foundation to develop and execute, prior to the completion of our Phase 2 clinical trials with respect to our ASN100 product candidate, a manufacturing and supply plan that will meet the reasonably expected demand in developing countries for any products developed under any funded project or any additional funded project. We have agreed that the price of such products in developing countries will be such that the products are affordable to low income individuals, and in no case will the price charged by us with respect to such products in such countries exceed our actual production costs plus a specified percentage. The manufacturing and supply plan could involve the use of manufacturing partners and support from donors, and the specific level and allocation of funding responsibilities will be mutually agreed based on a fair allocation of the expected benefits between developing countries and developed countries.

If the Gates Foundation determines that it is reasonably necessary to work with a third-party manufacturer to achieve certain specified price and volume commitments, we have agreed to license and transfer the necessary technology and intellectual property to such a manufacturer in order to allow the production of products for developing countries, and the Gates Foundation will pay all reasonable costs for any such transfer.

We are required to publish, in accordance with certain “open access” terms and conditions, results and information developed under any funded project or additional funded project within a reasonable period of time subject to delays and limitations necessary to protect our intellectual property and to third party confidentiality obligations, provide the Gates Foundation with access to data and information regarding such projects and the reasonably contemplated use of our platform technology for the programs under the letter agreement, and provide the Gates Foundation certain rights to share such data and information with third parties.

The Gates Foundation has a right to withdraw from its investment in us if there is a charitability default (as described above). If we do not cure the charitability default within a specified period of time, we have the obligation to redeem the Gates Foundation’s stock, to the extent consistent with applicable law and so long as it does not render us insolvent, or to locate a purchaser of the Gates Foundation’s stock. If we are not able to redeem or find a purchaser of the Gates Foundation’s stock, we must use our best efforts to effect the Gates Foundation’s withdrawal right as soon as practicable. During any period when we are unable to effect the withdrawal right, we may not pay dividends on any of our stock, redeem the capital stock of any other stockholder (other than certain circumstances for employees or contractors) or otherwise make any distribution to any other stockholder (other than as part of a stock option plan). For any redemption or purchase resulting from a charitability default, the Gates Foundation’s stock will be valued at the greater of the original purchase price (plus specified interest) or the fair market value of such stock.

Government Regulation and Product Licensure

Government authorities in the United States, at the federal, state and local level, and in other countries and jurisdictions, including the European Union, extensively regulate, among other things, the research, development, testing, manufacture, pricing, quality control, approval, packaging, storage, recordkeeping, labeling, advertising, promotion, distribution, marketing, post-approval monitoring and reporting, and import and export of biopharmaceutical products. The processes for obtaining marketing approvals in the United States and in foreign countries and jurisdictions, along with compliance with applicable statutes and regulations and other regulatory authorities, require the expenditure of substantial time and financial resources.

Licensure and Regulation of Biologics in the United States

In the United States, mAb products are licensed by the FDA as biological products, or biologics, under the Public Health Service Act, or PHSA, and regulated under the Federal Food, Drug, and Cosmetic Act, or FDCA, and applicable implementing regulations and guidance. The failure of an applicant to comply with the applicable regulatory requirements at any time during the product development process, including non-clinical testing, clinical testing, the approval process or post-approval process, may result in delays to the conduct of a study, regulatory review and approval and/or administrative or judicial sanctions. These sanctions may include, but are not limited to, the FDA's refusal to allow an applicant to proceed with clinical trials, refusal to approve pending applications, license suspension or revocation, withdrawal of an approval, warning letters, adverse publicity, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines and civil or criminal investigations and penalties brought by the FDA or Department of Justice, or DOJ, or other government entities, including state agencies.

An applicant seeking approval to market and distribute a new biologic in the United States generally must satisfactorily complete each of the following steps before the product candidate will be licensed by the FDA:

- preclinical testing including laboratory tests, animal studies and formulation studies, which must be performed in accordance with the FDA's good laboratory practice, or GLP, regulations and standards;
- submission to the FDA of an IND for human clinical testing, which must become effective before human clinical trials may begin;
- approval by an independent institutional review board, or IRB, representing each clinical site before each clinical trial may be initiated;
- performance of adequate and well-controlled human clinical trials to establish the safety, potency and purity of the product candidate for each proposed indication, in accordance with current good clinical practices, or GCP;
- preparation and submission to the FDA of a BLA for a biologic product which includes not only the results of the clinical trials, but also, detailed information on the chemistry, manufacture and quality controls for the product candidate and proposed labelling for one or more proposed indication(s);
- review of the product candidate by an FDA advisory committee, where appropriate or if applicable;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities, including those of third parties, at which the product candidate or components thereof are manufactured to assess compliance with current good manufacturing practices, or cGMP, requirements and to assure that the facilities, methods and controls are adequate to preserve the product's identity, strength, quality and purity;
- satisfactory completion of any FDA audits of the non-clinical and clinical trial sites to assure compliance with GCP and the integrity of clinical data in support of the BLA;
- payment of user fees and securing FDA approval of the BLA and licensure of the new biologic product; and
- compliance with any post-approval requirements, including the potential requirement to implement a Risk Evaluation and Mitigation Strategy, or REMS, and the potential requirement to conduct any post-approval studies required by the FDA.

Preclinical Studies and Investigational New Drug Application. Before an applicant begins testing a product candidate with potential therapeutic value in humans, the product candidate enters the preclinical testing stage. Preclinical tests include laboratory evaluations of product chemistry, formulation and stability, as well as other studies to evaluate, among other things, the toxicity of the product candidate. The conduct of the preclinical tests and formulation of the compounds for testing must comply with federal regulations and requirements, including GLP regulations and standards. The results of the preclinical tests, together with manufacturing

information and analytical data, are submitted to the FDA as part of an IND. Some long-term preclinical testing, such as animal tests of reproductive adverse events and carcinogenicity, and long-term toxicity studies, may continue after the IND is submitted.

The IND and IRB Processes. An IND is an exemption from the FDCA that allows an unapproved product candidate to be shipped in interstate commerce for use in an investigational clinical trial and a request for FDA authorization to administer such investigational product to humans. Such authorization must be secured prior to interstate shipment and administration of any product candidate that is not the subject of an approved BLA. In support of a request for an IND, applicants must submit a protocol for each clinical trial and any subsequent protocol amendments must be submitted to the FDA as part of the IND. In addition, the results of the preclinical tests, together with manufacturing information, analytical data, any available clinical data or literature and plans for clinical trials, among other things, must be submitted to the FDA as part of an IND. The FDA requires a 30-day waiting period after the filing of each IND before clinical trials may begin. This waiting period is designed to allow the FDA to review the IND to determine whether human research subjects will be exposed to unreasonable health risks. At any time during this 30-day period, or thereafter, the FDA may raise concerns or questions about the conduct of the trials as outlined in the IND and impose a clinical hold or partial clinical hold. In this case, the IND sponsor and the FDA must resolve any outstanding concerns before clinical trials can begin.

Following commencement of a clinical trial under an IND, the FDA may also place a clinical hold or partial clinical hold on that trial. A clinical hold is an order issued by the FDA to the sponsor to delay a proposed clinical investigation or to suspend an ongoing investigation. A partial clinical hold is a delay or suspension of only part of the clinical work requested under the IND. For example, a specific protocol or part of a protocol is not allowed to proceed, while other protocols may do so. No more than 30 days after imposition of a clinical hold or partial clinical hold, the FDA will provide the sponsor a written explanation of the basis for the hold. Following issuance of a clinical hold or partial clinical hold, an investigation may only resume after the FDA has notified the sponsor that the investigation may proceed. The FDA will base that determination on information provided by the sponsor correcting the deficiencies previously cited or otherwise satisfying the FDA that the investigation can proceed.

A sponsor may choose, but is not required, to conduct a foreign clinical study under an IND. When a foreign clinical study is conducted under an IND, all FDA IND requirements must be met unless waived. When the foreign clinical study is not conducted under an IND, the sponsor must ensure that the study complies with FDA certain regulatory requirements in order to use the study as support for an IND or application for marketing approval. Specifically, on April 28, 2008, the FDA amended its regulations governing the acceptance of foreign clinical studies not conducted under an investigational new drug application as support for an IND or a new drug application. The final rule provides that such studies must be conducted in accordance with good clinical practice, or GCP, including review and approval by an independent ethics committee, or IEC, and informed consent from subjects. The GCP requirements in the final rule encompass both ethical and data integrity standards for clinical studies. The FDA's regulations are intended to help ensure the protection of human subjects enrolled in non-IND foreign clinical studies, as well as the quality and integrity of the resulting data. They further help ensure that non-IND foreign studies are conducted in a manner comparable to that required for IND studies.

In addition to the foregoing IND requirements, an IRB representing each institution participating in the clinical trial must review and approve the plan for any clinical trial before it commences at that institution, and the IRB must conduct continuing review and reapprove the study at least annually. The IRB must review and approve, among other things, the study protocol and informed consent information to be provided to study subjects. An IRB must operate in compliance with FDA regulations. An IRB can suspend or terminate approval of a clinical trial at its institution, or an institution it represents, if the clinical trial is not being conducted in accordance with the IRB's requirements or if the product candidate has been associated with unexpected serious harm to patients.

Additionally, some trials are overseen by an independent group of qualified experts organized by the trial sponsor, known as a data safety monitoring board or committee. This group provides authorization for whether or

not a trial may move forward at designated check points based on access that only the group maintains to available data from the study. Suspension or termination of development during any phase of clinical trials can occur if it is determined that the participants or patients are being exposed to an unacceptable health risk. Other reasons for suspension or termination may be made by us based on evolving business objectives and/or competitive climate.

Information about clinical trials must be submitted within specific timeframes to the National Institutes of Health, or NIH, for public dissemination on its ClinicalTrials.gov website.

Human Clinical Trials in Support of a BLA. Clinical trials involve the administration of the investigational product candidate to healthy volunteers or patients with the disease to be treated or at risk of the disease to be prevented, under the supervision of a qualified investigator in accordance with GCP requirements which include, among other things, the requirement that all research subjects provide their informed consent in writing before their participation in any clinical trial. Clinical trials are conducted under written clinical trial protocols detailing, among other things, the objectives of the study, inclusion and exclusion criteria, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated.

Clinical trials typically are conducted in three sequential phases, but the phases may overlap or be combined. Additional studies may be required after approval.

Phase 1 clinical trials are initially conducted in a limited population to test the product candidate for safety, including adverse effects, dose tolerance, absorption, metabolism, distribution, excretion and pharmacodynamics in healthy humans or, on occasion, in patients, such as cancer patients. During Phase 1 clinical trials, information about the investigational biological product's pharmacokinetics and pharmacological effects may be obtained to permit the design of well-controlled and scientifically valid Phase 2 clinical trials. The total number of participants included in Phase 1 clinical trials varies, but is generally in the range of 20 to 80.

Phase 2 clinical trials are generally conducted in a limited patient population to identify possible adverse effects and safety risks, evaluate the efficacy of the product candidate for specific targeted indications and determine dose tolerance and optimal dosage. Multiple Phase 2 clinical trials may be conducted by the sponsor to obtain information prior to beginning larger and more costly Phase 3 clinical trials. Phase 2 clinical trials are well controlled, closely monitored and conducted in a limited patient population, usually involving no more than several hundred participants.

Phase 3 clinical trials proceed if the Phase 2 clinical trials demonstrate that a dose range of the product candidate is potentially effective and has an acceptable safety profile. Phase 3 clinical trials are undertaken within an expanded patient population to further evaluate dosage, provide substantial evidence of clinical efficacy and further test for safety in an expanded and diverse patient population at multiple, geographically dispersed clinical trial sites. A well-controlled, statistically robust Phase 3 clinical trial may be designed to deliver the data that regulatory authorities will use to decide whether or not to approve, and, if approved, how to appropriately label a biologic: such Phase 3 studies are referred to as "pivotal." Phase 3 clinical trials usually involve several hundred to several thousand participants.

In cases where two or more FDA-regulated products are combined to form a single product candidate, that product candidate is called a combination product and must be developed in compliance with regulations that apply to combination products. An example of a combination product is two biologics combined as a fixed-dose combination product candidate, where the safety and efficacy of each component may need to be demonstrated in addition to the safety and efficacy of the combination product. Data to support combination product development and approval may include results from preclinical tests, clinical trials, and chemistry, manufacturing and controls.

In some cases, the FDA may approve a BLA for a product candidate but require the sponsor to conduct additional clinical trials to further assess the product candidate's safety and effectiveness after approval. Such

post-approval trials are typically referred to as Phase 4 clinical trials. These studies are used to gain additional experience from the treatment of a larger number of patients in the intended treatment group and to further document a clinical benefit in the case of biologics approved under accelerated approval regulations. Failure to exhibit due diligence with regard to conducting Phase 4 clinical trials could result in withdrawal of approval for products.

Progress reports detailing the results of the clinical trials must be submitted at least annually to the FDA and more frequently if serious adverse events occur. In addition, IND safety reports must be submitted to the FDA for any of the following: serious and unexpected suspected adverse reactions; findings from other studies or animal or *in vitro* testing that suggest a significant risk in humans exposed to the product; and any clinically important increase in the case of a serious suspected adverse reaction over that listed in the protocol or investigator brochure. Phase 1, Phase 2 and Phase 3 clinical trials may not be completed successfully within any specified period, or at all. Furthermore, the FDA or the sponsor may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research subjects are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution, or an institution it represents, if the clinical trial is not being conducted in accordance with the IRB's requirements or if the product has been associated with unexpected serious harm to patients. The FDA will typically inspect one or more clinical sites to assure compliance with GCP and the integrity of the clinical data submitted.

Review and Approval of a BLA. In order to obtain approval to market a biological product in the United States, a marketing application must be submitted to the FDA that provides sufficient data establishing the safety, purity and potency of the proposed biological product for its intended indication. The application includes all relevant data available from pertinent preclinical and clinical trials, including negative or ambiguous results as well as positive findings, together with detailed information relating to the product's chemistry, manufacturing, controls and proposed labeling, among other things. Data can come from company-sponsored clinical trials intended to test the safety and effectiveness of a use of a product, or from a number of alternative sources, including studies initiated by investigators. To support marketing approval, the data submitted must be sufficient in quality and quantity to establish the safety, purity and potency of the biological product to the satisfaction of the FDA.

The BLA is, thus, a vehicle through which applicants formally propose that the FDA approve a new product for marketing and sale in the United States for one or more indications. Every new biologic product candidate must be the subject of an approved BLA before it may be commercialized in the United States. Under federal law, the submission of most BLAs is subject to an application user fee, currently exceeding $2.0 million, and the sponsor of an approved BLA is also subject to annual product and establishment user fees, currently exceeding $97,000 per product and $512,000 per establishment. These fees are typically increased annually. Certain exceptions and waivers are available for some of these fees, such as an exception from the application fee for products with orphan designation and a waiver for certain small businesses, an exception from the establishment fee when the establishment does not engage in manufacturing the product during a particular fiscal year, and an exception from the product fee for a product that is the same as another product approved under an abbreviated pathway.

Following submission of a BLA, the FDA conducts a preliminary review of the application generally within 60 calendar days of its receipt and strives to inform the sponsor by the 74th day after the FDA's receipt of the submission whether the application is sufficiently complete to permit substantive review. The FDA may request additional information rather than accept the application for filing. In this event, the application must be resubmitted with the additional information. The resubmitted application is also subject to review before the FDA accepts it for filing. Once the submission is accepted for filing, the FDA begins an in-depth substantive review. The FDA has agreed to specified performance goals in the review process of BLAs. Under that agreement, 90% of applications seeking approval of New Molecular Entities, or NMEs, are meant to be reviewed within ten months from the date on which the FDA accepts the application for filing, and 90% of applications for NMEs that have been designated for "priority review" are meant to be reviewed within six months of the filing

date. For applications seeking approval of products that are not NMEs, the ten-month and six-month review periods run from the date that the FDA receives the application. The review process and the Prescription Drug User Fee Act goal date may be extended by the FDA for three additional months to consider new information or clarification provided by the applicant to address an outstanding deficiency identified by the FDA following the original submission.

Before approving an application, the FDA will typically inspect one or more clinical sites to assure compliance with GCP. Moreover, the FDA typically will inspect the facility or facilities where the product is or will be manufactured. These pre-approval inspections may cover all facilities associated with a BLA submission, including component manufacturing, finished product manufacturing, and control testing laboratories. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Under the FDA Reauthorization Act of 2017, the FDA must implement a protocol to expedite review of responses to inspection reports pertaining to certain applications, including applications for products in shortage or those for which approval is dependent on remediation of conditions identified in the inspection report.

In addition, as a condition of approval, the FDA may require an applicant to develop a REMS. REMS use risk minimization strategies beyond the professional labeling to ensure that the benefits of the product outweigh the potential risks. To determine whether a REMS is needed, the FDA will consider the size of the population likely to use the product, seriousness of the disease, expected benefit of the product, expected duration of treatment, seriousness of known or potential adverse events, and whether the product is a new molecular entity.

The FDA may refer an application for a novel product to an advisory committee or explain why such referral was not made. Typically, an advisory committee is a panel of independent experts, including clinicians and other scientific experts, that reviews, evaluates and provides a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Fast Track, Breakthrough Therapy, Priority Review and Regenerative Advanced Therapy Designations. The FDA is authorized to designate certain products for expedited review if they are intended to address an unmet medical need in the treatment of a serious or life-threatening disease or condition. These programs are referred to as fast track designation, breakthrough therapy designation, priority review designation and regenerative advanced therapy designation.

Specifically, the FDA may designate a product for Fast Track review if it is intended, whether alone or in combination with one or more other products, for the treatment of a serious or life-threatening disease or condition, and it demonstrates the potential to address unmet medical needs for such a disease or condition. For Fast Track products, sponsors may have greater interactions with the FDA and the FDA may initiate review of sections of a Fast Track product's application before the application is complete. This rolling review may be available if the FDA determines, after preliminary evaluation of clinical data submitted by the sponsor, that a Fast Track product may be effective. The sponsor must also provide, and the FDA must approve, a schedule for the submission of the remaining information and the sponsor must pay applicable user fees. However, the FDA's time period goal for reviewing a Fast Track application does not begin until the last section of the application is submitted. In addition, the Fast Track designation may be withdrawn by the FDA if the FDA believes that the designation is no longer supported by data emerging in the clinical trial process.

Second, a product may be designated as a Breakthrough Therapy if it is intended, either alone or in combination with one or more other products, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the product may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The FDA may take certain actions with respect to Breakthrough Therapies, including holding meetings with the sponsor throughout the development process; providing timely advice to the product

sponsor regarding development and approval; involving more senior staff in the review process; assigning a cross-disciplinary project lead for the review team; and taking other steps to design the clinical trials in an efficient manner.

Third, the FDA may designate a product for priority review if it is a product that treats a serious condition and, if approved, would provide a significant improvement in safety or effectiveness. The FDA determines, on a case-by-case basis, whether the proposed product represents a significant improvement when compared with other available therapies. Significant improvement may be illustrated by evidence of increased effectiveness in the treatment of a condition, elimination or substantial reduction of a treatment-limiting product reaction, documented enhancement of patient compliance that may lead to improvement in serious outcomes, and evidence of safety and effectiveness in a new subpopulation. A priority designation is intended to direct overall attention and resources to the evaluation of such applications, and to shorten the FDA's goal for taking action on a marketing application from ten months to six months.

With passage of the 21st Century Cures Act, or the Cures Act, in December 2016, Congress authorized the FDA to accelerate review and approval of products designated as regenerative advanced therapies. A product is eligible for this designation if it is a regenerative medicine therapy that is intended to treat, modify, reverse or cure a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the product has the potential to address unmet medical needs for such disease or condition. The benefits of a regenerative advanced therapy designation include early interactions with FDA to expedite development and review, benefits available to breakthrough therapies, potential eligibility for priority review and accelerated approval based on surrogate or intermediate endpoints.

Accelerated Approval Pathway. The FDA may grant accelerated approval to a product for a serious or life-threatening condition that provides meaningful therapeutic advantage to patients over existing treatments based upon a determination that the product has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit. The FDA may also grant accelerated approval for such a condition when the product has an effect on an intermediate clinical endpoint that can be measured earlier than an effect on irreversible morbidity or mortality, or IMM, and that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity or prevalence of the condition and the availability or lack of alternative treatments. Products granted accelerated approval must meet the same statutory standards for safety and effectiveness as those granted traditional approval.

For the purposes of accelerated approval, a surrogate endpoint is a marker, such as a laboratory measurement, radiographic image, physical sign or other measure that is thought to predict clinical benefit, but is not itself a measure of clinical benefit. Surrogate endpoints can often be measured more easily or more rapidly than clinical endpoints. An intermediate clinical endpoint is a measurement of a therapeutic effect that is considered reasonably likely to predict the clinical benefit of a drug, such as an effect on IMM. The FDA has limited experience with accelerated approvals based on intermediate clinical endpoints, but has indicated that such endpoints generally may support accelerated approval where the therapeutic effect measured by the endpoint is not itself a clinical benefit and basis for traditional approval, if there is a basis for concluding that the therapeutic effect is reasonably likely to predict the ultimate clinical benefit of a product.

The accelerated approval pathway is most often used in settings in which the course of a disease is long and an extended period of time is required to measure the intended clinical benefit of a product, even if the effect on the surrogate or intermediate clinical endpoint occurs rapidly. Thus, accelerated approval has been used extensively in the development and approval of products for treatment of a variety of cancers in which the goal of therapy is generally to improve survival or decrease morbidity and the duration of the typical disease course requires lengthy and sometimes large trials to demonstrate a clinical or survival benefit. Thus, the benefit of accelerated approval derives from the potential to receive approval based on surrogate endpoints sooner than possible for trials with clinical or survival endpoints, rather than deriving from any explicit shortening of the FDA approval timeline, as is the case with priority review.

The accelerated approval pathway is usually contingent on a sponsor's agreement to conduct, in a diligent manner, additional post-approval confirmatory studies to verify and describe the product's clinical benefit. As a result, a product candidate approved on this basis is subject to rigorous post-marketing compliance requirements, including the completion of Phase 4 or post-approval clinical trials to confirm the effect on the clinical endpoint. Failure to conduct required post-approval studies, or confirm a clinical benefit during post-marketing studies, would allow the FDA to initiate expedited proceedings to withdraw approval of the product. All promotional materials for product candidates approved under accelerated regulations are subject to prior review by the FDA.

Limited Population Antibacterial Drug Pathway. With passage of the CURES Act in December 2016, Congress authorized FDA to approve an antibacterial or antifungal product, alone or in combination with one or more other products, as a "limited population drug." To qualify for this approval pathway, the product must be intended to treat a serious or life-threatening infection in a limited population of patients with unmet needs; the standards for approval of drugs and biologics under the FDCA and PHSA must be satisfied; and FDA must receive a written request from the sponsor to approve the product as a limited population drug pursuant to this provision. The FDA's determination of safety and effectiveness for such a product must reflect the benefit-risk profile of such drug in the intended limited population, taking into account the severity, rarity, or prevalence of the infection the drug is intended to treat and the availability or lack of alternative treatment in such a limited population.

Any drug or biologic approved under this pathway must be labeled with the statement "Limited Population" in a prominent manner and adjacent to the proprietary name of the drug or biological product. The prescribing information must also state that the product is indicated for use in a limited and specific population of patients and copies of all promotional materials relating to the product must be submitted to FDA at least 30 days prior to dissemination of the materials. If FDA subsequently approves the product for a broader indication, the agency may remove any post-marketing conditions, including requirements with respect to labeling and review of promotional materials applicable to the product. Nothing in this pathway to approval of a limited population drug prevents sponsors of such products from seeking designation or approval under other provisions of the FDCA, such as accelerated approval.

The FDA's Decision on a BLA. On the basis of the FDA's evaluation of the application and accompanying information, including the results of the inspection of the manufacturing facilities, the FDA may issue an approval letter or a complete response letter. An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. A complete response letter generally outlines the deficiencies in the submission and may require substantial additional testing or information in order for the FDA to reconsider the application. If and when those deficiencies have been addressed to the FDA's satisfaction in a resubmission of the BLA, the FDA will issue an approval letter. The FDA has committed to reviewing such resubmissions in two or six months depending on the type of information included. Even with submission of this additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

If the FDA approves a new product, it may limit the approved indications for use of the product. The agency may also require testing and surveillance programs to monitor the product after commercialization, or impose other conditions, including distribution restrictions or other risk management mechanisms, including REMS, to help ensure that the benefits of the product outweigh the potential risks. REMS can include medication guides, communication plans for healthcare professionals, and elements to assure safe use, or ETASU. ETASU can include, but are not limited to, special training or certification for prescribing or dispensing, dispensing only under certain circumstances, special monitoring and the use of patent registries. The FDA may prevent or limit further marketing of a product based on the results of post-market studies or surveillance programs. After approval, many types of changes to the approved product, such as adding new indications, manufacturing changes and additional labeling claims, are subject to further testing requirements and FDA review and approval.

Post-Approval Regulation. If regulatory approval for marketing of a product or new indication for an existing product is obtained, the sponsor will be required to comply with all regular post-approval regulatory

requirements as well as any post-approval requirements that the FDA may have imposed as part of the approval process. The sponsor will be required to report, among other things, certain adverse reactions and manufacturing problems to the FDA, provide updated safety and efficacy information and comply with requirements concerning advertising and promotional labeling requirements. Manufacturers and certain of their subcontractors are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with ongoing regulatory requirements, including cGMP regulations, which impose certain procedural and documentation requirements upon manufacturers. Accordingly, the sponsor and its third-party manufacturers must continue to expend time, money and effort in the areas of production and quality control to maintain compliance with cGMP regulations and other regulatory requirements.

A product may also be subject to official lot release, meaning that the manufacturer is required to perform certain tests on each lot of the product before it is released for distribution. If the product is subject to official release, the manufacturer must submit samples of each lot, together with a release protocol showing a summary of the history of manufacture of the lot and the results of all of the manufacturer's tests performed on the lot, to the FDA. The FDA may in addition perform certain confirmatory tests on lots of some products before releasing the lots for distribution. Finally, the FDA will conduct laboratory research related to the safety, purity, potency and effectiveness of pharmaceutical products.

Once an approval is granted, the FDA may withdraw the approval if compliance with regulatory requirements is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical trials to assess safety risks; or imposition of distribution or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters or holds on post-approval clinical trials;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of product license approvals;
- product seizure or detention, or refusal to permit the import or export of products; or
- injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates marketing, labeling, advertising and promotion of products that are placed on the market. Pharmaceutical products may be promoted only for the approved indications and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted off-label uses may be subject to significant liability.

In addition, the distribution of prescription pharmaceutical products is subject to the Prescription Drug Marketing Act, or PDMA, and its implementing regulations, as well as the Drug Supply Chain Security Act, or DSCA, which regulate the distribution and tracing of prescription drug samples at the federal level, and set minimum standards for the regulation of distributors by the states. The PDMA, its implementing regulations and state laws limit the distribution of prescription pharmaceutical product samples, and the DSCA imposes requirements to ensure accountability in distribution and to identify and remove counterfeit and other illegitimate products from the market.

Pediatric Studies and Exclusivity. Under the Pediatric Research Equity Act of 2003, a BLA or supplement thereto must contain data that are adequate to assess the safety and effectiveness of the product for

the claimed indications in all relevant pediatric subpopulations, and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. Sponsors must also submit pediatric study plans prior to the assessment data. Those plans must contain an outline of the proposed pediatric study or studies the applicant plans to conduct, including study objectives and design, any deferral or waiver requests and other information required by regulation. The applicant, the FDA, and the FDA's internal review committee must then review the information submitted, consult with each other and agree upon a final plan. The FDA or the applicant may request an amendment to the plan at any time. For products intended to treat a serious or life-threatening disease or condition, the FDA must, upon the request of an applicant, meet to discuss preparation of the initial pediatric study plan or to discuss deferral or waiver of pediatric assessments.

The FDA may, on its own initiative or at the request of the applicant, grant deferrals for submission of some or all pediatric data until after approval of the product for use in adults, or full or partial waivers from the pediatric data requirements. Additional requirements and procedures relating to deferral requests and requests for extension of deferrals are contained in FDASIA. Unless otherwise required by regulation, the pediatric data requirements do not apply to products with orphan designation.

The FDA Reauthorization Act of 2017 established new requirements to govern certain molecularly targeted cancer indications. Any company that submits a BLA three years after the date of enactment of that statute must submit pediatric assessments with the BLA if the biologic is intended for the treatment of an adult cancer and is directed at a molecular target that FDA determines to be substantially relevant to the growth or progression of a pediatric cancer. The investigation must be designed to yield clinically meaningful pediatric study data regarding the dosing, safety and preliminary efficacy to inform pediatric labeling for the product.

Pediatric exclusivity is another type of non-patent marketing exclusivity in the United States and, if granted, provides for the attachment of an additional six months of marketing protection to the term of any existing regulatory exclusivity, including the non-patent and orphan exclusivity. This six-month exclusivity may be granted if a BLA sponsor submits pediatric data that fairly respond to a written request from the FDA for such data. The data do not need to show the product to be effective in the pediatric population studied; rather, if the clinical trial is deemed to fairly respond to the FDA's request, the additional protection is granted. If reports of requested pediatric studies are submitted to and accepted by the FDA within the statutory time limits, whatever statutory or regulatory periods of exclusivity or patent protection cover the product are extended by six months. This is not a patent term extension, but it effectively extends the regulatory period during which the FDA cannot approve another application.

Orphan Drug Designation and Exclusivity. Under the Orphan Drug Act, the FDA may designate a biologic product as an "orphan drug" if it is intended to treat a rare disease or condition, generally meaning that it affects fewer than 200,000 individuals in the United States, or more in cases in which there is no reasonable expectation that the cost of developing and making a product available in the United States for treatment of the disease or condition will be recovered from sales of the product. A company must seek orphan drug designation before submitting a BLA for the candidate product. If the request is granted, the FDA will disclose the identity of the therapeutic agent and its potential use. Orphan drug designation does not shorten the PDUFA goal dates for the regulatory review and approval process, although it does convey certain advantages such as tax benefits and exemption from the PDUFA application fee.

If a product with orphan designation receives the first FDA approval for the disease or condition for which it has such designation or for a select indication or use within the rare disease or condition for which it was designated, the product generally will receive orphan drug exclusivity. Orphan drug exclusivity means that the FDA may not approve another sponsor's marketing application for the same product for the same condition for seven years, except in certain limited circumstances. Specifically, those circumstances apply if a subsequent product with the same biologic for the same condition is shown to be clinically superior to the approved product. In this context, clinically superior means that the drug provides a significant therapeutic advantage over and above the already approved product in terms of greater efficacy, greater safety or by providing a major contribution to patient care.

Orphan exclusivity also does not block the approval of a different product for the same rare disease or condition, nor does it block the approval of the same product for different conditions. If a biologic designated as an orphan drug ultimately receives marketing approval for an indication broader than what was designated in its orphan drug application, it may not be entitled to exclusivity.

Biosimilars and Exclusivity. The 2010 Patient Protection and Affordable Care Act, which was signed into law on March 23, 2010, included a subtitle called the Biologics Price Competition and Innovation Act of 2009, or the BPCIA. The BPCIA established a regulatory scheme authorizing the FDA to approve biosimilars and interchangeable biosimilars. As of June 2017, the FDA has approved five biosimilar products for use in the United States. No interchangeable biosimilars, however, have been approved. The FDA has issued several guidance documents outlining an approach to review and approval of biosimilars. Additional guidances are expected to be finalized by FDA in the near term.

Under the BPCIA, a manufacturer may submit an application for licensure of a biologic product that is "biosimilar to" or "interchangeable with" a previously approved biological product or "reference product." In order for the FDA to approve a biosimilar product, it must find that there are no clinically meaningful differences between the reference product and proposed biosimilar product in terms of safety, purity and potency. For the FDA to approve a biosimilar product as interchangeable with a reference product, the agency must find that the biosimilar product can be expected to produce the same clinical results as the reference product, and (for products administered multiple times) that the biologic and the reference biologic may be switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic.

Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date of approval of the reference product. The FDA may not approve a biosimilar product until 12 years from the date on which the reference product was approved. Even if a product is considered to be a reference product eligible for exclusivity, another company could market a competing version of that product if the FDA approves a full BLA for such product containing the sponsor's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of their product. The BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products. At this juncture, it is unclear whether products deemed "interchangeable" by the FDA will, in fact, be readily substituted by pharmacies, which are governed by state pharmacy law.

Patent Term Restoration and Extension. A patent claiming a new biologic product may be eligible for a limited patent term extension under the Hatch-Waxman Act, which permits a patent restoration of up to five years for patent term lost during product development and the FDA regulatory review. The restoration period granted on a patent covering a product is typically one-half the time between the effective date of a clinical investigation involving human beings is begun and the submission date of an application, plus the time between the submission date of an application and the ultimate approval date. Patent term restoration cannot be used to extend the remaining term of a patent past a total of 14 years from the product's approval date. Only one patent applicable to an approved product is eligible for the extension, and the application for the extension must be submitted prior to the expiration of the patent in question. A patent that covers multiple products for which approval is sought can only be extended in connection with one of the approvals. The United States Patent and Trademark Office reviews and approves the application for any patent term extension or restoration in consultation with the FDA.

Review and Approval of Medicinal Products in the European Union

In order to market any product outside of the United States, a company must also comply with numerous and varying regulatory requirements of other countries and jurisdictions regarding quality, safety and efficacy and governing, among other things, clinical trials, marketing authorization, commercial sales and distribution of products. Whether or not it obtains FDA approval for a product, an applicant will need to obtain the necessary approvals by the comparable non-U.S. regulatory authorities before it can commence clinical trials or marketing

of the product in those countries or jurisdictions. Specifically, the process governing approval of medicinal products in the European Union generally follows the same lines as in the United States. It entails satisfactory completion of preclinical studies and adequate and well-controlled clinical trials to establish the safety and efficacy of the product for each proposed indication. It also requires the submission to the relevant competent authorities of a marketing authorization application, or MAA, and granting of a marketing authorization by these authorities before the product can be marketed and sold in the European Union.

Clinical Trial Approval. The Clinical Trials Directive 2001/20/EC, the Directive 2005/28/EC on Good Clinical Practice, or GCP, and the related national implementing provisions of the individual EU Member States govern the system for the approval of clinical trials in the European Union. Under this system, an applicant must obtain prior approval from the competent national authority of the EU Member States in which the clinical trial is to be conducted. Furthermore, the applicant may only start a clinical trial at a specific study site after the competent ethics committee has issued a favorable opinion. The clinical trial application must be accompanied by, among other documents, an investigational medicinal product dossier (the Common Technical Document) with supporting information prescribed by Directive 2001/20/EC, Directive 2005/28/EC, where relevant the implementing national provisions of the individual EU Member States and further detailed in applicable guidance documents.

In April 2014, the new Clinical Trials Regulation, (EU) No 536/2014 (Clinical Trials Regulation) was adopted. The Regulation is anticipated to enter into force in 2019. The Clinical Trials Regulation will be directly applicable in all the EU Member States, repealing the current Clinical Trials Directive 2001/20/EC. Conduct of all clinical trials performed in the European Union will continue to be bound by currently applicable provisions until the new Clinical Trials Regulation becomes applicable. The extent to which on-going clinical trials will be governed by the Clinical Trials Regulation will depend on when the Clinical Trials Regulation becomes applicable and on the duration of the individual clinical trial. If a clinical trial continues for more than three years from the day on which the Clinical Trials Regulation becomes applicable the Clinical Trials Regulation will at that time begin to apply to the clinical trial.

The new Clinical Trials Regulation aims to simplify and streamline the approval of clinical trials in the European Union. The main characteristics of the regulation include: a streamlined application procedure via a single entry point, the "EU portal"; a single set of documents to be prepared and submitted for the application as well as simplified reporting procedures for clinical trial sponsors; and a harmonized procedure for the assessment of applications for clinical trials, which is divided in two parts. Part I is assessed by the competent authorities of all EU Member States in which an application for authorization of a clinical trial has been submitted (Member States concerned). Part II is assessed separately by each Member State concerned. Strict deadlines have been established for the assessment of clinical trial applications. The role of the relevant ethics committees in the assessment procedure will continue to be governed by the national law of the concerned EU Member State. However, overall related timelines will be defined by the Clinical Trials Regulation.

Marketing Authorization. To obtain a marketing authorization for a product under European Union regulatory systems, an applicant must submit an MAA either under a centralized procedure administered by the EMA, or one of the procedures administered by competent authorities in the EU Member States (decentralized procedure, national procedure or mutual recognition procedure). A marketing authorization may be granted only to an applicant established in the European Union. Regulation (EC) No 1901/2006 provides that prior to obtaining a marketing authorization in the European Union, applicants have to demonstrate compliance with all measures included in an EMA-approved Paediatric Investigation Plan, or PIP, covering all subsets of the pediatric population, unless the EMA has granted (1) a product-specific waiver, (2) a class waiver or (3) a deferral for one or more of the measures included in the PIP.

The centralized procedure provides for the grant of a single marketing authorization by the European Commission that is valid for all EU Member States and three of the four European Free Trade Association, or EFTA, States, Iceland, Liechtenstein and Norway. Pursuant to Regulation (EC) No 726/2004, the centralized

procedure is compulsory for specific products, including for medicines produced by certain biotechnological processes, products designated as orphan medicinal products, advanced therapy products and products with a new active substance indicated for the treatment of certain diseases, including products for the treatment of cancer. For products with a new active substance indicated for the treatment of other diseases and products that are highly innovative or for which a centralized process is in the interest of patients, the centralized procedure may be optional.

Under the centralized procedure, the Committee for Medicinal Products for Human Use, or the CHMP, established at the EMA is responsible for conducting the initial assessment of a product. The CHMP is also responsible for several post-authorization and maintenance activities, such as the assessment of modifications or extensions to an existing marketing authorization. Under the centralized procedure in the European Union, the maximum timeframe for the evaluation of an MAA is 210 days, excluding clock stops, when additional information or written or oral explanation is to be provided by the applicant in response to questions of the CHMP. Accelerated evaluation might be granted by the CHMP in exceptional cases, when a medicinal product is of major interest from the point of view of public health and in particular from the viewpoint of therapeutic innovation. If the CHMP accepts such request, the time limit of 210 days will be reduced to 150 days but it is possible that the CHMP can revert to the standard time limit for the centralized procedure if it considers that it is no longer appropriate to conduct an accelerated assessment. At the end of this period, the CHMP provides a scientific opinion on whether or not a marketing authorization should be granted in relation to a medicinal product. Within 15 calendar days of receipt of a final opinion from the CHMP, the European Commission must prepare a draft decision concerning an application for marketing authorization. This draft decision must take the opinion and any relevant provisions of EU law into account. Before arriving at a final decision on an application for centralized authorization of a medicinal product the European Commission must consult the Standing Committee on Medicinal Products for Human Use. The Standing Committee is composed of representatives of the EU Member States and chaired by a non-voting European Commission representative. The European Parliament also has a related “droit de regard”. The European Parliament’s role is to ensure that the European Commission has not exceeded its powers in deciding to grant or refuse to grant a marketing authorization.

Unlike the centralized authorization procedure, the decentralized marketing authorization procedure requires a separate application to, and leads to separate approval by, the competent authorities of each EU Member State in which the product is to be marketed. This application is identical to the application that would be submitted to the EMA for authorization through the centralized procedure. The reference EU Member State prepares a draft assessment and drafts of the related materials within 120 days after receipt of a valid application. The resulting assessment report is submitted to the concerned EU Member States who, within 90 days of receipt, must decide whether to approve the assessment report and related materials. If a concerned EU Member State cannot approve the assessment report and related materials due to concerns relating to a potential serious risk to public health, disputed elements may be referred to the European Commission, whose decision is binding on all EU Member States.

The mutual recognition procedure similarly is based on the acceptance by the competent authorities of the EU Member States of the marketing authorization of a medicinal product by the competent authorities of other EU Member States. The holder of a national marketing authorization may submit an application to the competent authority of an EU Member State requesting that this authority recognize the marketing authorization delivered by the competent authority of another EU Member State.

Regulatory Data Protection in the European Union. In the European Union, innovative medicinal products approved on the basis of a complete independent data package qualify for eight years of data exclusivity upon marketing authorization and an additional two years of market exclusivity pursuant to Directive 2001/83/EC. Regulation (EC) No 726/2004 repeats this entitlement for medicinal products authorized in accordance the centralized authorization procedure. Data exclusivity prevents applicants for authorization of generics of these innovative products from referencing the innovator’s data to assess a generic (abbreviated) application for a period of eight years. During an additional two-year period of market exclusivity, a generic

marketing authorization application can be submitted and authorized, and the innovator's data may be referenced, but no generic medicinal product can be placed on the European Union market until the expiration of the market exclusivity. The overall ten-year period will be extended to a maximum of 11 years if, during the first eight years of those ten years, the marketing authorization holder obtains an authorization for one or more new therapeutic indications which, during the scientific evaluation prior to their authorization, are held to bring a significant clinical benefit in comparison with existing therapies. Even if a compound is considered to be a new chemical entity so that the innovator gains the prescribed period of data exclusivity, another company nevertheless could also market another version of the product if such company obtained marketing authorization based on an MAA with a complete independent data package of pharmaceutical tests, preclinical tests and clinical trials.

Periods of Authorization and Renewals. A marketing authorization has an initial validity for five years in principle. The marketing authorization may be renewed after five years on the basis of a re-evaluation of the risk-benefit balance by the EMA or by the competent authority of the EU Member State. To this end, the marketing authorization holder must provide the EMA or the competent authority with a consolidated version of the file in respect of quality, safety and efficacy, including all variations introduced since the marketing authorization was granted, at least six months before the marketing authorization ceases to be valid. The European Commission or the competent authorities of the EU Member States may decide, on justified grounds relating to pharmacovigilance, to proceed with one further five year period of marketing authorization. Once subsequently definitively renewed, the marketing authorization shall be valid for an unlimited period. Any authorization which is not followed by the actual placing of the medicinal product on the European Union market (in case of centralized procedure) or on the market of the authorizing EU Member State within three years after authorization ceases to be valid (the so-called sunset clause).

Orphan Drug Designation and Exclusivity. Regulation (EC) No. 141/2000, as implemented by Regulation (EC) No. 847/2000 provides that a drug can be designated as an orphan drug by the European Commission if its sponsor can establish: that the product is intended for the diagnosis, prevention or treatment of (1) a life-threatening or chronically debilitating condition affecting not more than five in ten thousand persons in the European Union when the application is made, or (2) a life-threatening, seriously debilitating or serious and chronic condition in the European Union and that without incentives it is unlikely that the marketing of the drug in the European Union would generate sufficient return to justify the necessary investment. For either of these conditions, the applicant must demonstrate that there exists no satisfactory method of diagnosis, prevention or treatment of the condition in question that has been authorized in the European Union or, if such method exists, the drug will be of significant benefit to those affected by that condition.

Once authorized, orphan medicinal products are entitled to 10 years of market exclusivity in all EU Member States and in addition a range of other benefits during the development and regulatory review process including scientific assistance for study protocols, authorization through the centralized marketing authorization procedure covering all member countries and a reduction or elimination of registration and marketing authorization fees. However, marketing authorization may be granted to a similar medicinal product with the same orphan indication during the 10 year period with the consent of the marketing authorization holder for the original orphan medicinal product or if the manufacturer of the original orphan medicinal product is unable to supply sufficient quantities. Marketing authorization may also be granted to a similar medicinal product with the same orphan indication if this product is safer, more effective or otherwise clinically superior to the original orphan medicinal product. The period of market exclusivity may, in addition, be reduced to six years if it can be demonstrated on the basis of available evidence that the original orphan medicinal product is sufficiently profitable not to justify maintenance of market exclusivity

Regulatory Requirements after a Marketing Authorization has been Obtained. In case an authorization for a medicinal product in the European Union is obtained, the holder of the marketing authorization is required to comply with a range of requirements applicable to the manufacturing, marketing, promotion and sale of medicinal products. These include:

- Compliance with the European Union's stringent pharmacovigilance or safety reporting rules must be ensured. These rules can impose post-authorization studies and additional monitoring obligations.

- The manufacturing of authorized medicinal products, for which a separate manufacturer's license is mandatory, must also be conducted in strict compliance with the applicable European Union laws, regulations and guidance, including Directive 2001/83/EC, Directive 2003/94/EC, Regulation (EC) No 726/2004 and the European Commission Guidelines for Good Manufacturing Practice. These requirements include compliance with European Union cGMP standards when manufacturing medicinal products and active pharmaceutical ingredients, including the manufacture of active pharmaceutical ingredients outside of the European Union with the intention to import the active pharmaceutical ingredients into the European Union. .
- The marketing and promotion of authorized drugs, including industry-sponsored continuing medical education and advertising directed toward the prescribers of drugs and/or the general public, are strictly regulated in the European Union notably under Directive 2001/83EC, as amended, and EU Member State laws.

Brexit and the Regulatory Framework in the United Kingdom. On June 23, 2016, the electorate in the United Kingdom voted in favor of leaving the European Union (commonly referred to as "Brexit"). Thereafter, on March 29, 2017, the country formally notified the European Union of its intention to withdraw pursuant to Article 50 of the Lisbon Treaty. The withdrawal of the United Kingdom from the European Union will take effect either on the effective date of the withdrawal agreement or, in the absence of agreement, two years after the United Kingdom provides a notice of withdrawal pursuant to the EU Treaty. Since the regulatory framework for pharmaceutical products in the United Kingdom. covering quality, safety and efficacy of pharmaceutical products, clinical trials, marketing authorization, commercial sales and distribution of pharmaceutical products is derived from European Union directives and regulations, Brexit could materially impact the future regulatory regime which applies to products and the approval of product candidates in the United Kingdom. It remains to be seen how, if at all, Brexit will impact regulatory requirements for product candidates and products in the United Kingdom

Healthcare Law and Regulation

Healthcare providers and third-party payors play a primary role in the recommendation and prescription of biologic products that are granted marketing approval. Arrangements with providers, consultants, third-party payors and customers are subject to broadly applicable fraud and abuse, anti-kickback, false claims laws, patient privacy laws and regulations and other healthcare laws and regulations that may constrain business and/or financial arrangements. Restrictions under applicable federal and state healthcare laws and regulations, include the following:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons and entities from knowingly and willfully soliciting, offering, paying, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, order or recommendation of, any good or service, for which payment may be made, in whole or in part, under a federal healthcare program such as Medicare and Medicaid;
- the federal civil and criminal false claims laws, including the civil False Claims Act, and civil monetary penalties laws, which prohibit individuals or entities from, among other things, knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false, fictitious or fraudulent or knowingly making, using or causing to made or used a false record or statement to avoid, decrease or conceal an obligation to pay money to the federal government.
- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which created additional federal criminal laws that prohibit, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, and their respective implementing regulations, including the Final Omnibus Rule published in January 2013,

which impose obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information;

- the federal false statements statute, which prohibits knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement in connection with the delivery of or payment for healthcare benefits, items or services;
- the federal transparency requirements known as the federal Physician Payments Sunshine Act, under the Patient Protection and Affordable Care Act, as amended by the Health Care Education Reconciliation Act, or the Affordable Care Act, which requires certain manufacturers of drugs, devices, biologics and medical supplies to report annually to the Centers for Medicare & Medicaid Services, or CMS, within the United States Department of Health and Human Services, information related to payments and other transfers of value made by that entity to physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members; and
- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, which may apply to healthcare items or services that are reimbursed by non-government third-party payors, including private insurers.

Some state laws require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government in addition to requiring manufacturers to report information related to payments to physicians and other healthcare providers or marketing expenditures. State and foreign laws also govern the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Pharmaceutical Insurance Coverage and Healthcare Reform

In the United States and markets in other countries, patients who are prescribed treatments for their conditions and providers performing the prescribed services generally rely on third-party payors to reimburse all or part of the associated healthcare costs. Significant uncertainty exists as to the insurance coverage and reimbursement status of products approved by the FDA and other government authorities. Thus, even if a product candidate is approved, sales of the product will depend, in part, on the extent to which third-party payors, including government health programs in the United States such as Medicare and Medicaid, commercial health insurers and managed care organizations, provide coverage and establish adequate reimbursement levels for, the product. The process for determining whether a payor will provide coverage for a product may be separate from the process for setting the price or reimbursement rate that the payor will pay for the product once coverage is approved. Third-party payors are increasingly challenging the prices charged, examining the medical necessity and reviewing the cost-effectiveness of medical products and services and imposing controls to manage costs. Third-party payors may limit coverage to specific products on an approved list, also known as a formulary, which might not include all of the approved products for a particular indication.

In order to secure insurance coverage and reimbursement for any product that might be approved for sale, a company may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of the product, in addition to the costs required to obtain FDA or other comparable marketing approvals. Nonetheless, product candidates may not be considered medically necessary or cost effective. A decision by a third-party payor not to cover a product could reduce physician utilization once the product is approved and have a material adverse effect on sales, results of operations and financial condition. Additionally, a payor's decision to provide coverage for a product does not imply that an adequate reimbursement rate will be approved. Further, one payor's determination to provide coverage for a product does not assure that other payors will also provide insurance coverage and reimbursement for the product, and the level of insurance coverage and reimbursement can differ significantly from payor to payor.

The containment of healthcare costs also has become a priority of federal, state and foreign governments and the prices of products have been a focus in this effort. Governments have shown significant interest in

implementing cost-containment programs, including price controls, restrictions on reimbursement and requirements for substitution of generic products. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit a company's revenue generated from the sale of any approved products. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable insurance coverage and reimbursement status is attained for one or more products for which a company or its collaborators receive marketing approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

There have been a number of federal and state proposals during the last few years regarding the pricing of pharmaceutical and biopharmaceutical products, limiting insurance coverage and reimbursement for drugs and biologics and other medical products, government control and other changes to the healthcare system in the United States. In March 2010, the United States Congress enacted the Affordable Care Act, or ACA, which, among other things, includes changes to the coverage and payment for products under government healthcare programs. Among the provisions of the ACA of importance to our potential product candidates are:

- an annual, nondeductible fee on any entity that manufactures or imports specified branded prescription drugs and biologic agents, apportioned among these entities according to their market share in certain government healthcare programs;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to certain individuals with income at or below 133% of the federal poverty level, thereby potentially increasing a manufacturer's Medicaid rebate liability;
- expanded manufacturers' rebate liability under the Medicaid Drug Rebate Program by increasing the minimum rebate for both branded and generic drugs and revising the definition of "average manufacturer price," or AMP, for calculating and reporting Medicaid drug rebates on outpatient prescription drug prices;
- addressed a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted or injected;
- expanded the types of entities eligible for the 340B drug discount program;
- established the Medicare Part D coverage gap discount program by requiring manufacturers to provide a 50% point-of-sale-discount off the negotiated price of applicable brand drugs to eligible beneficiaries during their coverage gap period as a condition for the manufacturers' outpatient drugs to be covered under Medicare Part D; and
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in and conduct comparative clinical effectiveness research, along with funding for such research.

Other legislative changes have been proposed and adopted in the United States since the ACA was enacted. In August 2011, the Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions of Medicare payments to providers up to 2% per fiscal year, which went into effect in April 2013 and will remain in effect through 2025 unless additional Congressional action is taken. In January 2013, then-President Obama signed into law the American Taxpayer Relief Act of 2012, which, among other things, further reduced Medicare payments to several providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. In addition, recently there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their commercial products, which has resulted in several Congressional inquiries and proposed bills designed to, among other things, reform government program reimbursement methodologies.

With the new Administration and Congress, there will likely be additional administrative or legislative changes, including modification, repeal, or replacement of all, or certain provisions of, the ACA. In January 2017, Congress voted to adopt a budget resolution for fiscal year 2017, or the Budget Resolution, that authorizes the implementation of legislation that would repeal portions of the ACA. The Budget Resolution is not a law, however, it is widely viewed as the first step toward the passage of legislation that would repeal certain aspects of the ACA. Further, on January 20, 2017, President Trump signed an Executive Order directing federal agencies with authorities and responsibilities under the ACA to waive, defer, grant exemptions from, or delay the implementation of any provision of the ACA that would impose a fiscal or regulatory burden on states, individuals, healthcare providers, health insurers, or manufacturers of pharmaceuticals or medical devices.

Further legislative changes to or regulatory changes under the ACA remain possible in the 115th U.S. Congress and under the Trump Administration. Congress has focused on additional legislative changes, including in particular repeal and replacement of certain provisions of the ACA. To those ends, on May 4, 2017, the U.S. House of Representatives passed the American Health Care Act, or AHCA. On the other hand, the Senate has considered but not passed the AHCA and other legislative proposals leading to new healthcare reform legislation. In addition, while the Trump Administration has threatened to allow the ACA to implode, a bipartisan group of legislators is working to address certain problems with the ACA. Accordingly, it remains to be seen whether new legislation modifying the ACA is enacted and, if so, precisely what the new legislation will provide, when it will be enacted and what impact it will have on the availability of healthcare and containing or lowering the cost of healthcare.

Outside the United States, ensuring adequate coverage and payment for a product also involves challenges. Pricing of prescription pharmaceuticals is subject to government control in many countries. Pricing negotiations with government authorities can extend well beyond the receipt of regulatory marketing approval for a product and may require a clinical trial that compares the cost-effectiveness of a product to other available therapies. The conduct of such a clinical trial could be expensive and result in delays in commercialization.

In the European Union, pricing and reimbursement schemes vary widely from country to country. Some countries provide that products may be marketed only after a reimbursement price has been agreed. Some countries may require the completion of additional studies that compare the cost-effectiveness of a particular product candidate to currently available therapies or so-called health technology assessments, in order to obtain reimbursement or pricing approval. For example, the European Union provides options for its member states to restrict the range of products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. European Union member states may approve a specific price for a product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the product on the market. Other member states allow companies to fix their own prices for products, but monitor and control prescription volumes and issue guidance to physicians to limit prescriptions. Recently, many countries in the European Union have increased the amount of discounts required on pharmaceuticals and these efforts could continue as countries attempt to manage healthcare expenditures, especially in light of the severe fiscal and debt crises experienced by many countries in the European Union. The downward pressure on healthcare costs in general, particularly prescription products, has become intense. As a result, increasingly high barriers are being erected to the entry of new products. Political, economic and regulatory developments may further complicate pricing negotiations, and pricing negotiations may continue after reimbursement has been obtained. Reference pricing used by various European Union member states, and parallel trade, i.e., arbitrage between low-priced and high-priced member states, can further reduce prices. There can be no assurance that any country that has price controls or reimbursement limitations for pharmaceutical products will allow favorable reimbursement and pricing arrangements for any products, if approved in those countries.

Employees

As of June 30, 2017, we had 38 full-time employees, including a total of 15 employees with M.D., Pharm.D. or Ph.D. degrees. Of these full-time employees, 29 employees are engaged in research and development. None of

our employees are represented by labor unions or covered by collective bargaining agreements. We consider our relationship with our employees to be good.

Facilities

Our principal facilities consist of office and laboratory space. We occupy approximately 7,800 square feet of office space in Waltham, Massachusetts under a lease that currently expires in January 2019, approximately 1,500 square meters of office and laboratory space in Vienna, Austria under a lease that currently expires in April 2021 and approximately 25 square meters of laboratory space in Vienna, Austria under a lease with no fixed expiration date that is cancelable by either party upon six months' prior written notice. We believe that our facilities are adequate for our current needs and that suitable additional or substitute space would be available if needed.

Legal Proceedings

From time to time, we may become involved in legal proceedings arising in the ordinary course of our business. We are not currently subject to any material legal proceedings, and we are not aware of any pending or threatened legal proceeding against us that we believe could have an adverse effect on our business, operating results or financial condition.

Scientific and Clinical Advisory Boards

We have established a scientific advisory board and a clinical advisory board and we regularly seek advice and input from these leading scientists and physicians on matters related to our research and development programs. The members of our advisory boards consist of experts across a range of key disciplines relevant to our programs. Our advisors are not our employees and may have commitments to, or consulting or advisory contracts with, other entities that may limit their availability to us. In addition, our advisors may have arrangements with other companies to assist those companies in developing products or technologies that may compete with ours. All of our advisors are affiliated with other entities and devote only a small portion of their time to us.

The current members of our scientific advisory board are:

Name	Positions
Paul G. Ambrose, Pharm.D.	President of the Institute for Clinical Pharmacodynamics, New York, USA; Honorary Research Fellow in Infectious Diseases at the University of Oxford, UK; and Adjunct Associate Research Professor at the University at Buffalo, New York
Birgitta Henriques-Normark, M.D., Ph.D.	Professor in Medical Microbial Pathogenesis in the Department of Microbiology, Tumor and Cell Biology at the Karolinska Institutet
Rick Malley, M.D..	Kenneth McIntosh Chair in Pediatric Infectious Diseases at Children's Hospital Boston and Associate Professor of Pediatrics at Harvard Medical School
Howard Mayer, M.D..	Senior Vice President and Head of Global Clinical Development at Shire Pharmaceuticals
Steven M. Opal, M.D.	Professor of Medicine in the Infectious Disease Division at The Warren Alpert Medical School of Brown University and Chief of Infectious Disease Division at Memorial Hospital of Rhode Island

Name	Positions
Claire Poyart, M.D., Ph.D.	Professor of Medical Microbiology, University Paris Descartes; Head of the Laboratory of Bacteriology of Cochin Hospital; and Head of the National Reference Centre for Streptococci in France
Antoni Torres, M.D., Ph.D.	Head, Respiratory Intensive Care Unit, Department of Pneumology and Respiratory Allergy at the Clinical Institute of the Thorax, Hospital Clinic of Barcelona and Professor of Medicine at the University of Barcelona
Richard Wunderink, M.D.	Professor of Medicine in the Pulmonary and Critical Care Division of Northwestern University's Feinberg School of Medicine and Medical Director of the Medical Intensive Care Unit, Northwestern Memorial Hospital

The current members of our clinical advisory board are:

Name	Positions
Marin Kollef, M.D., FACP, FCCP (Chairman)	Professor of Medicine at the Washington University School of Medicine and Director of the Medical Intensive Care Unit and Respiratory Care Services at Barnes-Jewish Hospital in St. Louis, Missouri
Paul G. Ambrose, Pharm.D.	President of the Institute for Clinical Pharmacodynamics, New York, USA; Honorary Research Fellow in Infectious Diseases at the University of Oxford, UK; and Adjunct Associate Research Professor at the University at Buffalo, New York
Philip S. Barie, M.D.	Professor of Surgery at Weill Cornell Medical College; attending surgeon at New York-Presbyterian/Weill Cornell Medical Center; and Chief, Preston A. Wade (Red) Acute Care Surgery Service, New York-Presbyterian Hospital, Weill Cornell Medical Center
Helen W. Boucher, M.D.	Director of the Infectious Diseases Fellowship Program and Ventricular Assist Device and Cardiac Transplant Infectious Diseases Program at Tufts Medical Center; attending physician in the Division of Geographic Medicine and Infectious Diseases at Tufts Medical Center; and Associate Professor of Medicine at Tufts University School of Medicine
Jean Chastre, M.D.	Consulting Professor, Medical ICU, Hospital Pitié-Salpêtrière, Paris
Ralph Corey, M.D.	Professor of Medicine, Infectious Disease and Pathology of the Department of Medicine at Duke University; Gary Hock Professor of Global Health; and Vice-Chairman of the Department of Medicine at Duke University
Vance Fowler, M.D.	Professor of Medicine and Professor in Molecular Genetics and Microbiology at Duke University
Bruno Francois, M.D.	Specialist, Intensive Care Medicine at University Hospital of Limoges, France and Head of the Limoges Clinical Investigational Center

Name	Positions
Howard Mayer, M.D.	Senior Vice President and Head of Global Clinical Development at Shire Pharmaceuticals
Vandana Menon, M.D., Ph.D., M.P.H.	Vice President, Better Outcomes Corporation and Adjunct Associate Professor, Tufts-New England Medical Center
Debra Poutsiaka, M.D., Ph.D.	Associate Professor of Medicine, Tufts University School of Medicine and Attending Physician, Division of Geographic Medicine and Infectious Diseases, Tufts Medical Center
George Sakoulas, M.D.	Associate Adjunct Professor, Division of Host-Microbe Systems and Therapeutics, Center for Immunity, Infection and Inflammation, at the University of California San Diego School of Medicine
Joseph Solomkin, M.D.	Professor of Surgery (Emeritus), University of Cincinnati College of Medicine and the CEO of OASIS Global
George Talbot, M.D.	Member and Immediate past Co-Chair of the ABSSSI/CABP and HABP/VABP Project Teams at the Biomarkers Consortium of the Foundation of the National Institutes of Health and a Principal at Talbot Advisors, LLC
Antoni Torres, M.D., Ph.D.	Head, Respiratory Intensive Care Unit, Department of Pneumology and Respiratory Allergy at the Clinical Institute of the Thorax, Hospital Clinic of Barcelona and Professor of Medicine at the University of Barcelona

MANAGEMENT

Executive Officers and Directors

The following table sets forth the name, age as of June 30, 2017 and position of each of our executive officers and directors.

Name	Age	Position
Executive Officers		
René Russo, Pharm.D., BCPS	42	President and Chief Executive Officer, Director
Eszter Nagy, M.D., Ph.D.	50	Co-Founder, Chief Scientific Officer, Managing Director of Arsanis Biosciences GmbH, Director
Michael Gray, M.B.A., C.P.A.	46	Chief Financial Officer and Chief Business Officer
Chris Stevens, M.D.	58	Chief Medical Officer
David Mantus, Ph.D.	54	Chief Development Officer
Non-Employee Directors		
Tillman U. Gerngross, Ph.D.	53	Co-Founder, Chairman of the Board of Directors
Jan Adams, Ph.D.	48	Director
Daniel Burgess	55	Director
Carl Gordon, Ph.D., C.F.A.	52	Director
Terrance McGuire	61	Director
Claudio Nessi, Ph.D., M.B.A.	48	Director
Michael Ross, Ph.D.	68	Director
Amy Schulman, J.D.	56	Director

(1) Member of the Audit Committee.
(2) Member of the Compensation Committee.
(3) Member of the Nominating and Corporate Governance Committee.

Executive Officers

René Russo, Pharm.D., BCPS. Dr. Russo has served as a member of our board of directors and as our President and Chief Executive Officer since April 2016. Dr. Russo served as our Chief Development Officer from July 2015 until April 2016. Previously, Dr. Russo served in various roles over an 11-year period at Cubist Pharmaceuticals, Inc., a public pharmaceutical development company, focused on the development and commercialization of infectious disease therapeutics, from 2003 until its acquisition by Merck in May 2015, most recently as its Vice President, Global Medical Affairs. From 1999 to 2004, she held roles of increasing responsibility at Bristol-Myers Squibb where she started her industry career as a Postdoctoral Fellow in Industrial Pharmacy Infectious Diseases. Prior to joining the biotechnology industry, Dr. Russo held clinical positions at Robert Wood Johnson University Hospital and Princeton Hospital. Dr. Russo received her Pharm.D. and B.S. from Rutgers University. Our board of directors believes that Dr. Russo's expertise and experience as our President and Chief Executive Officer, her perspective and experience as an executive at public and private pharmaceutical companies and her expertise in clinical development and commercialization of therapeutics targeting infectious diseases, provide her with the qualifications and skills to serve on our board of directors.

Eszter Nagy, M.D., Ph.D. Dr. Nagy co-founded Arsanis in 2010 and built a multi-disciplinary research and preclinical team in Vienna. Dr. Nagy has served as our Chief Scientific Officer and Managing Director of our wholly owned subsidiary, Arsanis Biosciences GmbH, since October 2011. Dr. Nagy has also served on our Board of Directors since January 2011. From August 2013 to December 2015, Dr. Nagy served as our President. From January 1999 to September 2010, Dr. Nagy served in various roles during her 12 years at Intercell AG (now Valneva SE), most recently as its Senior Vice President of Global Research. Dr. Nagy co-founded EveliQure Biotechnologies (Vienna) in 2012, and was on the Board of Directors of WittyCell, S.A.S (now part of

Abivax, SE), both of which are vaccine development companies. Prior to joining the biotechnology industry, Dr. Nagy spent 10 years in academic research, including as an Associate Professor at the University Medical School of Pécs and a Visiting Scientist in the Department of Cancer Genetics at the Roswell Park Cancer Institute. Dr. Nagy received her M.D. and Ph.D. from the University Medical School of Pécs, Hungary, and was a Postdoctoral Fellow at Dartmouth Medical School. Our board of directors believes that Dr. Nagy's deep knowledge of our company from her role as one of our co-founders and her service in our senior management, including her service as our President, her decades of experience in biotechnology research and her board service with other biotechnology companies provide her with the qualifications and skills to serve on our board of directors.

Michael Gray, M.B.A., C.P.A. Mr. Gray has served as our Chief Financial Officer and Chief Business Officer since March 2016. Prior to joining us, Mr. Gray served in various leadership positions from August 2000 through February 2016 at Curis, Inc., a publicly held oncology drug development company. He served as Curis' Chief Financial Officer and Chief Business Officer from February 2014 to February 2016 and as its Chief Financial Officer and Chief Operating Officer from December 2006 to February 2014. From December 2003 until December 2006, Mr. Gray served as Curis' Vice President of Finance and Chief Financial Officer and from August 2000 until December 2003, served as its Senior Director of Finance and Controller. Previously, Mr. Gray held positions including Controller and *de facto* Chief Financial Officer at Reprogenesis, a biotechnology company focused on the development of cell therapy drug candidates, and as an audit professional for the accounting and consulting firm of Ernst & Young, LLP. Mr. Gray received his M.B.A. in corporate finance and entrepreneurial management from the F.W. Olin Graduate School of Business at Babson College and a B.S. in accounting from Bryant College.

Chris Stevens, M.D. Dr. Stevens has served as our Chief Medical Officer since June 2016. Prior to joining us, Dr. Stevens served as a consultant for over 30 companies, from 2004 to 2016, where he assisted in all stages of drug development across the United States and in Europe. Dr. Stevens served key clients during this time, including Cubist Pharmaceuticals, Inc., Dyax, Inc. and Millennium/Takeda, all biotechnology companies. Previously, he served as Senior Vice President of Clinical Development at Alnara Pharmaceuticals from 2009 to 2011 through its acquisition by Eli Lilly and also previously held medical director roles at Circe Biomedical and Altus Pharmaceuticals. Additionally, Dr. Stevens spent 10 years as a clinical and research gastroenterologist at Beth Israel Deaconess Medical Center in Boston and as an Assistant Professor of Medicine at Harvard Medical School, during which he authored more than 30 peer-reviewed publications. Dr. Stevens received his B.A. in Chemistry from the University of North Carolina at Chapel Hill and his M.D. from the University of Miami.

David Mantus, Ph.D. Dr. Mantus has served as our Chief Development Officer since May 2016, and as our Executive Vice President, Regulatory, Clinical Operations and Manufacturing from October 2015 until May 2016. From December 2014 until October 2015, Dr. Mantus served as the Vice President, Regulatory Affairs & Quality Assurance at BIND Therapeutics, Inc., a biotechnology company. From May 2004 until May 2011 he held various leadership roles in development at Cubist Pharmaceuticals, Inc., including Vice President, Regulatory Affairs. Prior to Cubist, Dr. Mantus served as the Vice President of Sention, Inc., a biotechnology company. Previously, he served as the Director of Regulatory Affairs at Shire Biologics as well as various leadership positions at PAREXEL, Inc. and Procter & Gamble, Inc. Dr. Mantus was previously a Postdoctoral Research Fellow in Biomedical Engineering at the University of Washington and Associate Professor of Pharmaceutical Science at MCPHS University. He received his M.S. and Ph.D. in Chemistry from Cornell University.

Non-Employee Directors

Tillman U. Gerngross, Ph.D., Chairman. Dr. Gerngross co-founded Arsanis in 2010, served as our President from August 2010 to August 2013 and from December 2015 to April 2016. He has served as chairman of the board of directors since August 2010. Prior to joining us, Dr. Gerngross co-founded Adimab, LLC and has served as its Chief Executive Officer and chairman of its board of directors since 2007. Dr. Gerngross has

co-founded a number of other biotechnology companies including Alector, LLC and Avitide, Inc., where he has served as chairman of their boards of directors since 2014 and 2013, respectively. Dr. Gerngross is currently a Venture Partner at SV Life Sciences Advisors, LLC, which he joined in 2006. Dr. Gerngross co-founded GlycoFi, Inc. and served as its Chief Scientific Officer from 2000 to 2006 until it was acquired by Merck. Dr. Gerngross currently teaches in the departments of Biology and Chemistry, as well as at the School of Engineering at Dartmouth College, where he has taught since 1998. Dr. Gerngross attended the Technical University of Vienna, Austria, where he received a B.S./M.S. in Chemical Engineering and later received a Ph.D. in Molecular Biology. Our board of directors believes Dr. Gerngross' expertise and experience in antibody drug discovery and development, his experience as a founder and director of other companies and his educational background provide him with the qualifications and skills to serve on our board of directors.

Jan Adams, Ph.D. Dr. Adams has served as a member of our board of directors since April 2016. Dr. Adams is Managing Director at EMBL Ventures and has served as its Investment Manager since 2002. He is currently representing EMBL Ventures on various portfolio boards, including Lipid Therapeutics GmbH, Topas Therapeutics GmbH, Vira Therapeutics GmbH and Opsona Therapeutics Ltd. Additionally, he has been a Member of the Advisory Boards of several biotechnology companies including ImevaX GmbH, Endoart Medical Technologies SA, JADO Technologies GmbH and Allecra Therapeutics GmbH. Dr. Adams was a Postdoctoral Fellow of the Ernst Schering Research Foundation at the University of Granada, Spain, where he worked in stem cell genetics. Prior to that, he was a Fellow of the Boehringer Ingelheim Research Foundation, conducting work on molecular transport mechanisms at the Wellcome CRC, Cambridge UK. Dr. Adams trained as a Biochemist at the University of Tübingen, where he received a M.S. in Biochemistry and Molecular Biology. Dr. Adams also completed a Ph.D. in Genetics at the University of Cambridge, United Kingdom. Our board of directors believes Dr. Adams' expertise and experience in the biotechnology industry through his role as Investment Manager at EMBL for over 10 years, in which he has been involved in the evaluation, investment and oversight of several biotechnology companies, his scientific educational background and subsequent direct research experience over several years, as well as his experience as a director of other companies provide him with the qualifications and skills to serve on our board of directors.

Daniel Burgess. Mr. Burgess has served as a member of our board of directors since October 2014. Mr. Burgess is currently a venture partner at SV Life Sciences, a position he has held since June 2014. From June 2011 until its acquisition by The Medicines Company in December 2013, he was the President and Chief Executive Officer of Rempex Pharmaceuticals, Inc., a privately held biopharmaceutical company. From December 2013 until June 2014, he ran the Rempex subsidiary of The Medicines Company. Previously, Mr. Burgess was President and Chief Executive Officer of Mpex Pharmaceuticals, Inc., a private biopharmaceutical company, from May 2007 until its acquisition by Aptalis Pharma Inc., now a subsidiary of Actavis, Inc., a publicly traded pharmaceutical company, in April 2011. From August 1999 to May 2007, Mr. Burgess was Chief Operating Officer and Chief Financial Officer of Harbor BioSciences, Inc., formerly Hollis-Eden Pharmaceuticals, Inc., a pharmaceutical company. Prior to joining Harbor BioSciences Mr. Burgess held positions at Nanogen, Inc., Gensia Sicor, Inc., Castle & Cooke, Inc. and Smith Barney, Harris Upham and Company. Mr. Burgess currently serves on the board of directors of Cidara Therapeutics, a publicly traded biotechnology company, where he has served since April 2014; as chairman of the supervisory board of Nabriva Therapeutics, a publicly traded biopharmaceutical company, a position he has held since August 2016; and on the board of directors of Arbutus Biopharma, a publicly traded therapeutic solutions company, where he has served since March 2017. From July 2004 until its acquisition by Salix Pharmaceuticals, Inc. in January 2014, Mr. Burgess served on the board of directors of Santarus, Inc., a publicly-traded biopharmaceutical company. Mr. Burgess holds a B.A. in economics from Stanford University and an M.B.A. from Harvard Business School. Our board of directors believes that Mr. Burgess' qualifications to serve on our board include his years of experience serving as a President and Chief Executive Officer, as well as in other executive leadership positions, of a number of biotech and pharmaceutical companies, as well as his experience as a director of several biotechnology companies, including public company board service.

Carl Gordon, Ph.D., C.F.A. Dr. Gordon has served as a member of our board of directors since September 2010. In addition, Dr. Gordon is a Founding Partner and Co-Head of Global Private Equity at

OrbiMed, a position in which he has served since January 1998. Dr. Gordon served on the boards of directors of Acceleron Pharma, Inc., a publicly traded biopharmaceutical company, from 2006 to 2013; Amarin Corporation plc, a publicly traded biotechnology company, from May 2008 to July 2013; Selecta Biosciences, Inc., a publicly traded biopharmaceutical company, from 2010 to June 2017; and Intellia Therapeutics, Inc., a publicly traded biotechnology company, from August 2015 to July 2017. From 1995 to 1997, Dr. Gordon served as a senior biotechnology analyst at Mehta & Isaly. Dr. Gordon was a Fellow at the Rockefeller University from 1993 to 1995. Dr. Gordon received his B.S. from Harvard College in 1987 and later received a Ph.D. in Molecular Biology from the Massachusetts Institute of Technology in 1993. Our board of directors believes Dr. Gordon's expertise and experience in the biotechnology industry through his role as Founding Partner and Co-Head of Global Private Equity at OrbiMed over a 20-year period, in which he has been involved in the evaluation, investment and oversight of several biotechnology companies, as well as his scientific educational background, provide him with the qualifications and skills to serve on our board of directors.

Terrance McGuire. Mr. McGuire has served as a member of our board of directors since February 2011. Additionally, Mr. McGuire is a Founding Partner of Polaris Partners, a venture capital firm investing in technology and healthcare companies across all stages of development, where he has worked since 1996. Prior to starting Polaris in 1996, he spent seven years at Burr, Egan, Deleage & Co. investing in early stage medical and information technology companies. Mr. McGuire serves as chairman of the board of directors of Ironwood Pharmaceuticals, Inc., a publicly traded drug manufacturer, and has served as a director since 1998. Mr. McGuire also currently serves on the boards of directors of Acceleron Pharma, Inc., a publicly traded biopharmaceutical company, where he has served since 2005, and Pulmatrix, Inc., a publicly traded biopharmaceutical company, where he has served since May 2016. From January 2008 to July 2014, Mr. McGuire served on the board of directors of Trevena, Inc., a publicly traded biopharmaceutical company. Mr. McGuire is emeritus Chairman of the National Venture Capital Association, Chairman of the Global Ventures Capital Congress and chairs the board of the Thayer School of Engineering at Dartmouth College. He also sits on the boards of MIT's The David H. Koch Institute for Integrative Cancer Research, The Arthur Rock Center for Entrepreneurship at Harvard Business School and The Healthcare Initiative Advisory Board. Mr. McGuire holds an M.B.A. from Harvard Business School, and M.S. in engineering from the Thayer School at Dartmouth College, and a B.S. in physics and economics from Hobart College. Our board of directors believes Mr. McGuire's expertise and experience in the biotechnology industry through his role as a Founding Partner of Polaris Partners and his cumulative career in venture capital over a period spanning over 35 years, in which he has been involved in the evaluation, investment and oversight of numerous biotechnology companies, as well as his experience as a director of several biotechnology companies, including other public companies, provide him with the qualifications and skills to serve on our board of directors.

Claudio Nessi, Ph.D., M.B.A. Dr. Nessi has served as a member of our board of directors since August 2013. Dr. Nessi has served as Managing Partner at NeoMed Management since 2016, where he has served as a Partner since 2004 and served as an Investment Director from 2001 until 2004. Also, Dr. Nessi has served as Managing Director of Omega Funds since November 2016. Dr. Nessi held other board positions at Axoyan AG from April 2002 to November 2003, Endosense SA from October 2005 to August 2013, Kuros BioSurgery AG from October 2002 to February 2013, PregLem SA from June 2007 to October 2010 and Creabilis Ltd. from February 2008 to December 2016. In addition to Arsanis, Dr. Nessi is also currently serving on the Board of Directors of the private biotechnology companies Avitide, Inc., GenKyoTex SA and Anaconda Biomed. Dr. Nessi received his M.B.A. from Erasmus University in the Netherlands, and received his Ph.D. in Genetics from the University of Pavia, Italy. Our board of directors believes Dr. Nessi's expertise and experience in the biotechnology industry through his roles of increasing responsibility at NeoMed Management spanning a period of over 15 years, in which he has been involved in the evaluation, investment and oversight of several biotechnology companies; his scientific and business-focused educational background, as well as his experience as a director of other companies provide him with the qualifications and skills to serve on our board of directors.

Michael Ross, Ph.D. Dr. Ross has served as a member of our board of directors since February 2011. Additionally, he has served as a Managing Partner at SV Life Sciences since 2002 where he also served as a

Venture Partner from 2001 until 2002. Prior to joining SV Life Sciences, Dr. Ross served at Genentech for 13 years in roles of increasing responsibility, including as its Vice President of Drug Development. Dr. Ross was also the founder and served as Chief Executive Officer of numerous biotechnology companies such as Arris Pharmaceutical, MetaXen, ExSAR and CyThera (now Viacyte). Additionally, Dr. Ross served as a Managing Partner for Didyma, LLC, a biotechnology management consulting firm, and served on the boards of directors of Cartar Proteomics, Epimmune, Genencor, MetaXen and Xenova. Dr. Ross currently serves on the boards of directors of Catabasis Pharmaceuticals, Inc., a publicly traded pharmaceutical company, where he has served since April 2010, and Ophthotech Corporation, a publicly traded biopharmaceutical company, where he has served since April 2013. Dr. Ross earned his B.A. in Chemistry from Dartmouth College and his Ph.D. in Chemistry from the California Institute of Technology. He later held an NIH Postdoctoral Fellowship in Molecular Biology at Harvard. Our board of directors believes Dr. Ross' expertise and experience in the biotechnology industry through his role as Managing Partner at SV Health Partners, in which he has been involved in the evaluation, investment and oversight of numerous biotechnology companies; his industry experience, including his service as a Chief Executive Officer and in various drug development leadership roles at biotechnology companies; as well as his experience as a director of several biotechnology companies, provide him with the qualifications and skills to serve on our board of directors.

Amy Schulman, J.D. Ms. Schulman has served as a member of our board of directors since February 2015. Since July 2014, she has served as Venture Partner at Polaris Partners' Boston office, and she served as CEO of Arsia Therapeutics, a Polaris-backed company, from July 2014 until its acquisition by Eagle Pharmaceuticals in November 2016. She served as director of Bind Therapeutics from September 2014 to June 2016. In July 2015, Ms. Schulman co-founded Lyndra, where she currently serves as CEO, and since January 2017 she has served as CEO of Olivo Laboratories, both Polaris-backed companies. She serves as the Executive Chair of SQZ Biotech and Suono Bio. Ms. Schulman currently serves on the boards of directors of Alnylam Pharmaceuticals, a publicly traded biopharmaceutical company, where she has served since July 2014; Ironwood Pharmaceuticals, Inc., a publicly traded drug manufacturer, where she has served since January 2017; and Blue Buffalo Pet Products, Inc., a publicly traded pet food company, where she has served since 2014. In addition, she serves as a director of the Whitehead Institute. She is a member of Harvard Business School's Faculty where she serves as a Senior Lecturer and teaches legal and corporate accountability. A Phi Beta Kappa graduate of Wesleyan University, Ms. Schulman earned her J.D. from Yale Law School in 1989. Our board of directors believes that Ms. Schulman's qualifications to serve on our board include her years of experience serving as President and Chief Executive Officer of a number of biotech companies, her educational background and experience as attorney, including her service as general counsel of Pfizer, Inc., as well as her experience as a director of several biotechnology companies, including other public companies.

Board Composition and Election of Directors

Board Composition

Effective upon the closing of this offering, our board of directors will have members. Our directors hold office until their successors have been elected and qualified or until the earlier of their death, resignation or removal.

Our certificate of incorporation and bylaws that will become effective upon the closing of this offering provide that the authorized number of directors may be changed only by resolution of our board of directors. Our certificate of incorporation and bylaws will also provide that our directors may be removed only for cause by the affirmative vote of the holders of 75% of our shares of capital stock present in person or by proxy and entitled to vote, and that any vacancy on our board of directors, including a vacancy resulting from an enlargement of our board of directors, may be filled only by vote of a majority of our directors then in office.

In accordance with the terms of our certificate of incorporation and bylaws that will become effective upon the closing of this offering, our board of directors will be divided into three classes, class I, class II and class III,

with members of each class serving staggered three-year terms. Upon the closing of this offering, the members of the classes will be divided as follows:

- the class I directors will be , and , and their term will expire at the annual meeting of stockholders to be held in ;
- the class II directors will be , and , and their term will expire at the annual meeting of stockholders to be held in ; and
- the class III directors will be , and , and their term will expire at the annual meeting of stockholders to be held in .

Upon the expiration of the term of a class of directors, directors in that class will be eligible to be elected for a new three-year term at the annual meeting of stockholders in the year in which their term expires.

The classification of our board of directors may have the effect of delaying or preventing changes in our control or management. See "Description of Capital Stock—Delaware Anti-Takeover Law and Certain Charter and Bylaw Provisions."

Director Independence

The NASDAQ Stock Market LLC, or NASDAQ, Marketplace Rules, or the NASDAQ Listing Rules, require a majority of a listed company's board of directors to be comprised of independent directors within one year of listing. In addition, the NASDAQ Listing Rules require that, subject to specified exceptions, each member of a listed company's audit, compensation and nominating and corporate governance committees be independent under the Securities Exchange Act of 1934, as amended, or the Exchange Act. Audit committee members must also satisfy the independence criteria set forth in Rule 10A-3 under the Exchange Act and compensation committee members must also satisfy the independence criteria set forth in Rule 10C-1 under the Exchange Act. Under the NASDAQ Listing Rules, a director will only qualify as an "independent director" if, in the opinion of the listed company's board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. In order to be considered independent for purposes of Rule 10A-3, a member of an audit committee of a listed company may not, other than in his or her capacity as a member of the audit committee, the board of directors, or any other board committee, accept, directly or indirectly, any consulting, advisory, or other compensatory fee from the listed company or any of its subsidiaries or otherwise be an affiliated person of the listed company or any of its subsidiaries. In order to be considered independent for purposes of Rule 10C-1, the board must consider, for each member of a compensation committee of a listed company, all factors specifically relevant to determining whether a director has a relationship to such company which is material to that director's ability to be independent from management in connection with the duties of a compensation committee member, including, but not limited to: (1) the source of compensation of the director, including any consulting, advisory or other compensatory fee paid by such company to the director; and (2) whether the director is affiliated with the company or any of its subsidiaries or affiliates.

In 2017, our board of directors undertook a review of the composition of our board of directors and its committees and the independence of each director. Based upon information requested from and provided by each director concerning his or her background, employment and affiliations, including family relationships, our board of directors has determined that each of our directors, with the exception of René Russo, Eszter Nagy and Tillman U. Gerngross, is an "independent director" as defined under the NASDAQ Listing Rules. In making such determination, our board of directors considered the relationships that each such non-employee director has with our company and all other facts and circumstances that our board of directors deemed relevant in determining his or her independence, including the beneficial ownership of our capital stock by each non-employee director. Dr. Russo is not an independent director under these rules because she is our President and Chief Executive Officer. Dr. Nagy is not an independent director under these rules because she is our Chief Scientific Officer.

Dr. Gerngross is not an independent director under these rules because of his service as Chief Executive Officer of Adimab, LLC, a company with which we have a commercial relationship.

There are no family relationships among any of our directors or executive officers.

Board Committees

Our board of directors has established an audit committee, a compensation committee and a nominating and corporate governance committee, each of which operates under a charter that has been approved by our board. The composition of each committee will be effective as of the date of this prospectus.

Audit Committee

The members of our audit committee are , and . is the chair of the audit committee. Our audit committee's responsibilities will include:

- appointing, approving the compensation of, and assessing the independence of our registered public accounting firm;
- overseeing the work of our independent registered public accounting firm, including through the receipt and consideration of reports from that firm;
- reviewing and discussing with management and our independent registered public accounting firm our annual and quarterly financial statements and related disclosures;
- monitoring our internal control over financial reporting, disclosure controls and procedures and code of business conduct and ethics;
- overseeing our internal audit function;
- overseeing our risk assessment and risk management policies;
- establishing policies regarding hiring employees from our independent registered public accounting firm and procedures for the receipt and retention of accounting related complaints and concerns;
- meeting independently with our internal auditing staff, if any, our independent registered public accounting firm and management;
- reviewing and approving or ratifying any related person transactions; and
- preparing the audit committee report required by Securities and Exchange Commission, or SEC, rules.

All audit and non-audit services, other than *de minimis* non-audit services, to be provided to us by our independent registered public accounting firm must be approved in advance by our audit committee.

Our board of directors has determined that is an "audit committee financial expert" as defined in applicable SEC rules. We believe that the composition of our audit committee will meet the requirements for independence under current NASDAQ and SEC rules and regulations. Our board of directors has also determined that each member of our audit committee can read and understand fundamental financial statements, in accordance with applicable requirements. In arriving at these determinations, the board of directors has examined each audit committee member's scope of experience and the nature of their employment in the corporate finance sector.

Compensation Committee

The members of our compensation committee are , and . is the chair of the compensation committee. Our compensation committee's responsibilities will include:

- reviewing and approving, or making recommendations to our board of directors with respect to, the compensation of our chief executive officer and our other executive officers;

- overseeing an evaluation of our senior executives;
- overseeing and administering our cash and equity incentive plans;
- reviewing and making recommendations to our board of directors with respect to director compensation;
- reviewing and discussing annually with management our "Compensation Discussion and Analysis" disclosure if and to the extent then required by SEC rules; and
- preparing the compensation committee report if and to the extent then required by SEC rules.

We believe that the composition of our compensation committee will meet the requirements for independence under current NASDAQ and SEC rules and regulations and that each director on the compensation committee is an "outside director" as that term is defined in Section 162(m) of the U.S. Internal Revenue Code of 1986, as amended.

Nominating and Corporate Governance Committee

The members of our nominating and corporate governance committee are , and . is the chair of the nominating and corporate governance committee. Our nominating and corporate governance committee's responsibilities will include:

- recommending to our board of directors the persons to be nominated for election as directors and to each of our board's committees;
- reviewing and making recommendations to our board with respect to our board leadership structure;
- reviewing and making recommendations to our board with respect to management succession planning;
- developing and recommending to our board of directors corporate governance principles; and
- overseeing a periodic evaluation of our board of directors.

We believe that the composition of our nominating and corporate governance committee will meet the requirements for independence under current NASDAQ and SEC rules and regulations.

Compensation Committee Interlocks and Insider Participation

None of our executive officers serves as a member of the board of directors or compensation committee, or other committee serving an equivalent function, of any other entity that has one or more of its executive officers serving as a member of our board of directors or our compensation committee. None of the members of our compensation committee is, or has ever been, an officer or employee of our company.

Code of Ethics and Code of Conduct

We intend to adopt a written code of business conduct and ethics that applies to our directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. We intend to post a current copy of the code on our website, www.arsanis.com. In addition, we intend to post on our website all disclosures that are required by law or NASDAQ stock market listing standards concerning any amendments to, or waivers from, any provision of the code.

EXECUTIVE COMPENSATION

The following discussion relates to the compensation of our President and Chief Executive Officer, René Russo, our Chief Financial Officer and Chief Business Officer, Michael Gray, and our Chief Medical Officer, Chris Stevens, for fiscal year 2016. These three individuals are collectively referred to in this prospectus as our named executive officers.

In preparing to become a public company, we have begun a thorough review of all elements of our executive compensation program, including the function and design of our equity incentive programs. We have begun, and expect to continue in the coming months, to evaluate the need for revisions to our executive compensation program to ensure that our program is competitive with the companies with which we compete for executive talent and is appropriate for a public company.

Summary Compensation Table

The following table sets forth information regarding compensation awarded to, earned by or paid to each of our named executive officers for the year ended December 31, 2016.

Name and Principal Position	Year	Salary ($)	Bonus ($)[1]	Option Awards ($)[2]	All Other Compensation ($)	Total ($)
René Russo, Pharm.D., BCPS	2016	380,000	116,519	292,318	—	788,837
President and Chief Executive Officer						
Michael Gray, M.B.A., C.P.A.	2016	292,460	181,890[3]	312,897	—	787,247
Chief Financial Officer and Chief Business Officer						
Chris Stevens, M.D.	2016	221,768	153,221[4]	162,814	176,853[5]	714,656
Chief Medical Officer						

(1) Except where noted otherwise, the amounts reported in the "Bonus" column reflect discretionary annual cash bonuses paid to our executive officers for their performance.

(2) The amounts reported in the "Option Awards" column reflect the aggregate fair value of stock-based compensation awarded during the year computed in accordance with the provisions of Financial Accounting Standards Board, Accounting Standards Codification Topic 718, or ASC 718. See Note 13 to our consolidated financial statements appearing at the end of this prospectus regarding assumptions underlying the valuation of equity awards.

(3) Includes a $100,000 sign-on bonus paid to Mr. Gray in connection with his hire in 2016.

(4) Includes a $100,000 sign-on bonus paid to Dr. Stevens in connection with his hire in 2016.

(5) Consists of fees paid to Dr. Stevens for services that he provided to us as a consultant in 2016 prior to his hire.

Narrative to Summary Compensation Table

Base Salary. In 2016, we paid Dr. Russo an annualized base salary of $380,000. In 2016, we paid Mr. Gray an annualized base salary of $350,000, which was pro rated to reflect the number of days he served with our company following his hire in March 2016. In 2016, we paid Dr. Stevens an annualized base salary of $380,000, which was pro rated to reflect the number of days he served with our company following his hire in June 2016. We use base salaries to recognize the experience, skills, knowledge and responsibilities required of all our employees, including our named executive officers. None of our named executive officers is currently party to an employment agreement or other agreement or arrangement that provides for automatic or scheduled increases in base salary.

Annual Bonus. Our board of directors may, in its discretion, award bonuses to our named executive officers from time to time. We typically establish annual bonus targets based around a set of specified corporate

goals for our named executive officers and conduct an annual performance review to determine the attainment of such goals. Our management may propose bonus awards to our board of directors primarily based on such review process. Our board of directors makes the final determination of the eligibility requirements for and the amount of such bonus awards.

Equity Incentives. Although we do not have a formal policy with respect to the grant of equity incentive awards to our executive officers, or any formal equity ownership guidelines applicable to them, we believe that equity grants provide our executives with a strong link to our long-term performance, create an ownership culture and help to align the interests of our executives and our stockholders. In addition, we believe that equity grants with a time-based vesting feature promote executive retention because this feature incents our executive officers to remain in our employment during the vesting period. Accordingly, our board of directors periodically reviews the equity incentive compensation of our named executive officers and from time to time may grant equity incentive awards to them in the form of stock options. In 2016, based upon our overall performance, we granted to Dr. Russo an option to purchase 163,000 shares of our common stock. In 2016, we granted to Mr. Gray an option to purchase 175,000 shares of our common stock and to Dr. Stevens an option to purchase 90,000 shares of our common stock, in each case in connection with the commencement of his employment.

We use stock options to compensate our executive officers in the form of initial grants in connection with the commencement of employment and also at various times, often but not necessarily annually, if we have performed as expected or better than expected. Prior to this offering, the award of stock options to our executive officers has been made by our board of directors or compensation committee. None of our executive officers is currently party to an employment agreement that provides for automatic award of stock options. We have granted stock options to our executive officers with time-based vesting. The options that we have granted to our executive officers typically become exercisable as to 25% of the shares underlying the option on the first anniversary of the grant date, and as to an additional 1/48th of the original number of shares underlying the option monthly thereafter. Vesting rights cease upon termination of employment and exercise rights cease shortly after termination, except that vesting is fully accelerated upon certain terminations in connection with a change of control and exercisability is extended in the case of death or disability. Prior to the exercise of an option, the holder has no rights as a stockholder with respect to the shares subject to such option, including no voting rights and no right to receive dividends or dividend equivalents.

We have historically granted stock options with exercise prices that are equal to the fair market value of our common stock on the date of grant as determined by our board of directors or compensation committee, based on a number of objective and subjective factors. The exercise price of all stock options granted after the closing of this offering will be equal to the fair market value of shares of our common stock on the date of grant, which will be determined by reference to the closing market price of our common stock on the date of grant.

Outstanding Equity Awards

The following table sets forth information regarding all outstanding stock options held by each of our named executive officers as of December 31, 2016.

	Option Awards				
Name	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Equity Incentive Plan Awards; Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price ($)	Option Expiration Date
René Russo, Pharm.D., BCPS	97,778	178,301[1]	—	$ 2.40	7/21/2025
	—	163,000[2]	—	$ 2.75	7/20/2026
Michael Gray, M.B.A., C.P.A.	—	175,000[3]	—	$ 2.75	7/20/2026
Chris Stevens, M.D.	—	90,000[4]	—	$ 2.75	7/20/2026

(1) Dr. Russo's option to purchase 276,079 shares of common stock vests over four years, with 25% of the shares underlying the option vested on July 16, 2016 and 2.0833% of the shares vesting monthly thereafter, subject to continued service.

(2) Dr. Russo's option to purchase 163,000 shares of common stock vests over four years, with 25% of the shares underlying the option vested on April 28, 2017 and 2.0833% of the shares vesting monthly thereafter, subject to continued service.

(3) Mr. Gray's option to purchase 175,000 shares of common stock vests over four years, with 25% of the shares underlying the option vested on March 1, 2017 and 2.0833% of the shares vesting monthly thereafter, subject to continued service.

(4) Dr. Stevens' option to purchase 90,000 shares of common stock vests over four years, with 25% of the shares underlying the option vested on June 1, 2017 and 2.0833% of the shares vesting monthly thereafter, subject to continued service.

Employment Agreements

Letter Agreement with Dr. Russo

In connection with our initial hiring of Dr. Russo as our Chief Development Officer, we entered into a letter agreement with her dated July 12, 2015. Under the letter agreement, Dr. Russo is an at will employee, and her employment with us can be terminated by her or us at any time and for any reason. The letter agreement provides that Dr. Russo is entitled to a base salary of $380,000 during her employment with us and that she is eligible, at our sole discretion, to earn an annual bonus of up to 35% of her base salary. Dr. Russo's letter agreement also provided that she was entitled to the grant of an option to purchase an amount of shares of our common stock equal to 3.5% of our fully diluted outstanding share count, with an exercise price equal to the fair market value of a share of our common stock on the grant date, subject to a four-year vesting schedule, which option was granted in July 2015.

Under the letter agreement, Dr. Russo is entitled, subject to her execution and nonrevocation of a release of claims in our favor, in the event of the termination of her employment by us without cause or by her for good reason, each as defined in her letter agreement with us, to (i) continue receiving her then-current annual base salary for a period of nine months following the date her employment with us is terminated, and (ii) continue receiving an amount equal to COBRA premiums for health benefit coverage on the same terms as were applicable to her prior to her termination for a period of nine months following the date that her employment with us is terminated, or earlier, if she becomes eligible to enroll in a health benefit plan with a new employer.

In addition, the letter agreement provides that in the event Dr. Russo's employment with us terminates by reason of her death or disability, Dr. Russo is entitled to a pro rata annual bonus for the year in which such termination occurred based on her target bonus and the number of days served during the year. In addition, in the event that Dr. Russo's employment is terminated by us without cause or by Dr. Russo with good reason, each as defined in the letter agreement, within twelve months following a change of control, or as determined by our board of directors to have been specifically related to such change of control and without cause within three months prior to a change of control, Dr. Russo will be entitled under the letter agreement to (i) continue receiving her then-current annual base salary for a period of twelve months following the date her employment with us is terminated, (ii) continue receiving an amount equal to COBRA premiums for health benefit coverage on the same terms as were applicable to her prior to her termination for a period of twelve months following the date her employment with us is terminated, or earlier, if she becomes eligible to enroll in a health benefit plan with a new employer and (iii) the automatic vesting and exercisability of any unvested stock options and other equity awards then held by her on the date her employment with us is terminated, which options will remain exercisable for the time period set forth in the applicable grant agreement.

Letter Agreement with Mr. Gray

In connection with our initial hiring of Mr. Gray as our Chief Financial Officer and Chief Business Officer, we entered into a letter agreement with him dated January 15, 2016. Under the letter agreement, Mr. Gray is an at will employee, and his employment with us can be terminated by him or us at any time and for any reason. The letter agreement provides that Mr. Gray is entitled to a base salary of $350,000 during his employment with us and that he is eligible, at our sole discretion, to earn an annual bonus of up to 35% of his base salary. Mr. Gray's letter agreement also provided that he was entitled to the grant of an option to purchase 112,500 shares of our common stock. Following a review of executive compensation in June 2016, our compensation committee approved the grant of an option to purchase 175,000 shares of our common stock to Mr. Gray in lieu of the option contemplated by his letter agreement. The option has an exercise price equal to the fair market value of a share of our common stock on the grant date, is subject to a four-year vesting schedule and was granted in July 2016.

Under the letter agreement, Mr. Gray is entitled, subject to his execution and nonrevocation of a release of claims in our favor, in the event of the termination of his employment by us without cause or by his for good reason, each as defined in his letter agreement with us, to (i) continue receiving his then-current annual base salary for a period of three months following the date his employment with us is terminated, and (ii) continue receiving an amount equal to COBRA premiums for health benefit coverage on the same terms as were applicable to him prior to his termination for a period of three months following the date that his employment with us is terminated, or earlier, if he becomes eligible to enroll in a health benefit plan with a new employer.

In addition, the letter agreement provides that in the event Mr. Gray's employment with us terminates by reason of his death or disability, Mr. Gray is entitled to a pro rata annual bonus for the year in which such termination occurred based on his target bonus and the number of days served during the year. In addition, in the event that Mr. Gray's employment is terminated by us without cause or by Mr. Gray with good reason, each as defined in the letter agreement, within twelve months following a change of control, or as determined by our board of directors to have been specifically related to such change of control and without cause within three months prior to a change of control, Mr. Gray will be entitled under the letter agreement to (i) continue receiving his then-current annual base salary for a period of four months following the date his employment with us is terminated, (ii) continue receiving an amount equal to COBRA premiums for health benefit coverage on the same terms as were applicable to him prior to his termination for a period of four months following the date his employment with us is terminated, or earlier, if he becomes eligible to enroll in a health benefit plan with a new employer and (iii) the automatic vesting and exercisability of any unvested stock options and other equity awards then held by him on the date his employment with us is terminated, which options will remain exercisable for the time period set forth in the applicable grant agreement.

Letter Agreement with Dr. Stevens

In connection with our initial hiring of Dr. Stevens as our Chief Medical Officer, we entered into a letter agreement with him dated April 28, 2016. Under the letter agreement, Dr. Stevens is an at will employee, and his employment with us can be terminated by him or us at any time and for any reason. The letter agreement provides that Dr. Stevens is entitled to a base salary of $380,000 during his employment with us and that he is eligible, at our sole discretion, to earn an annual bonus of up to 30% of his base salary. Dr. Steven's letter agreement also provided that he was entitled to the grant of an option to purchase 90,000 shares of our common stock, with an exercise price equal to the fair market value of a share of our common stock on the grant date, subject to a four-year vesting schedule, which option was granted in July 2016.

Under the letter agreement, Dr. Stevens is entitled, subject to his execution and nonrevocation of a release of claims in our favor, in the event of the termination of his employment by us without cause or by his for good reason, each as defined in his letter agreement with us, to (i) continue receiving his then-current annual base salary for a period of three months following the date his employment with us is terminated, and (ii) continue receiving an amount equal to COBRA premiums for health benefit coverage on the same terms as were applicable to him prior to his termination for a period of three months following the date that his employment with us is terminated, or earlier, if he becomes eligible to enroll in a health benefit plan with a new employer.

In addition, the letter agreement provides that in the event Dr. Stevens' employment with us terminates by reason of his death or disability, Dr. Stevens is entitled to a pro rata annual bonus for the year in which such termination occurred based on his target bonus and the number of days served during the year. In addition, in the event that Dr. Stevens' employment is terminated by us without cause or by Dr. Stevens with good reason, each as defined in the letter agreement, within twelve months following a change of control, or as determined by our board of directors to have been specifically related to such change of control and without cause within three months prior to a change of control, Dr. Stevens will be entitled under the letter agreement to (i) continue receiving his then-current annual base salary for a period of four months following the date his employment with us is terminated, (ii) continue receiving an amount equal to COBRA premiums for health benefit coverage on the same terms as were applicable to him prior to his termination for a period of four months following the date his employment with us is terminated, or earlier, if he becomes eligible to enroll in a health benefit plan with a new employer and (iii) the automatic vesting and exercisability of any unvested stock options and other equity awards then held by him on the date his employment with use is terminated, which options will remain exercisable for the time period set forth in the applicable grant agreement.

Employee Non-Competition, Non-Solicitation, Confidentiality and Assignment of Inventions Agreements

Each of our named executive officers has entered into a standard form agreement with respect to non-competition, non-solicitation, confidential information and assignment of inventions. Under this agreement, each named executive officer has agreed not to compete with us during his or her employment and for a period of one year after the termination of his or her employment, not to solicit our employees, consultants, clients or customers during his or her employment and for a period of one year after the termination of his or her employment, and to protect our confidential and proprietary information indefinitely. In addition, under this agreement, each named executive officer has agreed that we own all inventions that are developed by such executive officer during his or her employment with us that are within the field of monoclonal antibody-based therapeutic treatments for infectious diseases. Each named executive officer also agreed to provide us with a non-exclusive, royalty-free, perpetual license to us any prior inventions that such executive officer incorporates into inventions assigned to us under this agreement.

Stock Option and Other Compensation Plans

In this section we describe our 2010 Special Stock Incentive Plan, as amended to date, or the 2010 Plan; our 2011 Stock Incentive Plan, as amended to date, or the 2011 Plan; our 2017 Stock Incentive Plan, or the 2017

Plan; and our 2017 Employee Stock Purchase Plan, or the 2017 ESPP. Prior to this offering, we granted awards to eligible participants under the 2010 Plan and the 2011 Plan. Following the closing of this offering, we expect to grant awards to eligible participants under the 2017 Plan and the 2017 ESPP.

2010 Plan

The 2010 Plan was initially approved by our board of directors and stockholders in August 2010 and was subsequently amended in 2012, 2013 and 2016. The 2010 Plan provides for the grant of incentive stock options, non-qualified options, shares, restricted or otherwise, of our common stock and other stock-based awards. We refer to awards granted under the 2010 Plan as stock rights. Our employees, directors and consultants are eligible to receive stock rights under the 2010 Plan; however incentive stock options may only be granted to our employees. As of December 31, 2016, a maximum of 2,000,000 shares of our common stock, or the equivalent of such number after our board of directors makes any adjustments upon any change in capitalization or corporate transaction, were authorized for issuance under the 2010 Plan.

The type of stock right granted under the 2010 Plan and the terms of such stock right are set forth in the applicable stock right award agreement.

Pursuant to the 2010 Plan, our board of directors (or a committee to which our board delegates its authority) administers the 2010 Plan. Subject to the provisions of the 2010 Plan, our board of directors is authorized to:

- interpret the provisions of the 2010 Plan and all stock rights and make all rules and determinations that it deems necessary or advisable for the administration of the 2010 Plan;
- determine which employees, directors and consultants will be granted stock rights;
- determine the number of shares of our common stock for which a stock right will be granted;
- specify the terms and conditions upon which a stock right may be granted;
- correct any defect, supply any omission or reconcile any inconsistency in the plan or any grant agreement to the extent it deems expedient to carry the plan into effect; and
- modify grant agreement terms for participants of any specified jurisdiction as it deems necessary or appropriate to facilitate the 2010 Plan or to recognize any differences in tax or other laws applicable to us, to any of our affiliates or to participants.

Effect of certain changes in capitalization. If our shares of common stock are subdivided or combined into a greater or smaller number of shares, if we issue shares of common stock as a stock dividend, or if we make any distribution of additional, new or different shares or securities of ours or any distribution of non-cash assets with respect to our shares of common stock, then, subject to the terms of the 2010 Plan, our board of directors shall proportionately and appropriately adjust:

- the number of shares of our common stock available for issuance under the 2010 Plan;
- the number of shares of our common stock deliverable upon the exercise of an option or acceptance of a stock grant; and
- the exercise or purchase price per share.

Effect of certain corporate transactions. In the event that we are consolidated with or acquired by another entity in a merger, consolidation or sale of all or substantially all of our assets (other than a transaction to merely change the state of incorporation), which we refer to as corporate transactions, our board of directors, or the board of directors of any entity assuming our obligations under the 2010 Plan, may, in its discretion, take one of the following actions pursuant to the 2010 Plan as to outstanding options, subject to the terms of the 2010 Plan:

- provide for the continuation of the outstanding options by equitably substituting for the shares of our common stock then underlying such options either with securities of any successor or acquiring entity or

the consideration payable with respect to the outstanding shares of our common stock in connection with the corporate transaction;

- accelerate the time at which participants in the 2010 Plan may exercise outstanding options granted under the plan so that options are fully exercisable from and after a date prior to the date that the corporate transaction is consummated;
- provide by written notice to the participants that the outstanding options will terminate unless exercised (to the extent then exercisable or made partially or fully exercisable by our board of directors for purposes of the corporate transaction) within a specified period following the date of the notice; or
- terminate each outstanding option in exchange for a cash payment equal to the consideration payable upon consummation of the corporate transaction to a holder of the number of shares of our common stock into which such option would have been exercisable (to the extent then exercisable or made partially or fully exercisable by our board of directors for purposes of the corporate transaction), minus the aggregate exercise price of such option.

In taking any of the above actions with respect to stock rights, our board of directors will not be obligated to treat all stock rights, all stock rights held by a participant or all stock rights of the same type, identically.

As of June 30, 2017, options to purchase 365,500 shares of common stock were outstanding under the 2010 Plan, at a weighted-average exercise price of $0.54 per share, and options to purchase 30,500 shares of our common stock had been exercised under the 2010 Plan.

Our board of directors may amend or terminate the 2010 Plan, provided that if stockholder approval is not obtained within 12 months after any amendment to the 2010 Plan increasing the number of shares authorized under the plan or changing the class of person eligible to receive incentive stock options under the plan, no options granted pursuant to such amendment will be deemed to be incentive stock options and no incentive stock options may be issued pursuant to such amendment thereafter. Any modification or amendment of the 2010 Plan that adversely affects a participant's rights will require such participant's consent.

No further awards will be made under the 2010 Plan on or after the effectiveness of the registration statement for this offering; however, awards outstanding under the 2010 Plan will continue to be governed by their existing terms.

2011 Plan

The 2011 Plan was initially approved in February 2011 and was subsequently amended in 2013, 2014, 2015 and 2016. The 2011 Plan provides for the grant of incentive stock options, non-qualified options, shares, restricted or otherwise, of our common stock and other stock-based awards. We refer to awards granted under the 2011 Plan as stock rights. Our employees, directors and consultants are eligible to receive stock rights under the 2011 Plan; however incentive stock options may only be granted to our employees. As of June 30, 2017, a maximum of 4,433,620 shares of our common stock, or the equivalent of such number after our board of directors makes any adjustments upon any change in capitalization or corporate transaction, were authorized for issuance under the 2011 Plan.

The type of stock right granted under the 2011 Plan and the terms of such stock right are set forth in the applicable stock right award agreement.

Pursuant to the 2011 Plan, our board of directors (or a committee to which our board delegates its authority) administers the 2011 Plan. Subject to the provisions of the 2011 Plan, our board of directors is authorized to:

- interpret the provisions of the 2011 Plan and all stock rights and make all rules and determinations that it deems necessary or advisable for the administration of the 2011 Plan;

- determine which employees, directors and consultants will be granted stock rights;
- determine the number of shares of our common stock for which a stock right will be granted;
- specify the terms and conditions upon which a stock right may be granted;
- correct any defect, supply any omission or reconcile any inconsistency in the plan or any grant agreement to the extent it deems expedient to carry the plan into effect; and
- modify grant agreement terms for participants of any specified jurisdiction as it deems necessary or appropriate to facilitate the 2011 Plan or to recognize any differences in tax or other laws applicable to us, to any of our affiliates or to participants.

Effect of certain changes in capitalization. If our shares of common stock are subdivided or combined into a greater or smaller number of shares, if we issue shares of common stock as a stock dividend, or if we make any distribution of additional, new or different shares or securities of ours or any distribution of non-cash assets with respect to our shares of common stock, then, subject to the terms of the 2011 Plan, our board of directors shall proportionately and appropriately adjust:

- the number of shares of our common stock available for issuance under the 2011 Plan;
- the number of shares of our common stock deliverable upon the exercise of an option or acceptance of a stock grant; and
- the exercise or purchase price per share.

Effect of certain corporate transactions. In the event that we are consolidated with or acquired by another entity in a merger, consolidation or sale of all or substantially all of our assets (other than a transaction to merely change the state of incorporation), which we refer to as corporate transactions, our board of directors, or the board of directors of any entity assuming our obligations under the 2011 Plan, may, in its discretion, take one of the following actions pursuant to the 2011 Plan as to outstanding options, subject to the terms of the 2011 Plan:

- provide for the continuation of the outstanding options by equitably substituting for the shares of our common stock then underlying such options either with securities of any successor or acquiring entity or the consideration payable with respect to the outstanding shares of our common stock in connection with the corporate transaction;
- accelerate the time at which participants in the 2011 Plan may exercise outstanding options granted under the plan so that options are fully exercisable from and after a date prior to the date that the corporate transaction is consummated;
- provide by written notice to the participants that the outstanding options will terminate unless exercised (to the extent then exercisable or made partially or fully exercisable by our board of directors for purposes of the corporate transaction) within a specified period following the date of the notice; or
- terminate each outstanding option in exchange for a cash payment equal to the consideration payable upon consummation of the corporate transaction to a holder of the number of shares of our common stock into which such option would have been exercisable (to the extent then exercisable or made partially or fully exercisable by our board of directors for purposes of the corporate transaction), minus the aggregate exercise price of such option.

In taking any of the above actions with respect to stock rights, our board of directors will not be obligated to treat all stock rights, all stock rights held by a participant or all stock rights of the same type, identically.

As of June 30, 2017, options to purchase 3,724,527 shares of common stock were outstanding under the 2011 Plan, at a weighted-average exercise price of $1.75 per share, and options to purchase zero shares of our common stock had been exercised under the 2011 Plan.

Our board of directors may amend or terminate the 2011 Plan, provided that if stockholder approval is not obtained within 12 months after any amendment to the 2011 Plan increasing the number of shares authorized under the plan or changing the class of person eligible to receive incentive stock options under the plan, no options granted pursuant to such amendment will be deemed to be incentive stock options and no incentive stock options may be issued pursuant to such amendment thereafter. Any modification or amendment of the 2011 Plan that adversely affects a participant's rights will require such participant's consent.

No further awards will be made under the 2011 Plan on or after the effectiveness of the registration statement for this offering; however, awards outstanding under the 2011 Plan will continue to be governed by their existing terms.

2017 Stock Incentive Plan

We expect our board of directors to adopt and our stockholders to approve the 2017 Plan, which will become effective immediately prior to the effectiveness of the registration statement for this offering. The 2017 Plan provides for the grant of incentive stock options, non-qualified options, stock appreciation rights, restricted stock awards, restricted stock units and other stock-based awards. Upon effectiveness of the 2017 Plan, the number of shares of our common stock that will be reserved for issuance under the 2017 Plan will be the sum of: (1) ; plus (2) the number of shares (up to shares) equal to the sum of the number of shares of our common stock then available for issuance under the 2010 Plan and the 2011 Plan and the number of shares of our common stock subject to outstanding awards under the 2010 Plan and 2011 Plan that expire, terminate or are otherwise surrendered, cancelled, forfeited or repurchased by us at their original issuance price pursuant to a contractual repurchase right; plus (3) an annual increase, to be added on the first day of each fiscal year, beginning with the fiscal year ending December 31, 2018 and continuing until, and including, the fiscal year ending December 31, 2028, equal to the lowest of shares of our common stock, % of the number of shares of our common stock outstanding on the first day of such fiscal year and an amount determined by our board of directors.

Our employees, officers, directors, consultants and advisors will be eligible to receive awards under the 2017 Plan. Incentive stock options, however, may only be granted to our employees.

Pursuant to the terms of the 2017 Plan, our board of directors (or a committee delegated by our board of directors) will administer the plan and, subject to any limitations in the plan, will select the recipients of awards and determine:

- the number of shares of our common stock covered by options and the dates upon which the options become exercisable;
- the type of options to be granted;
- the duration of options, which may not be in excess of ten years;
- the exercise price of options, which must be at least equal to the fair market value of our common stock on the date of grant; and
- the number of shares of our common stock subject to and the terms of any stock appreciation rights, restricted stock awards, restricted stock units or other stock-based awards and the terms and conditions of such awards, including conditions for repurchase, issue price and repurchase price (though the measurement price of stock appreciation rights must be at least equal to the fair market value of our common stock on the date of grant and the duration of such awards may not be in excess of ten years).

If our board of directors delegates authority to an executive officer to grant awards under the 2017 Plan, the executive officer will have the power to make awards to all of our employees, except executive officers. Our board of directors will fix the terms of the awards to be granted by such executive officer, including the exercise price of such awards (which may include a formula by which the exercise price will be determined), and the maximum number of shares subject to awards that such executive officer may make.

Effect of certain changes in capitalization. Upon the occurrence of any stock split, reverse stock split, stock dividend, recapitalization, combination of shares, reclassification of shares, spin-off or other similar change in capitalization or event or any dividend or distribution to holders of our common stock other than an ordinary cash dividend, our board of directors shall equitably adjust:

- the number and class of securities available under the 2017 Plan;
- the share counting rules under the 2017 Plan;
- the number and class of securities and exercise price per share of each outstanding option;
- the share and per-share provisions and the measurement price of each outstanding stock appreciation right;
- the number of shares subject to, and the repurchase price per share subject to, each outstanding restricted stock award; and
- the share and per-share related provisions and the purchase price, if any, of each other stock-based award.

Effect of certain corporate transactions. Upon a merger or other reorganization event (as defined in the 2017 Plan), our board of directors may, on such terms as our board determines (except to the extent specifically provided otherwise in an applicable award agreement or other agreement between the participant and us), take any one or more of, or a combination of, the following actions pursuant to the 2017 Plan as to some or all outstanding awards, other than restricted stock awards:

- provide that all outstanding awards shall be assumed, or substantially equivalent awards shall be substituted, by the acquiring or successor corporation (or an affiliate thereof);
- upon written notice to a participant, provide that all of the participant's unvested awards will be forfeited, and/or vested but unexercised awards will terminate, immediately prior to the consummation of such reorganization event unless exercised by the participant (to the extent then exercisable) within a specified period following the date of the notice;
- provide that outstanding awards shall become exercisable, realizable or deliverable, or restrictions applicable to an award shall lapse, in whole or in part, prior to or upon such reorganization event;
- in the event of a reorganization event pursuant to which holders of shares of our common stock will receive a cash payment for each share surrendered in the reorganization event, make or provide for a cash payment to participants with respect to each award held by a participant equal to (1) the number of shares of our common stock subject to the vested portion of the award (after giving effect to any acceleration of vesting that occurs upon or immediately prior to such reorganization event) multiplied by (2) the excess, if any, of the cash payment for each share surrendered in the reorganization event over the exercise, measurement or purchase price of such award and any applicable tax withholdings, in exchange for the termination of such award; and/or
- provide that, in connection with a liquidation or dissolution, awards shall convert into the right to receive liquidation proceeds (if applicable, net of the exercise, measurement or purchase price thereof and any applicable tax withholdings).

Our board of directors does not need to take the same action with respect to all awards, all awards held by a participant or all awards of the same type.

In the case of certain restricted stock units, no assumption or substitution is permitted, and the restricted stock units will instead be settled in accordance with the terms of the applicable restricted stock unit agreement.

Upon the occurrence of a reorganization event other than a liquidation or dissolution, the repurchase and other rights with respect to outstanding restricted stock awards will continue for the benefit of the successor company and will, unless our board of directors may otherwise determine, apply to the cash, securities or other

property into which shares of our common stock are converted or exchanged pursuant to the reorganization event. Upon the occurrence of a reorganization event involving a liquidation or dissolution, all restrictions and conditions on each outstanding restricted stock award will automatically be deemed terminated or satisfied, unless otherwise provided in the agreement evidencing the restricted stock award or any other agreement between the participant and us.

At any time, our board of directors may, in its sole discretion, provide that any award under the 2017 Plan will become immediately exercisable in full or in part, free of some or all restrictions or conditions, or otherwise realizable in whole or in part as the case may be.

No award may be granted under the 2017 Plan on or after the date that is ten years following the effectiveness of the registration statement related to this offering. Our board of directors may amend, suspend or terminate the 2017 Plan at any time, except that stockholder approval may be required to comply with applicable law or stock market requirements.

2017 Employee Stock Purchase Plan

We expect our board of directors to adopt and our stockholders to approve the 2017 ESPP, which will become effective upon the closing of this offering. The 2017 ESPP will be administered by our board of directors or by a committee appointed by our board of directors. The 2017 ESPP initially provides participating employees with the opportunity to purchase up to an aggregate of shares of our common stock. The number of shares of our common stock reserved for issuance under the 2017 ESPP will automatically increase on the first day of each fiscal year, beginning with the fiscal year ending December 31, 2018 and continuing until, and including, the fiscal year ending December 31, 2028, equal to the lowest of shares of our common stock, % of the number of shares of our common stock outstanding on the first day of such fiscal year and an amount determined by our board of directors.

All of our employees or employees of any designated subsidiary, as defined in the 2017 ESPP, are eligible to participate in the 2017 ESPP, provided that:

- such person is customarily employed by us or a designated subsidiary for more than 20 hours a week and for more than five months in a calendar year;
- such person has been employed by us or by a designated subsidiary for at least six months prior to enrolling in the 2017 ESPP; and
- such person was our employee or an employee of a designated subsidiary on the first day of the applicable offering period under the 2017 ESPP.

No employee may purchase shares of our common stock under the 2017 ESPP and any of our other employee stock purchase plans in excess of $25,000 of the fair market value of our common stock (as of the date of the option grant) in any calendar year. In addition, no employee may purchase shares of our common stock under the 2017 ESPP that would result in the employee owning 5% or more of the total combined voting power or value of our stock or the stock of any of our subsidiaries.

We expect to make one or more offerings to our eligible employees to purchase stock under the 2017 ESPP beginning at such time as our board of directors may determine. Each offering will consist of a six-month offering period during which payroll deductions will be made and held for the purchase of our common stock at the end of the offering period. Our board of directors or a committee designated by the board of directors may, at their discretion, choose a different period of not more than 12 months for offerings.

On the commencement date of each offering period, each eligible employee may authorize up to a maximum of 15% of his or her compensation to be deducted by us during the offering period. Each employee

who continues to be a participant in the 2017 ESPP on the last business day of the offering period will be deemed to have exercised an option to purchase from us the number of whole shares of our common stock that his or her accumulated payroll deductions on such date will pay for, not in excess of the maximum numbers set forth above. Under the terms of the 2017 ESPP, the purchase price shall be determined by our board of directors for each offering period and will be at least 85% of the applicable closing price of our common stock. If our board of directors does not make a determination of the purchase price, the purchase price will be 85% of the lesser of the closing price of our common stock on the first business day of the offering period or on the last business day of the offering period.

An employee who is not a participant on the last day of the offering period is not entitled to purchase shares under the 2017 ESPP, and the employee's accumulated payroll deductions will be refunded. An employee's rights under the 2017 ESPP terminate upon voluntary withdrawal from an offering under the 2017 ESPP at any time, or when the employee ceases employment for any reason.

We will be required to make equitable adjustments to the number and class of securities available under the 2017 ESPP, the share limitations under the 2017 ESPP, and the purchase price for an offering period under the 2017 ESPP to reflect stock splits, reverse stock splits, stock dividends, recapitalizations, combinations of shares, reclassifications of shares, spin-offs and other similar changes in capitalization or events or any dividends or distributions to holders of our common stock other than ordinary cash dividends.

In connection with a reorganization event, as defined in the 2017 ESPP, our board of directors or a committee of our board of directors may take any one or more of the following actions as to outstanding options to purchase shares of our common stock under the 2017 ESPP on such terms as our board or committee determines:

- provide that options shall be assumed, or substantially equivalent options shall be substituted, by the acquiring or succeeding corporation (or an affiliate thereof);
- upon written notice to employees, provide that all outstanding options will be terminated immediately prior to the consummation of such reorganization event and that all such outstanding options will become exercisable to the extent of accumulated payroll deductions as of a date specified by our board or committee in such notice, which date shall not be less than ten days preceding the effective date of the reorganization event;
- upon written notice to employees, provide that all outstanding options will be cancelled as of a date prior to the effective date of the reorganization event and that all accumulated payroll deductions will be returned to participating employees on such date;
- in the event of a reorganization event under the terms of which holders of our common stock will receive upon consummation thereof a cash payment for each share surrendered in the reorganization event, change the last day of the offering period to be the date of the consummation of the reorganization event and make or provide for a cash payment to each employee equal to (1) the cash payment for each share surrendered in the reorganization event times the number of shares of our common stock that the employee's accumulated payroll deductions as of immediately prior to the reorganization event could purchase at the applicable purchase price, where the acquisition price is treated as the fair market value of our common stock on the last day of the applicable offering period for purposes of determining the purchase price and where the number of shares that could be purchased is subject to the applicable limitations under the 2017 ESPP minus (2) the result of multiplying such number of shares by the purchase price; and/or
- provide that, in connection with our liquidation or dissolution, options shall convert into the right to receive liquidation proceeds (net of the purchase price thereof).

Our board of directors may at any time, and from time to time, amend or suspend the 2017 ESPP or any portion thereof. We will obtain stockholder approval for any amendment if such approval is required by

Section 423 of the Internal Revenue Code. Further, our board of directors may not make any amendment that would cause the 2017 ESPP to fail to comply with Section 423 of the Internal Revenue Code. The 2017 ESPP may be terminated at any time by our board of directors. Upon termination, we will refund all amounts in the accounts of participating employees.

401(k) Plan

We maintain a defined contribution employee retirement plan for our employees, including our named executive officers. The plan is intended to qualify as a tax-qualified 401(k) plan so that contributions to the 401(k) plan, and income earned on such contributions, are not taxable to participants until withdrawn or distributed from the 401(k) plan (except in the case of contributions under the 401(k) plan designated as Roth contributions). Under the 401(k) plan, each employee is fully vested in his or her deferred salary contributions. Employee contributions are held and invested by the plan's trustee as directed by participants. The 401(k) plan provides us with the discretion to match employee contributions, but to date we have not provided any employer matching contributions.

Limitation of Liability and Indemnification

Our certificate of incorporation, which will become effective upon the closing of this offering, limits the personal liability of directors for breach of fiduciary duty to the maximum extent permitted by the Delaware General Corporation Law, or the DGCL, and provides that no director will have personal liability to us or to our stockholders for monetary damages for breach of fiduciary duty as a director. However, these provisions do not eliminate or limit the liability of any of our directors:

- for any breach of the director's duty of loyalty to us or our stockholders;
- for acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law;
- for voting for or assenting to unlawful payments of dividends, stock repurchases or other distributions; or
- for any transaction from which the director derived an improper personal benefit.

Any amendment to or repeal of these provisions will not eliminate or reduce the effect of these provisions in respect of any act, omission or claim that occurred or arose prior to such amendment or repeal. If the DGCL is amended to provide for further limitations on the personal liability of directors of corporations, then the personal liability of our directors will be further limited to the greatest extent permitted by the DGCL.

In addition, our certificate of incorporation, which will become effective upon the closing of this offering, provides that we must indemnify our directors and officers and we must advance expenses, including attorneys' fees, to our directors and officers in connection with legal proceedings, subject to very limited exceptions.

We maintain a general liability insurance policy that covers specified liabilities of our directors and officers arising out of claims based on acts or omissions in their capacities as directors or officers. In addition, we have entered into indemnification agreements with our directors, and we intend to enter into indemnification agreements with all of our executive officers prior to the completion of this offering. These indemnification agreements may require us, among other things, to indemnify each such executive officer or director for some expenses, including attorneys' fees, judgments, fines and settlement amounts incurred by him or her in any action or proceeding arising out of his or her service as one of our executive officers or directors.

Some of our non-employee directors may, through their relationships with their employers, be insured or indemnified against specified liabilities incurred in their capacities as members of our board of directors.

Insofar as indemnification for liabilities arising under the Securities Act of 1933, as amended, or the Securities Act, may be permitted to directors, executive officers or persons controlling us, in the opinion of the

Securities and Exchange Commission, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Rule 10b5-1 Sales Plans

Our directors and executive officers may adopt written plans, known as Rule 10b5-1 plans, in which they will contract with a broker to buy or sell shares of our common stock on a periodic basis. Under a Rule 10b5-1 plan, a broker executes trades pursuant to parameters established by the director or officer when entering into the plan, without further direction from the director or officer. It also is possible that the director or officer could amend or terminate the plan when not in possession of material, nonpublic information. In addition, our directors and executive officers may buy or sell additional shares outside of a Rule 10b5-1 plan when they are not in possession of material, nonpublic information.

Director Compensation

The table below shows all compensation to our non-employee directors during 2016.

Name	Fees Earned or Paid in Cash ($)	Option Awards ($)[1]	Total ($)
Tillman U. Gerngross, Ph.D.	67,500	231,974	299,474
Jan Adams, Ph.D.	—	—	—
Daniel Burgess	21,667	—	21,667
Carl Gordon, Ph.D., C.F.A.	—	—	—
Terrance McGuire	—	—	—
Claudio Nessi, Ph.D., M.B.A.	—	—	—
Michael Ross, Ph.D.	—	—	—
Amy Schulman, J.D.	70,000	—	70,000

(1) The amounts reported in the "Option Awards" column reflect the aggregate fair value of stock-based compensation awarded during the year computed in accordance with the provisions of ASC 718. See Note 13 to our consolidated financial statements appearing at the end of this prospectus regarding assumptions underlying the valuation of equity awards. The option reported in this column was granted to Dr. Gerngross in connection with his service as chairman of our board of directors and consisted of an option to purchase 132,000 shares of common stock at an exercise price of $2.75 per share, subject to vesting as to 25% after one year from the date of grant and the remainder monthly over the following three years, subject to continued service. In addition to the option described above, as of December 31, 2016, Dr. Gerngross held an option to purchase 91,500 shares of common stock at an exercise price of $0.54 per share that was fully vested, Mr. Burgess held an option to purchase 22,124 shares of common stock at an exercise price of $2.36 per share that was vested with respect to 12,445 shares and Ms. Schulman held an option to purchase 22,124 shares of common stock at an exercise price of $2.36 per share that was vested with respect to 10,601 shares. As of December 31, 2016, there were no other stock awards or option awards outstanding and held by our non-employee directors.

Prior to this offering, we paid cash fees to certain of our non-employee directors for their service on our board of directors, however we did not have a formal non-employee director compensation policy. We have historically reimbursed our non-employee directors for reasonable travel and out-of-pocket expenses incurred in connection with attending board of director and committee meetings. Drs. Russo and Nagy, two of our directors who also serve as our President and Chief Executive Officer and Chief Scientific Officer, respectively, do not receive any additional compensation for their service as directors. Dr. Russo is one of our named executive officers and, accordingly, the compensation that we pay to Dr. Russo is discussed under "—Summary Compensation Table" and "—Narrative to Summary Compensation Table." Dr. Nagy is one of our executive officers who is not a named executive officer.

In , our board of directors approved a director compensation program that will become effective on . Under this director compensation program, we will pay our non-employee directors a cash retainer for service on the board of directors and for service on each committee on which the director is a member. The chairman of the board and of each committee will receive higher retainers for such service. These fees are payable in arrears in four equal quarterly installments on the last day of each quarter, provided that the amount of such payment will be prorated for any portion of such quarter that the director is not serving on our board of directors and no fee shall be payable in respect of any period prior to . The fees paid to non-employee directors for service on the board of directors and for service on each committee of the board of directors on which the director is a member are as follows:

	Member Annual Fee	Chairman Annual Fee
Board of Directors	$	$
Audit Committee	$	$
Compensation Committee	$	$
Nominating and Corporate Governance Committee	$	$

We also will continue to reimburse our non-employee directors for reasonable travel and other expenses incurred in connection with attending meetings of our board of directors and any committee of our board of directors on which he or she serves.

In addition, under our director compensation program effective on , each non-employee director will receive under the 2017 Plan, upon his or her initial election to our board of directors, an option to purchase shares of our common stock. Each of these options will vest as to of the shares of our common stock underlying such option on until , subject to the non-employee director's continued service as a director. Further, on , each non-employee director that has served on our board of directors for at least will receive, under the 2017 Plan, an option to purchase shares of our common stock. Each of these options will vest unless otherwise provided at the time of grant, subject to the non-employee director's continued service as a director. All options issued to our non-employee directors under our director compensation program will be issued at exercise prices equal to the fair market value of our common stock on the date of grant.

TRANSACTIONS WITH RELATED PERSONS

Since January 1, 2014, we have engaged in the following transactions with our directors, executive officers and holders of more than 5% of our voting securities, and affiliates of our directors, executive officers and holders of more than 5% of our voting securities. We believe that all of these transactions were on terms as favorable as could have been obtained from unrelated third parties.

Series B Convertible Preferred Stock Financing—Second Closing

In May 2015, we issued and sold an aggregate of 966,851 shares of our Series B convertible preferred stock in the second tranche of our Series B convertible preferred stock financing at a price per share of $7.24 in cash, for an aggregate purchase price of $7,000,001. The following table sets forth the aggregate number of shares of our Series B convertible preferred stock that we issued and sold to our 5% stockholders and their affiliates in this second tranche and the aggregate purchase price for such shares:

Purchaser[1]	Shares of Series B Preferred Stock	Cash Purchase Price
Entities affiliated with Polaris Venture Partners	276,243	$1,999,999
Entities affiliated with SV Life Sciences	276,243	$1,999,999
OrbiMed Private Investments IV, LP	276,243	$1,999,999
NeoMed Innovation V, L.P.	138,122	$1,000,003

(1) See “Principal Stockholders” for additional information about shares held by these entities.

2015 Convertible Note Financing

In December 2015, we issued and sold an aggregate of $4,000,000 in convertible promissory notes, or the 2015 Notes. The 2015 Notes accrued interest at a rate of 0.56% per annum, with a maturity date of December 16, 2016, unless earlier converted under the terms of the 2015 Notes. All principal and interest accrued under the 2015 Notes was converted into shares of Series C convertible preferred stock in connection with the closing of our Series C convertible preferred stock financing in April 2016. The following table sets forth the aggregate principal amount of notes issued and sold to our 5% stockholders and their affiliates in this transaction and the cash purchase price for such notes:

Purchaser[1]	Aggregate Principal Amount of 2015 Notes	Cash Purchase Price
Entities affiliated with Polaris Venture Partners	$ 1,188,237	$1,188,237
Entities affiliated with SV Life Sciences	$ 1,188,237	$1,188,237
OrbiMed Private Investments IV, LP	$ 1,188,237	$1,188,237
NeoMed Innovation V, L.P.	$ 435,289	$ 435,289

(1) See “Principal Stockholders” for additional information about shares held by these entities.

Series C Convertible Preferred Stock Financing

In April 2016, we issued and sold an aggregate of 1,031,342 shares of our Series C convertible preferred stock, consisting of (i) 569,946 shares sold for cash at a price per share of $9.65 for an aggregate cash purchase price of $5,499,979 and (ii) 461,396 shares issued upon conversion of $4,007,242 in outstanding principal and interest under the 2015 Notes at a price per share of approximately $8.69. Additionally, in connection with the Series C convertible preferred stock financing, we issued and sold an aggregate of $5,500,000 in convertible promissory notes, or the 2016 Notes, which accrued interest at a rate of 0.7% per annum and had a maturity date of October 12, 2017, unless earlier converted under the terms of the 2016 Notes. All principal and interest

accrued under the 2016 Notes was converted into shares of Series D convertible preferred stock in connection with the closing of our Series D convertible preferred stock financing in April 2017. The following table sets forth the aggregate numbers of shares of our Series C convertible preferred stock that we sold to our 5% stockholders and their affiliates in these transactions for cash and cancellation of indebtedness under the 2015 Notes, respectively, the aggregate amount of consideration for such shares, the aggregate principal amount of the 2016 Notes that we issued and sold to our 5% stockholders and their affiliates in these transactions and the cash purchase price for the 2016 Notes:

Purchaser[1]	Shares of Series C Preferred Stock Issued for Cash	Cash Purchase Price	Shares of Series C Issued upon Conversion of 2015 Notes	Principal Cancelled under 2015 Notes	Interest Cancelled under 2015 Notes	Aggregate Principal Amount of 2016 Notes	Cash Purchase Price for 2016 Notes
Entities affiliated with Polaris Venture Partners	92,350	$ 891,178	137,062	$ 1,188,237	$ 2,151	$ 891,178	$ 891,178
Entities affiliated with SV Life Sciences Fund	92,350	$ 891,178	137,062	$ 1,188,237	$ 2,151	$ 891,178	$ 891,178
OrbiMed Private Investments IV, LP	92,350	$ 891,178	137,062	$ 1,188,237	$ 2,151	$ 891,178	$ 891,178
NeoMed Innovation V, L.P.	33,830	$ 326,460	50,210	$ 435,289	$ 788	$ 326,467	$ 326,460

(1) See “Principal Stockholders” for additional information about shares held by these entities.

2017 Convertible Note Financing

In January 2017, we issued and sold an aggregate of $4,934,981 in convertible promissory notes, or the 2017 Notes. The 2017 Notes accrued interest at a rate of 0.96% per annum, with a maturity date of October 12, 2017, unless earlier converted under the terms of the 2017 Notes. All principal and interest accrued under the 2017 Notes was converted into shares of Series D convertible preferred stock in connection with the closing of our Series D convertible preferred stock financing in April 2017. The following table sets forth the aggregate principal amount of notes issued and sold to our 5% stockholders and their affiliates in this transaction and the cash purchase price for such notes:

Purchaser[1]	Aggregate Principal Amount of 2017 Notes	Cash Purchase Price
Entities affiliated with Polaris Venture Partners	$ 1,294,943	$1,294,943
Entities affiliated with SV Life Sciences	$ 1,294,943	$1,294,943
OrbiMed Private Investments IV, LP	$ 1,294,943	$1,294,943
NeoMed Innovation V, L.P.	$ 565,147	$ 565,147
Tillman U. Gerngross, Ph.D.	$ 250,000	$ 250,000

(1) See “Principal Stockholders” for additional information about shares held by these entities.

Series D Convertible Preferred Stock Financing

In April 2017, we issued and sold an aggregate of 14,220,284 shares of our Series D convertible preferred stock, consisting of (i) 12,323,987 shares sold for an aggregate of $35,053,178 in cash and conversion of $4,946,793 in outstanding principal and interest under the 2017 Notes at a price per share of approximately $3.2457 and (ii) 1,896,297 shares issued upon conversion of $5,539,344 in outstanding principal and interest under the 2016 Notes at a price per share of approximately $2.92. The following table sets forth the aggregate numbers of shares of our Series D convertible preferred stock that we sold to our 5% stockholders and their affiliates in these transactions and the aggregate amount of consideration for such shares:

Purchaser[1]	Shares of Series D Preferred Stock Issued for Cash and upon Conversion of 2017 Notes	Cash Purchase Price	Principal Cancelled under 2017 Notes	Interest Cancelled under 2017 Notes	Shares of Series D Preferred Stock Issued upon Conversion of 2016 Notes	Principal Cancelled under 2016 Notes	Interest Cancelled Under 2016 Notes
Bill & Melinda Gates Foundation	2,464,799	$7,999,998	—	—	—	—	—
Entities affiliated with Polaris Venture Partners	1,924,752	$4,949,125	$1,294,943	$ 3,099	307,259	$ 891,178	$ 6,375
Entities affiliated with SV Life Sciences Fund	1,924,750	$4,949,125	$1,294,943	$ 3,099	307,262	$ 891,178	$ 6,375
OrbiMed Private Investments IV, LP	1,924,752	$4,949,125	$1,294,943	$ 3,099	307,262	$ 891,178	$ 6,375
NeoMed Innovation V, L.P.	839,938	$2,159,687	$ 565,147	$ 1,353	112,559	$ 326,467	$ 2,335
Tillman U. Gerngross, Ph.D.	308,099	$ 749,399	$ 250,000	$ 598	—	—	—

(1) See "Principal Stockholders" for additional information about shares held by these entities.

Services and Facilities Agreement with EveliQure Biotechnologies GmbH

Our subsidiary, Arsanis Biosciences GmbH, leases approximately 1,500 square meters of office and lab space from Marxbox Bauprojekt GmbH & Co. OG. In February 2015, Arsanis Biosciences GmbH entered into a services and facilities agreement with EveliQure Biotechnologies GmbH, or EveliQure, under which we provide certain laboratory services and sublet approximately 150 square meters of office and lab space. Tamás Henics, the husband of Eszter Nagy, our Chief Scientific Officer and one of our directors, serves as Chief Scientific Officer at EveliQure.

Payments due to us from EveliQure under the agreement were €75,000 (or $83,000) and €71,000 (or $79,000) for the years ended December 31, 2015 and 2016, respectively, and €47,000 (or $52,000) to date in 2017. These amounts included rental charges as well as amounts attributable to facilities and laboratory services. The agreement remains in effect until terminated and either Arsanis Biosciences GmbH or EveliQure can terminate the agreement at any time on six months' notice.

Agreements with Adimab, LLC

We are party to a collaboration agreement with Adimab, LLC, or Adimab, that we entered into in May 2011, which was subsequently amended in February 2013, January 2014, January 2015 and April 2017. Tillman U. Gerngross, Ph.D., the chairman of our board of directors, is a co-founder of Adimab and currently serves as its Chief Executive Officer. We made payments to Adimab pursuant to the license and assignment agreement of $0.5 million, $0.2 million and $0.1 million for the years ended December 31, 2014, 2015 and 2016, respectively. We did not make any payments under this agreement to Adimab to date in 2017.

We are also party to an option and license agreement with Adimab that we entered into in February 2017, pursuant to which we have made payments of $70,871 to Adimab to date in 2017.

See "Business—Collaboration and License Agreements" for additional information regarding the collaboration agreement and the option and license agreement.

Agreements with Bill & Melinda Gates Foundation

We are party to grant agreement with the Bill & Melinda Gates Foundation, or the Gates Foundation, that we entered into in February 2017, pursuant to which the Gates Foundation granted us up to $9.3 million to conduct specified preclinical development activities. We are also party to a letter agreement with the Gates Foundation that we entered into in April 2017 in connection with the purchase by the Gates Foundation of $8.0 million of our Series D convertible preferred stock. See "Business—Collaboration and License Agreements" for additional information regarding these agreements.

Registration Rights

We are a party to an investors' rights agreement with the holders of our preferred stock, including our 5% stockholders and their affiliates and entities affiliated with some of our directors. This investors' rights agreement provides these holders the right, subject to certain conditions, beginning six months following the completion of this offering, to demand that we file a registration statement or to request that their shares be covered by a registration statement that we are otherwise filing.

See "Description of Capital Stock—Registration Rights" for additional information regarding these registration rights.

Indemnification Agreements

Our certificate of incorporation, which will become effective upon the closing of this offering, provides that we will indemnify our directors and officers to the fullest extent permitted by Delaware law. In addition, we have entered into indemnification agreements with our directors, and we intend to enter into indemnification agreements with all of our executive officers prior to the completion of this offering.

Policies and Procedures for Related Person Transactions

Our board of directors intends to adopt written policies and procedures for the review of any transaction, arrangement or relationship in which our company is a participant, the amount involved exceeds $120,000 and one of our executive officers, directors, director nominees or 5% stockholders or their immediate family members, each of whom we refer to as a "related person," has a direct or indirect material interest.

If a related person proposes to enter into such a transaction, arrangement or relationship, which we refer to as a "related person transaction," the related person must report the proposed related person transaction to our Chief Financial Officer and the chairman of our audit committee. The policy calls for the proposed related person transaction to be reviewed and, if deemed appropriate, approved by our audit committee. Whenever practicable, the reporting, review and approval will occur prior to entry into the transaction. If advance review and approval is not practicable, the committee will review, and, in its discretion, may ratify the related person transaction. The policy also permits the chairman of the audit committee to review and, if deemed appropriate, approve proposed related person transactions that arise between committee meetings, subject to ratification by the committee at its next meeting. Any related person transactions that are ongoing in nature will be reviewed annually.

A related person transaction reviewed under the policy will be considered approved or ratified if it is authorized by the audit committee after full disclosure of the related person's interest in the transaction. As appropriate for the circumstances, the audit committee will review and consider:

- the related person's interest in the related person transaction;

- the approximate dollar value of the amount involved in the related person transaction;
- the approximate dollar value of the amount of the related person's interest in the transaction without regard to the amount of any profit or loss;
- whether the transaction was undertaken in the ordinary course of our business;
- whether the terms of the transaction are no less favorable to us than terms that could have been reached with an unrelated third party;
- the purpose of, and the potential benefits to us of, the transaction; and
- any other information regarding the related person transaction or the related person in the context of the proposed transaction that would be material to investors in light of the circumstances of the particular transaction.

Our audit committee may approve or ratify the transaction only if it determines that, under all of the circumstances, the transaction is in our best interests. Our audit committee may impose any conditions on the related person transaction that it deems appropriate.

In addition to the transactions that are excluded by the instructions to the SEC's related person transaction disclosure rule, our board of directors has determined that the following transactions do not create a material direct or indirect interest on behalf of related persons and, therefore, are not related person transactions for purposes of this policy:

- interests arising solely from the related person's position as an executive officer of another entity, whether or not the person is also a director of the entity, that is a participant in the transaction where the related person and all other related persons own in the aggregate less than a 10% equity interest in such entity, the related person and his or her immediate family members are not involved in the negotiation of the terms of the transaction and do not receive any special benefits as a result of the transaction and the amount involved in the transaction is less than the greater of $200,000 or 5% of the annual gross revenue of the company receiving payment under the transaction; and
- a transaction that is specifically contemplated by provisions of our certificate of incorporation or by-laws.

The policy provides that transactions involving compensation of executive officers shall be reviewed and approved by our compensation committee in the manner specified in the compensation committee's charter.

We did not have a written policy regarding the review and approval of related person transactions prior to this offering. Nevertheless, with respect to such transactions, it has been the practice of our board of directors to consider the nature of and business reasons for such transactions, how the terms of such transactions compared to those which might be obtained from unaffiliated third parties and whether such transactions were otherwise fair to and in the best interests of, or not contrary to, our best interests.

PRINCIPAL STOCKHOLDERS

The following table sets forth information with respect to the beneficial ownership of our common stock as of June 30, 2017 by:

- each of our directors;
- each of our named executive officers;
- all of our directors and executive officers as a group; and
- each person, or group of affiliated persons, who is known by us to beneficially own more than 5% of our common stock.

The column entitled "Percentage of Shares Beneficially Owned—Before Offering" is based on a total of 24,720,621 shares of our common stock outstanding as of June 30, 2017, assuming the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 22,966,586 shares of our common stock upon the closing of this offering. The column entitled "Percentage of Shares Beneficially Owned—After Offering" is based on shares of our common stock to be outstanding after this offering, including the shares of our common stock that we are selling in this offering, but not including any additional shares issuable upon exercise of outstanding options or warrants. The table also assumes the automatic conversion of outstanding warrants to purchase shares of our preferred stock into warrants to purchase shares of our common stock.

Beneficial ownership is determined in accordance with the rules and regulations of the Securities and Exchange Commission and includes voting or investment power with respect to our common stock. Shares of our common stock subject to options and warrants that are currently exercisable or exercisable within 60 days after June 30, 2017 are considered outstanding and beneficially owned by the person holding the options for the purpose of calculating the percentage ownership of that person but not for the purpose of calculating the percentage ownership of any other person. Except as otherwise noted, the persons and entities in this table have sole voting and investing power with respect to all of the shares of our common stock beneficially owned by them, subject to community property laws, where applicable. Except as otherwise set forth below, the address of each beneficial owner is c/o Arsanis, Inc., 890 Winter Street, Suite 230, Waltham, Massachusetts 02451.

Name and Address of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned	
		Before Offering	After Offering
5% Stockholders:			
Entities affiliated with Polaris Ventures[1]	4,672,287	18.90%	
Entities affiliated with SV Life Sciences[2]	4,672,289	18.90%	
OrbiMed Private Investments IV LP[3]	4,672,291	18.90%	
NeoMed Innovation V L.P.[4]	1,937,358	7.84%	
Bill & Melinda Gates Foundation[5]	2,464,799	9.97%	
GV 2016, L.P.[6]	1,540,499	6.23%	
Directors and Named Executive Officers:			
René Russo, Pharm.D., BCPS[7]	198,124	*	
Eszter Nagy, M.D., Ph.D.[8]	1,244,230	4.97%	
Michael Gray, M.B.A., C.P.A.[9]	61,979	*	
Chris Stevens, M.D.[10]	26,250	*	
Tillman U. Gerngross, Ph.D.[11]	510,250	2.05%	
Jan Adams, Ph.D.[12]	1,196,102	4.84%	
Daniel Burgess[13]	16,132	*	
Carl Gordon, Ph.D., C.F.A.[14]	4,672,291	18.90%	

Name and Address of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned	
		Before Offering	After Offering
Terrance McGuire[15]	4,672,287	18.90%	
Claudio Nessi, Ph.D., M.B.A.[16]	1,937,358	7.84%	
Michael Ross, Ph.D.[17]	4,672,289	18.90%	
Amy Schulman, J.D.[18]	14,288	*	
All current executive officers and directors as a group (13 persons)[19]	19,256,164	75.39%	

* Less than one percent

(1) Consists of (a) 4,508,454 shares of common stock issuable upon conversion of preferred stock held by Polaris Venture Partners V, L.P., (b) 87,870 shares of common stock issuable upon conversion of preferred stock held by Polaris Venture Partners Entrepreneurs' Fund V, L.P., (c) 30,881 shares of common stock issuable upon conversion of preferred stock held by Polaris Venture Partners Founders' Fund V, L.P. and (d) 45,082 shares of common stock issuable upon conversion of preferred stock held by Polaris Venture Partners Special Founders' Fund V, L.P. Each of Polaris Venture Partners V, L.P., Polaris Venture Partners Entrepreneurs' Fund V, L.P., Polaris Venture Partners Founders' Fund V, L.P. and Polaris Venture Partners Special Founders' Fund V, L.P. (collectively, the "Polaris Funds") has the sole voting and investment power with respect to the shares directly held by it. Polaris Venture Management Co. V, L.L.C. ("PVM V") is the general partner of each the Polaris Funds. PVM V may be deemed to have sole power to vote and dispose of the shares held by the Polaris Funds. Terrance McGuire, a member of our board of directors, and Jonathan Flint (collectively, the "Managing Members") are the managing members of PVM V and each may be deemed to share voting and dispositive power with respect to the shares held by the Polaris Funds. Each of PVM V and the Managing Members disclaim beneficial ownership of all of the shares owned by the Polaris Funds, except to the extent of their respective and proportionate pecuniary interests therein. The address of the Polaris Funds is One Marina Park Drive, 10th Floor, Boston, Massachusetts 02210.

(2) Consists of (a) 3,082,327 shares of common stock issuable upon conversion of preferred stock held by SV Life Sciences Fund V, L.P. ("SVLS V LP"), (b) 65,137 shares of common stock issuable upon conversion of preferred stock held by SV Life Sciences Fund V Strategic Partners, L.P. ("SVLS V SPP"), (c) 1,474,348 shares of common stock issuable upon conversion of preferred stock held by SV Life Sciences Fund VI, L.P. ("SVLS VI LP") and (d) 50,477 shares of common stock issuable upon conversion of preferred stock held by SV Life Sciences Fund VI Strategic Partners, L.P. ("SVLS VI SPP"). SV Life Sciences Fund V (GP), LP ("SVLS V GP") is the general partner of SVLS V LP and SVLS V SPP (collectively, the "SV V Funds"). The general partner of SVLS V GP is SVLSF V, LLC. The members of the investment committee of SVLSF V, LLC are Kate Bingham, James Garvey, Eugene D. Hill, III and Michael Ross, a member of our board of directors. SVLS V GP, SVLSF V, LLC and each of the individuals comprising the SVLSF V, LLC investment committee may be deemed to share voting, dispositive and investment power over the shares held of record by the SV Life Sciences Funds. Each of SVLS V GP, SVLSF V, LLC and the individual members of the SVLSF V, LLC investment committee disclaim beneficial ownership of the shares owned directly by the SV Life Sciences Funds except to the extent of any pecuniary interest therein. SV Life Sciences Fund VI (GP), LP ("SVLS VI GP") is the general partner of SVLS VI LP and SVLS VI SPP (collectively, the "SV VI Funds"). The general partner of SVLS VI GP is SVLSF VI, LLC. The members of the investment committee of SVLSF VI, LLC are Kate Bingham, James Garvey, Eugene D. Hill, III, Paul LaViolette, Thomas Flynn and Michael Ross, a member of our board of directors. SVLS VI GP, SVLSF VI, LLC and each of the individuals comprising the SVLSF VI, LLC investment committee may be deemed to share voting, dispositive and investment power over the shares held of record by the SV VI Funds. Each of SVLS VI GP, SVLSF VI, LLC and the individual members of the SVLSF VI, LLC investment committee disclaim beneficial ownership of the shares owned directly by the SV VI Funds except to the extent of any pecuniary interest therein. The address for the entities is One Boston Place, Suite 3900, 201 Washington Street, Boston, Massachusetts 02108.

(3) Consists of 4,672,291 shares of common stock issuable upon conversion of preferred stock held by OrbiMed Private Investment VI, LP ("OPI VI"). OrbiMed Capital GP VI LLC ("GP VI") is the general partner of OPI VI. OrbiMed Advisors LLC ("OrbiMed Advisors") is the managing member of GP VI. Samuel D. Isaly is the managing member of and owner of a controlling interest in OrbiMed Advisors. By virtue of such

relationships, GP VI, OrbiMed Advisors and Mr. Isaly may be deemed to have voting and investment power with respect to the shares held by OPI VI and as a result may be deemed to have beneficial ownership of such shares. Dr. Carl L. Gordon, a member of OrbiMed Advisors, is a member of our board of directors. Each of GP VI, OrbiMed Advisors, Mr. Isaly and Dr. Gordon disclaims beneficial ownership of the shares held by OPI VI, except to the extent of its or his pecuniary interest therein if any. The address of OPI VI is 601 Lexington Avenue, 54th Floor, New York, New York 10022.

(4) Consists of 1,937,358 shares of common stock issuable upon conversion of preferred stock held by NeoMed Innovation V L.P. Claudio Nessi, a member of our board of directors, is the Managing Partner of NeoMed Management (Jersey) Limited, which is the Investment Manager to NeoMed Innovation V L.P. By virtue of such relationships, NeoMed Management (Jersey) Limited and Dr. Nessi may be deemed to have voting and investment power with respect to the shares held by NeoMed Innovation V L.P. Each of NeoMed Management (Jersey) Limited and Dr. Nessi disclaims beneficial ownership of the shares held by NeoMed Innovation V L.P., except to the extent of its or his pecuniary interest therein, if any. The business address for NeoMed Innovation V L.P. is 13 Castle Street, St. Helier, Jersey, JE4 5UT.

(5) Consists of 2,464,799 shares of common stock issuable upon conversion of preferred stock held by Bill & Melinda Gates Foundation. The address for Bill & Melinda Gates Foundation is 1432 Elliot Ave West, Seattle, WA 98102.

(6) Consists of 1,540,499 shares of common stock issuable upon conversion of preferred stock held by GV 2016, L.P. GV 2016 GP, L.P., the general partner of GV 2016, L.P., GV 2016 GP, L.L.C., the general partner of GV 2016 GP, L.P., Alphabet Holdings LLC, the sole member of GV 2016 GP, L.L.C., Google Inc., the sole member of Alphabet Holdings LLC, and Alphabet Inc., the sole stockholder of Google Inc., may be deemed to have sole power to vote or dispose of these shares. The address for GV 2016, L.P., GV 2016 GP, L.P., GV 2016 GP, L.L.C., Alphabet Holdings LLC, Google Inc., and Alphabet Inc. is 1600 Amphitheatre Parkway, Mountain View, CA 94043.

(7) Consists of shares of common stock underlying options held by Dr. Russo that are exercisable as of June 30, 2017 or will become exercisable within 60 days after such date.

(8) Consists of (a) 933,333 shares of common stock owned by Dr. Nagy and (b) 310,897 shares of common stock underlying options held by Dr. Nagy that are exercisable as of June 30, 2017 or will become exercisable within 60 days after such date.

(9) Consists of shares of common stock underlying options held by Mr. Gray that are exercisable as of June 30, 2017 or will become exercisable within 60 days after such date.

(10) Consists of shares of common stock underlying options held by Dr. Stevens that are exercisable as of June 30, 2017 or will become exercisable within 60 days after such date.

(11) Consists of (a) 350,000 shares of common stock owned by Mr. Gerngross and (b) 160,250 shares of common stock underlying options held by Mr. Gerngross that are exercisable as of June 30, 2017 or will become exercisable within 60 days after such date.

(12) Consists of 1,196,102 shares of common stock issuable upon conversion of preferred stock held by EMBL Technology Fund II GmbH & Co. KG (“EMBL Tech Fund II”). Dr. Adams is a partner with EMBL Ventures GmbH (“EMBL”), which is the managing limited partner of EMBL Tech Fund II. By virtue of such relationship, Dr. Adams may be deemed to have voting and investment power with respect to the shares held by EMBL Tech Fund II. Each of EMBL and Dr. Adams disclaims beneficial ownership of the shares held by EMBL Tech Fund II, except to the extent of its or his pecuniary interest therein, if any. The address for the EMBL is Boxbergring 107, 69126 Heidelberg, Germany.

(13) Consists of shares of common stock underlying options held by Mr. Burgess that are exercisable as of June 30, 2017 or will become exercisable within 60 days after such date.

(14) Consists of the shares described in note 3 above.

(15) Consists of the shares described in note 1 above.

(16) Consists of the shares described in note 4 above.

(17) Consists of the shares described in note 2 above.

(18) Consists of shares of common stock underlying options held by Ms. Schulman that are exercisable as of June 30, 2017 or will become exercisable within 60 days after such date.

(19) Includes 822,504 shares of common stock underlying options that are exercisable as of June 30, 2017 or will become exercisable within 60 days after such date.

DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock and provisions of our certificate of incorporation and bylaws are summaries and are qualified by reference to the certificate of incorporation and the bylaws that will be in effect upon the closing of this offering. We will file copies of these documents with the Securities and Exchange Commission as exhibits to our registration statement of which this prospectus forms a part. The description of the capital stock reflects changes to our capital structure that will occur upon the closing of this offering.

Upon the closing of this offering, our authorized capital stock will consist of 200,000,000 shares of our common stock, par value $0.001 per share, and 10,000,000 shares of our preferred stock, par value $0.001 per share, all of which preferred stock will be undesignated.

As of June 30, 2017, we had issued and outstanding:

- 1,754,035 shares of our common stock held by 35 stockholders of record;
- 200,001 shares of our Series A-1 convertible preferred stock held by 7 stockholders of record, convertible into 200,001 shares of our common stock;
- 2,114,538 shares of our Series A-2 convertible preferred stock held by 7 stockholders of record, convertible into 2,582,587 shares of our common stock;
- 2,762,431 shares of our Series B convertible preferred stock held by 8 stockholders of record, convertible into 4,209,636 shares of our common stock;
- 1,031,342 shares of our Series C convertible preferred stock held by 10 stockholders of record, convertible into 1,754,071 shares of our common stock; and
- 14,220,284 shares of our Series D convertible preferred stock held by 18 stockholders of record, convertible into 14,220,284 shares of our common stock.

Upon the closing of this offering, all of the outstanding shares of our preferred stock will automatically convert into an aggregate of 22,966,586 shares of our common stock.

Common Stock

Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders and do not have cumulative voting rights. Each election of directors by our stockholders will be determined by a plurality of the votes cast by the stockholders entitled to vote on the election. Holders of common stock are entitled to receive proportionately any dividends as may be declared by our board of directors, subject to any preferential dividend rights of outstanding preferred stock.

In the event of our liquidation or dissolution, the holders of our common stock are entitled to receive proportionately all assets available for distribution to stockholders after the payment of all debts and other liabilities and subject to the prior rights of any of our outstanding preferred stock. Holders of our common stock have no pre-emptive, subscription, redemption or conversion rights. The rights, preferences and privileges of holders of our common stock are subject to and may be adversely affected by the rights of the holders of shares of any series of our preferred stock that we may designate and issue in the future.

Preferred Stock

Under the terms of our certificate of incorporation that will become effective upon the closing of this offering, our board of directors is authorized to issue shares of preferred stock in one or more series without stockholder approval. Our board of directors has the discretion to determine the rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, of each series of preferred stock.

The purpose of authorizing our board of directors to issue preferred stock and determine its rights and preferences is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions, future financings and other corporate purposes, could have the effect of making it more difficult for a third party to acquire, or could discourage a third party from seeking to acquire, a majority of our outstanding voting stock. Upon the closing of this offering, there will be no shares of preferred stock outstanding, and we have no present plans to issue any shares of preferred stock.

Warrants

As of June 30, 2017, we had outstanding:

- a warrant to purchase up to an aggregate of 11,013 shares of our Series A-2 convertible preferred stock, at an exercise price of $4.54 per share, which we refer to as the Series A-2 warrant, and
- a warrant to purchase up to an aggregate of 14,502 shares of our Series B convertible preferred stock, at an exercise price of $7.24 per share, which we refer to as the Series B warrant.

Upon the closing of this offering:

- the Series A-2 warrant will become exercisable for an aggregate of 13,450 shares of our common stock, at an exercise price of $3.72 per share and
- the Series B warrant will become exercisable for an aggregate of 22,099 shares of our common stock, at an exercise price of $4.75 per share.

These warrants provide for adjustments in the event of specified reclassifications, stock dividends, stock splits or other changes in our corporate structure.

Options

As of June 30, 2017, options to purchase an aggregate of 4,090,027 shares of our common stock, at a weighted average exercise price of $1.64 per share, were outstanding.

Delaware Anti-Takeover Law and Certain Charter and Bylaw Provisions

Delaware Law

We are subject to Section 203 of the Delaware General Corporation Law. Subject to certain exceptions, Section 203 prevents a publicly held Delaware corporation from engaging in a "business combination" with any "interested stockholder" for three years following the date that the person became an interested stockholder, unless either the interested stockholder attained such status with the approval of our board of directors, the business combination is approved by our board of directors and stockholders in a prescribed manner or the interested stockholder acquired at least 85% of our outstanding voting stock in the transaction in which it became an interested stockholder. A "business combination" includes, among other things, a merger or consolidation involving us and the "interested stockholder" and the sale of more than 10% of our assets. In general, an "interested stockholder" is any entity or person beneficially owning 15% or more of our outstanding voting stock and any entity or person affiliated with or controlling or controlled by such entity or person. The restrictions contained in Section 203 are not applicable to any of our existing stockholders that will own 15% or more of our outstanding voting stock upon the closing of this offering.

Staggered Board; Removal of Directors

Our certificate of incorporation and our bylaws to be effective upon the closing of the offering divide our board of directors into three classes with staggered three-year terms. In addition, our certificate of incorporation

and our bylaws to be effective upon the closing of the offering provide that directors may be removed only for cause and only by the affirmative vote of the holders of 75% of our shares of capital stock present in person or by proxy and entitled to vote. Under our certificate of incorporation and bylaws to be effective upon the closing of the offering, any vacancy on our board of directors, including a vacancy resulting from an enlargement of our board of directors, may be filled only by vote of a majority of our directors then in office. Furthermore, our certificate of incorporation to be effective upon the closing of the offering provides that the authorized number of directors may be changed only by the resolution of our board of directors. The classification of our board of directors and the limitations on the ability of our stockholders to remove directors, change the authorized number of directors and fill vacancies could make it more difficult for a third party to acquire, or discourage a third party from seeking to acquire, control of our company.

Stockholder Action; Special Meeting of Stockholders; Advance Notice Requirements for Stockholder Proposals and Director Nominations

Our certificate of incorporation and our bylaws to be effective upon the closing of the offering provide that any action required or permitted to be taken by our stockholders at an annual meeting or special meeting of stockholders may only be taken if it is properly brought before such meeting and may not be taken by written action in lieu of a meeting. Our certificate of incorporation and our bylaws to be effective upon the closing of the offering also provide that, except as otherwise required by law, special meetings of the stockholders can only be called by the chairman of our board of directors, our chief executive officer or our board of directors. In addition, our bylaws to be effective upon the closing of the offering establish an advance notice procedure for stockholder proposals to be brought before an annual meeting of stockholders, including proposed nominations of candidates for election to our board of directors. Stockholders at an annual meeting may only consider proposals or nominations specified in the notice of meeting or brought before the meeting by or at the direction of our board of directors, or by a stockholder of record on the record date for the meeting who is entitled to vote at the meeting and who has delivered timely written notice in proper form to our secretary of the stockholder's intention to bring such business before the meeting. These provisions could have the effect of delaying until the next stockholder meeting stockholder actions that are favored by the holders of a majority of our outstanding voting securities. These provisions also could discourage a third party from making a tender offer for our common stock because even if the third party acquired a majority of our outstanding voting stock, it would be able to take action as a stockholder, such as electing new directors or approving a merger, only at a duly called stockholders meeting and not by written consent.

Super-Majority Voting

The Delaware General Corporation Law provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or bylaws unless a corporation's certificate of incorporation or bylaws, as the case may be, requires a greater percentage. Our bylaws to be effective upon the closing of the offering may be amended or repealed by a majority vote of our board of directors or the affirmative vote of the holders of at least 75% of the votes that all our stockholders would be entitled to cast in any annual election of directors. In addition, the affirmative vote of the holders of at least 75% of the votes that all our stockholders would be entitled to cast in any election of directors is required to amend or repeal or to adopt any provisions inconsistent with any of the provisions of our certificate of incorporation described above.

Exclusive Forum Selection

Our certificate of incorporation to be effective upon the closing of the offering provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (1) any derivative action or proceeding brought on behalf of our company, (2) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers, employees or stockholders to our company or our stockholders, (3) any action asserting a claim arising pursuant to any

provision of the General Corporation Law of the State of Delaware or as to which the General Corporation Law of the State of Delaware confers jurisdiction on the Court of Chancery of the State of Delaware, or (4) any action asserting a claim arising pursuant to any provision of our certificate of incorporation or bylaws (in each case, as they may be amended from time to time) or governed by the internal affairs doctrine. Although our certificate of incorporation contains the choice of forum provision described above, it is possible that a court could rule that such a provision is inapplicable for a particular claim or action or that such provision is unenforceable.

Registration Rights

We have entered into a second amended and restated investors' rights agreement dated as of April 12, 2016, which was amended on April 24, 2017, with holders of our preferred stock. Beginning six months following the closing of this offering, holders of a total of 22,966,586 shares of our common stock will have the right to require us to register these shares under the Securities Act of 1933, as amended, or the Securities Act, under specified circumstances. We refer to the shares with these registration rights as registrable securities. After registration pursuant to these rights, the registrable securities will become freely tradable without restriction under the Securities Act.

Demand and Form S-3 Registration Rights

Beginning 180 days after this offering, subject to specified limitations set forth in the investors' rights agreement, at any time, the holders of at least 25% of the then outstanding registrable securities may demand that we register registrable securities then outstanding under the Securities Act for purposes of a public offering having an aggregate offering price to the public of not less than $10.0 million. We are not obligated to file a registration statement pursuant to this provision on more than two occasions.

In addition, subject to specified limitations set forth in the investors' rights agreement, at any time after we become eligible to file a registration statement on Form S-3, holders of the registrable securities then outstanding may request that we register their registrable securities on Form S-3 for purposes of a public offering for which the reasonably anticipated aggregate offering price to the public would exceed $1.0 million. We are not obligated to file a registration statement pursuant to this provision on more than two occasions in any 12-month period.

Incidental Registration Rights

If, at any time after the closing of this offering, we propose to register for our own account any of our securities under the Securities Act, the holders of registrable securities will be entitled to notice of the registration and, subject to specified exceptions, have the right to require us to use our reasonable best efforts to register all or a portion of the registrable securities then held by them in that registration.

In the event that any registration in which the holders of registrable securities participate pursuant to our investors' rights agreement is an underwritten public offering, we have agreed to enter into an underwriting agreement in usual and customary form and use our reasonable best efforts to facilitate such offering.

Expenses

Pursuant to the investors' rights agreement, we are required to pay all registration expenses, including all registration and filing fees, exchange listing fees, printing expenses, fees and expenses of one counsel selected by the selling stockholders to represent the selling stockholders, state Blue Sky fees and expenses and the expense of any special audits incident to or required by any such registration, but excluding underwriting discounts, selling commissions and the fees and expenses of the selling stockholders' own counsel (other than the counsel selected to represent all selling stockholders).

The investors' rights agreement contains customary cross-indemnification provisions, pursuant to which we are obligated to indemnify the selling stockholders in the event of material misstatements or omissions in the

registration statement attributable to us or any violation or alleged violation whether by action or inaction by us under the Securities Act, the Securities Exchange Act of 1934, as amended, or the Exchange Act, any state securities or Blue Sky law or any rule or regulation promulgated under the Securities Act, the Exchange Act or any state securities or Blue Sky law in connection with such registration statement or the qualification or compliance of the offering, and they are obligated to indemnify us for material misstatements or omissions in the registration statement attributable to them.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock will be .

NASDAQ Global Market

We intend to apply to have our common stock listed on The NASDAQ Global Market under the symbol "ASNS."

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, there has been no public market for our common stock, and a liquid trading market for our common stock may not develop or be sustained after this offering. Future sales of substantial amounts of our common stock in the public market, including shares issued upon exercise of outstanding options, or the anticipation of these sales, could adversely affect market prices prevailing from time to time and could impair our ability to raise capital through sales of equity securities.

Based on the 1,754,035 shares of our common stock that were outstanding on June 30, 2017, upon the closing of this offering, we will have outstanding shares of our common stock, after giving effect to the issuance of shares of our common stock in this offering, assuming no exercise by the underwriters of their option to purchase additional shares of our common stock to cover over-allotments, and the conversion of all outstanding shares of our preferred stock into an aggregate of 22,966,586 shares of our common stock upon the closing of this offering. Of these shares, all shares sold in this offering will be freely tradable without restriction under the Securities Act of 1933, as amended, or the Securities Act, unless purchased by our "affiliates," as that term is defined in Rule 144 under the Securities Act. The remaining 24,720,621 shares of our common stock will be "restricted securities" under Rule 144, and we expect that substantially all of these restricted securities will be subject to the 180-day lock-up period under the lock-up agreements as described below. These restricted securities may be sold in the public market upon release or waiver of any applicable lock-up agreements and only if registered or pursuant to an exemption from registration, such as Rule 144 or 701 under the Securities Act.

Rule 144

In general, under Rule 144, beginning 90 days after the date of this prospectus, any person who is not our affiliate and has held their shares for at least six months, including the holding period of any prior owner other than one of our affiliates, may sell those shares without restriction, subject to the availability of current public information about us. In addition, under Rule 144, any person who is not our affiliate and has not been our affiliate at any time during the preceding three months and has held their shares for at least one year, including the holding period of any prior owner other than one of our affiliates, would be entitled to sell an unlimited number of shares immediately upon the closing of this offering without regard to whether current public information about us is available.

Beginning 90 days after the date of this prospectus, a person who is our affiliate or who was our affiliate at any time during the preceding three months and who has beneficially owned restricted securities for at least six months, including the holding period of any prior owner other than one of our affiliates, is entitled to sell a number of shares within any three-month period that does not exceed the greater of:

- 1% of the number of shares of our common stock then outstanding, which will equal approximately shares immediately after this offering; and
- the average weekly trading volume in our common stock on The NASDAQ Global Market during the four calendar weeks preceding the date of filing of a Notice of Proposed Sale of Securities Pursuant to Rule 144 with respect to the sale.

Sales under Rule 144 by our affiliates are also subject to manner of sale provisions and notice requirements and to the availability of current public information about us.

Upon waiver or expiration of the 180-day lock-up period described below, approximately shares of our common stock will be eligible for sale under Rule 144. We cannot estimate the number of shares of our common stock that our existing stockholders will elect to sell under Rule 144.

Rule 701

In general, under Rule 701 under the Securities Act, any of our employees, consultants or advisors, other than our affiliates, who purchased shares from us in connection with a qualified compensatory stock plan or other written agreement is eligible to resell these shares 90 days after the date of this prospectus in reliance on Rule 144, but without compliance with the various restrictions, including the availability of public information about us, holding period and volume limitations, contained in Rule 144. Subject to the 180-day lock-up period described below, approximately shares of our common stock, based on shares outstanding as of , 2017 will be eligible for sale in accordance with Rule 701.

Lock-up Agreements

We, and each of our executive officers and directors and the holders of substantially all of our outstanding stock have agreed that, without the prior written consent of Citigroup Global Markets Inc. and Cowen and Company, LLC, on behalf of the underwriters, we and they will not, subject to limited exceptions, during the period ending 180 days after the date of this prospectus:

- offer, sell, contract to sell, pledge or otherwise dispose of, or enter into any transaction which is designed to, or might reasonably be expected to, result in the disposition of (whether by actual disposition or effective economic disposition due to cash settlement or otherwise), directly or indirectly, including the filing (or participation in the filing) of a registration statement (other than a registration statement on Form S-8) with the Securities and Exchange Commission with respect to, any shares of our capital stock or any securities convertible into, or exercisable or exchangeable for, such capital stock;
- establish or increase a put equivalent position or liquidate or decrease a call equivalent position with respect to any shares of our capital stock or any securities convertible into or exercisable or exchangeable for such capital stock; or
- publicly announce an intention to effect any of the foregoing.

These agreements are subject to certain exceptions, as described in the section of this prospectus entitled “Underwriting.”

Registration Rights

Beginning six months after the closing of this offering, the holders of an aggregate of 22,966,586 shares of our common stock will have rights, subject to certain conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. After registration pursuant to these rights, these shares will become freely tradable without restriction under the Securities Act. See “Description of Capital Stock—Registration Rights” for additional information regarding these registration rights.

Stock Options and Form S-8 Registration Statement

As of June 30, 2017, we had outstanding options to purchase an aggregate of 4,090,027 shares of our common stock, of which options to purchase 980,486 shares were vested. Following this offering, we intend to file a registration statement on Form S-8 under the Securities Act to register all of the shares of our common stock subject to outstanding options and reserved for future options and other awards under the 2010 Plan, the 2011 Plan, the 2017 Plan and the 2017 ESPP. See “Executive Compensation—Stock Option and Other Compensation Plans” for additional information regarding these plans. Accordingly, shares of our common stock registered under the registration statements will be available for sale in the open market, subject to Rule 144 volume limitations applicable to affiliates, and subject to any vesting restrictions and lock-up agreements applicable to these shares.

MATERIAL U.S. FEDERAL INCOME AND ESTATE TAX CONSIDERATIONS FOR NON-U.S. HOLDERS OF COMMON STOCK

The following is a discussion of material U.S. federal income and estate tax considerations relating to ownership and disposition of shares of our common stock acquired in this offering by a non-U.S. holder. For purposes of this discussion, the term "non-U.S. holder" means a beneficial owner (other than a partnership or other pass-through entity) of our common stock that is not, for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation, or other entity treated as a corporation, created or organized in or under the laws of the United States or of any political subdivision of the United States;
- an estate the income of which is subject to U.S. federal income taxation regardless of its source; or
- a trust if (1) a U.S. court is able to exercise primary supervision over the administration of the trust and one or more U.S. persons have authority to control all substantial decisions of the trust or (2) the trust has a valid election in effect under applicable U.S. Treasury Regulations to be treated as a U.S. person.

This discussion does not address the tax treatment of partnerships or other entities that are pass-through entities for U.S. federal income tax purposes or persons who hold their common stock through partnerships or such other pass-through entities. A partner in a partnership or other pass-through entity that will hold our common stock should consult his, her or its own tax advisor regarding the tax consequences of the ownership and disposition of our common stock through a partnership or other pass-through entity, as applicable.

This discussion is based on current provisions of the U.S. Internal Revenue Code of 1986, as amended, which we refer to as the Code, existing and proposed U.S. Treasury Regulations promulgated thereunder, current administrative rulings and judicial decisions, all as in effect as of the date of this prospectus and all of which are subject to change or to differing interpretation, possibly with retroactive effect. Any change could alter the tax consequences to non-U.S. holders described in this prospectus. There can be no assurance that the Internal Revenue Service, or the IRS, will not challenge one or more of the tax consequences described in this prospectus.

We assume in this discussion that each non-U.S. holder holds shares of our common stock as a capital asset (generally, property held for investment) for U.S. federal income tax purposes. This discussion does not address all aspects of U.S. federal income and estate taxation that may be relevant to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances nor does it address any aspects of U.S. state, local or non-U.S. taxes, the alternative minimum tax, or the Medicare tax on net investment income. This discussion also does not consider any specific facts or circumstances that may apply to a non-U.S. holder and does not address the special tax rules applicable to particular non-U.S. holders, such as:

- financial institutions;
- brokers or dealers in securities;
- tax-exempt organizations;
- pension plans;
- owners that hold our common stock as part of a straddle, hedge, conversion transaction, synthetic security or other integrated investment or who have elected to mark securities to market;
- insurance companies;
- controlled foreign corporations;
- passive foreign investment companies;
- non-U.S. governments; and
- certain U.S. expatriates.

THIS DISCUSSION IS FOR INFORMATION ONLY AND IS NOT, AND IS NOT INTENDED TO BE, LEGAL OR TAX ADVICE. PROSPECTIVE INVESTORS SHOULD CONSULT THEIR OWN TAX ADVISORS REGARDING THE U.S. FEDERAL, STATE, LOCAL, ESTATE AND NON-U.S. INCOME AND OTHER TAX CONSIDERATIONS OF ACQUIRING, HOLDING AND DISPOSING OF OUR COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY PROPOSED CHANGES IN APPLICABLE LAWS.

Distributions

As discussed under the heading "Dividend Policy" above, we do not expect to make cash dividends to holders of our common stock in the foreseeable future. If we make distributions in respect of our common stock, those distributions generally will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles, subject to the tax treatment described in this section. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to the non-U.S. holder's tax basis in the common stock. Any remaining excess will be treated as capital gain, subject to the tax treatment described below under the heading "Gain on Sale, Exchange or Other Taxable Disposition of Our Common Stock." Any such distributions will also be subject to the discussions below under the headings "Information Reporting and Backup Withholding" and "FATCA" below.

Dividends paid to a non-U.S. holder generally will be subject to withholding of U.S. federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States, and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States, are generally exempt from the 30% withholding tax if the non-U.S. holder satisfies applicable certification and disclosure requirements (generally including provision of a properly executed IRS Form W-8ECI (or applicable successor form) certifying that the dividends are effectively connected with the non-U.S. holder's conduct of a trade or business within the United States). However, such U.S. effectively connected income, net of specified deductions and credits, is taxed in the hands of the non-U.S. holder at the same graduated U.S. federal income tax rates as would apply if such holder were a U.S. person (as defined in the Code). Any U.S. effectively connected income received by a non-U.S. holder that is classified as a corporation for U.S. federal income tax purposes may also, under certain circumstances, be subject to an additional "branch profits tax" at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence.

A non-U.S. holder of our common stock who claims the benefit of an applicable income tax treaty between the United States and such holder's country of residence generally will be required to provide a properly executed IRS Form W-8BEN or W-8BEN-E (or successor form) and satisfy applicable certification and other requirements. Non-U.S. holders are urged to consult their own tax advisors regarding their entitlement to benefits under a relevant income tax treaty and the specific methods available to them to satisfy these requirements.

A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim with the IRS.

Gain on Sale, Exchange or Other Taxable Disposition of Our Common Stock

Subject to the discussion below under the headings "Information Reporting and Backup Withholding" and "FATCA," a non-U.S. holder generally will not be subject to U.S. federal income tax or withholding tax on any gain realized upon such non-U.S. holder's sale, exchange or other disposition of our common stock unless:

- the gain is effectively connected with the non-U.S. holder's conduct of a trade or business in the United States, and, if an applicable income tax treaty so provides, the gain is attributable to a permanent establishment or fixed

base maintained by the non-U.S. holder in the United States; in these cases, the non-U.S. holder generally will be taxed on a net income basis at the graduated U.S. federal income tax rates applicable to U.S. persons, and, if the non-U.S. holder is a foreign corporation, an additional branch profits tax at a rate of 30% (or a lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence) may also apply;

- the non-U.S. holder is a non-resident alien present in the United States for 183 days or more in the taxable year of the disposition and certain other requirements are met, in which case the non-U.S. holder will be subject to a 30% tax (or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence) on the net gain derived from the disposition, which may be offset by certain U.S.-source capital losses of the non-U.S. holder recognized in the taxable year of the disposition, if any; or
- we are or have been, at any time during the five-year period preceding such disposition (or the non-U.S. holder's holding period, if shorter) a "U.S. real property holding corporation" unless our common stock is regularly traded on an established securities market and the non-U.S. holder held no more than 5% of our outstanding common stock, directly or indirectly, during the shorter of the five-year period ending on the date of the disposition or the period that the non-U.S. holder held our common stock. Generally, a corporation is a "U.S. real property holding corporation" if the fair market value of its "United States real property interests" (as defined in the Code and applicable regulations) equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although there can be no assurance, we believe that we are not currently, and we do not anticipate becoming, a "U.S. real property holding corporation" for U.S. federal income tax purposes. If we are determined to be a U.S. real property holding corporation and our common stock is not regularly traded on an established securities market, then (i) a purchaser of shares of our common stock from a non-U.S. holder generally will withhold 15% of the proceeds payable to such non-U.S. holder and (ii) the non-U.S. holder's net gain derived from the disposition of shares of our common stock generally will be taxed in the same manner as gain that is effectively connected with the conduct of a U.S. trade or business, except that the branch profits tax generally will not apply. The tax treatment described in (ii) of the preceding sentence will also generally apply to the non-U.S. holder's net gain derived from the disposition of shares of our common stock even if our common stock is regularly traded on an established securities market if such holder beneficially owns more than 5% of our outstanding common stock, during the applicable testing period.

U.S. Federal Estate Tax

Shares of our common stock that are owned or treated as owned by an individual who is not a citizen or resident of the United States (as specially defined for U.S. federal estate tax purposes) at the time of death are considered U.S.-situs assets and will be included in the individual's gross estate for U.S. federal estate tax purposes. Such shares, therefore, may be subject to U.S. federal estate tax, unless an applicable estate tax or other treaty provides otherwise.

Information Reporting and Backup Withholding

We must report annually to the IRS and to each non-U.S. holder the gross amount of the distributions on our common stock paid to such holder and the tax withheld, if any, with respect to such distributions. Non-U.S. holders generally will have to comply with specific certification procedures to establish that the holder is not a U.S. person (as defined in the Code) in order to avoid backup withholding at the applicable rate with respect to dividends on our common stock. Generally, a holder will comply with such procedures if it provides a properly executed IRS Form W-8BEN or W-8BEN-E (or other applicable IRS Form W-8), or otherwise meets documentary evidence requirements for establishing that it is a non-U.S. holder, or otherwise establishes an exemption. Dividends paid to non-U.S. holders subject to withholding of U.S. federal income tax, as described above under the heading "Distributions," will generally be exempt from U.S. backup withholding.

Information reporting and backup withholding generally will apply to the proceeds of a disposition of our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or non-U.S., unless the holder certifies its status as a non-U.S. holder and satisfies certain other requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected outside the United States through a non-U.S. office of a broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker. Non-U.S. holders should consult their own tax advisors regarding the application of the information reporting and backup withholding rules to them.

Copies of information returns may be made available to the tax authorities of the country in which the non-U.S. holder resides or is incorporated under the provisions of a specific treaty or agreement.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder can be refunded or credited against the non-U.S. holder's U.S. federal income tax liability, if any, provided that an appropriate claim is timely filed with the IRS.

FATCA

Provisions of the Code commonly referred to as the Foreign Account Tax Compliance Act, or FATCA, generally impose a 30% withholding tax on dividends on, and gross proceeds from the sale or disposition of, our common stock if paid to a foreign entity unless (i) if the foreign entity is a "foreign financial institution," the foreign entity undertakes certain due diligence, reporting, withholding and certification obligations, (ii) if the foreign entity is not a "foreign financial institution," the foreign entity identifies certain of its U.S. investors or (iii) the foreign entity is otherwise exempt under FATCA.

Withholding under FATCA generally (1) applies to payments of dividends on our common stock, and (2) will apply to payments of gross proceeds from a sale or other disposition of our common stock made after December 31, 2018. An intergovernmental agreement between the United States and an applicable foreign country may modify the requirements described in this section. Under certain circumstances, a non-U.S. holder may be eligible for refunds or credits of the tax. Non-U.S. holders should consult their own tax advisors regarding the possible implications of FATCA on their investment in our common stock.

The preceding discussion of material U.S. federal tax considerations is for information only. It is not, and is not intended to be, legal or tax advice. Prospective investors should consult their own tax advisors regarding the particular U.S. federal, state, local, estate and non-U.S. income and other tax consequences of acquiring, holding and disposing of our common stock, including the consequences of any proposed changes in applicable laws.

UNDERWRITING

Citigroup Global Markets Inc., Cowen and Company, LLC and Piper Jaffray & Co. are acting as joint book-running managers of this offering and as representatives of the underwriters named below. Subject to the terms and conditions stated in the underwriting agreement dated the date of this prospectus, the underwriters named below have severally agreed to purchase, and we have agreed to sell to them, the number of shares of our common stock indicated below:

Underwriter	Number of Shares
Citigroup Global Markets Inc.	
Cowen and Company, LLC	
Piper Jaffray & Co.	
Total	

The underwriting agreement provides that the obligations of the underwriters to purchase the shares of our common stock included in this offering are subject to approval of legal matters by counsel and to other conditions. The underwriters are obligated to purchase all of the shares of our common stock (other than those covered by the over-allotment option described below) if they purchase any of the shares.

Shares of our common stock sold by the underwriters to the public will initially be offered at the initial public offering price set forth on the cover of this prospectus. Any shares of our common stock sold by the underwriters to securities dealers may be sold at a discount from the initial public offering price not to exceed $ per share. After the initial offering of the shares of our common stock, if all the shares of our common stock are not sold at the initial offering price, the underwriters may change the offering price and the other selling terms. The representatives have advised us that the underwriters do not intend to make sales to discretionary accounts.

If the underwriters sell more shares of our common stock than the total number set forth in the table above, we have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase up to additional shares of our common stock at the initial public offering price less the underwriting discount. The underwriters may exercise the option solely for the purpose of covering over-allotments, if any, in connection with this offering. To the extent the option is exercised, each underwriter must purchase a number of additional shares of our common stock approximately proportionate to that underwriter's initial purchase commitment set forth in the table above. Any shares of our common stock issued or sold under the option will be issued and sold on the same terms and conditions as the other shares of our common stock that are the subject of this offering.

We, our officers and directors and substantially all of our stockholders have agreed that, subject to specified limited exceptions, for a period of 180 days from the date of this prospectus, we and they will not, without the prior written consent of Citigroup Global Markets Inc. and Cowen and Company, LLC, offer, sell, contract to sell, pledge or otherwise dispose of, including the filing of a registration statement in respect of, or hedge any shares of our capital stock or any securities convertible into, or exercisable or exchangeable for, our capital stock. Citigroup Global Markets Inc. and Cowen and Company, LLC in their sole discretion may release any of the securities subject to these lock-up agreements at any time, which, in the case of officers and directors, shall be with notice.

Prior to this offering, there has been no public market for our common stock. Consequently, the initial public offering price for the shares of our common stock will be determined by negotiations between us and the representatives. Among the factors considered in determining the initial public offering price will be our results of operations, our current financial condition, our future prospects, our markets, the economic conditions in and future prospects for the industry in which we compete, our management, and currently prevailing general conditions in the

equity securities markets, including current market valuations of publicly traded companies considered comparable to our company. We cannot assure you, however, that the price at which the shares of our common stock will sell in the public market after this offering will not be lower than the initial public offering price or that an active trading market in our shares of common stock will develop and continue after this offering.

We intend to have our shares of common stock listed on The NASDAQ Global Market under the symbol "ASNS."

The following table shows the per share and total public offering price, underwriting discounts and commissions that we are to pay to the underwriters and proceeds to us, before expenses, in connection with this offering. These amounts are shown assuming both no exercise and full exercise of the underwriters' over-allotment option:

		Total	
	Per share	No exercise	Full exercise
Public offering price	$	$	$
Underwriting discounts and commissions paid by us	$	$	$
Proceeds to us, before expenses	$	$	$

We estimate that expenses payable by us in connection with this offering, exclusive of underwriting discounts and commissions, will be approximately $. We have also agreed to reimburse the underwriters for expenses in an amount up to $ relating to the clearance of this offering with the Financial Industry Regulatory Authority, Inc.

In connection with this offering, the underwriters may purchase and sell shares of our common stock in the open market. Purchases and sales in the open market may include short sales, purchases to cover short positions, which may include purchases pursuant to the underwriters' over-allotment option, and other transactions that would stabilize, maintain or otherwise affect the price of our common stock.

- Short sales involve secondary market sales by the underwriters of a greater number of shares of our common stock than they are required to purchase in this offering:
  - "Covered" short sales are sales of shares of our common stock in an amount up to the number of shares of our common stock represented by the underwriters' over-allotment option.
  - "Naked" short sales are sales of shares of our common stock in an amount in excess of the number of shares of our common stock represented by the underwriters' over-allotment option.
- The underwriters can close out a short position by purchasing additional shares of our common stock, either pursuant to the underwriters' over-allotment option or in the open market.
  - To close a naked short position, the underwriters must purchase shares of our common stock in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the shares of our common stock in the open market after pricing that could adversely affect investors who purchase in this offering.
  - To close a covered short position, the underwriters must purchase shares of our common stock in the open market or exercise their over-allotment option. In determining the source of shares of our common stock to close the covered short position, the underwriters will consider, among other things, the price of shares of our common stock available for purchase in the open market as compared to the price at which they may purchase shares of our common stock through their over-allotment option.
- As an additional means of facilitating this offering, the underwriters may bid for, and purchase, shares of our common stock on NASDAQ, as long as such bids do not exceed a specified maximum, to stabilize the price of the shares of our common stock.

Purchases to cover short positions and stabilizing purchases, as well as other purchases by the underwriters for their own accounts, may have the effect of preventing or retarding a decline in the market price of the shares. They may also cause the price of the shares of our common stock to be higher than the price that would otherwise prevail in the open market in the absence of these transactions. The underwriters may conduct these transactions on NASDAQ, in the over-the-counter market or otherwise. The underwriters are not required to engage in any of these transactions and may discontinue them at any time.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act of 1933, as amended, or to contribute to payments the underwriters may be required to make because of any of those liabilities.

A prospectus in electronic format may be made available on websites maintained by one or more of the underwriters or their respective affiliates. The representatives may agree with us to allocate a number of shares of our common stock to underwriters for sale to their online brokerage account holders. Any such allocation for online distributions will be made by the underwriters on the same basis as other allocations. Other than the prospectus in electronic format, the information on the underwriters' or their respective affiliates' websites and any information contained in any other website maintained by any of the underwriters or their respective affiliates is not part of this prospectus, has not been approved and/or endorsed by us or the underwriters and should not be relied upon by investors in this offering.

Other Relationships

The underwriters are full-service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, principal investment, hedging, financing and brokerage activities. The underwriters and their respective affiliates may, from time to time, engage in transactions with and perform services for us in the ordinary course of their business for which they may receive customary fees and reimbursement of expenses. In the ordinary course of their various business activities, the underwriters and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (which may include bank loans or credit default swaps) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The underwriters and their affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long or short positions in such securities and instruments.

Notice to Prospective Investors in the European Economic Area

In relation to each member state of the European Economic Area that has implemented the Prospectus Directive (each, a relevant member state), with effect from and including the date on which the Prospectus Directive is implemented in that relevant member state (the relevant implementation date), an offer of shares of our common stock described in this prospectus may not be made to the public in that relevant member state other than:

- to any legal entity which is a qualified investor as defined in the Prospectus Directive;
- to fewer than 100 or, if the relevant member state has implemented the relevant provision of the 2010 PD Amending Directive, 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the relevant Dealer or Dealers nominated by us for any such offer; or
- in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of shares of our common stock shall require us or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Directive.

For purposes of this provision, the expression an "offer of securities to the public" in any relevant member state means the communication in any form and by any means of sufficient information on the terms of the offer and the shares of our common stock to be offered so as to enable an investor to decide to purchase or subscribe for any shares of our common stock, as the expression may be varied in that member state by any measure implementing the Prospectus Directive in that member state, the expression "Prospectus Directive" means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the relevant member state) and includes any relevant implementing measure in the relevant member state, and the expression "2010 PD Amending Directive" means Directive 2010/73/EU.

The sellers of the shares of our common stock have not authorized and do not authorize the making of any offer of shares of our common stock through any financial intermediary on their behalf, other than offers made by the underwriters with a view to the final placement of the shares of our common stock as contemplated in this prospectus. Accordingly, no purchaser of the shares of our common stock, other than the underwriters, is authorized to make any further offer of the shares of our common stock on behalf of the sellers or the underwriters.

Notice to Prospective Investors in the United Kingdom

This prospectus is only being distributed to, and is only directed at, persons in the United Kingdom that are qualified investors within the meaning of Article 2(1)(e) of the Prospectus Directive that are also (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, or the Order, or (ii) high net worth entities, and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (each such person being referred to as a relevant person).

This prospectus and its contents are confidential and should not be distributed, published or reproduced (in whole or in part) or disclosed by recipients to any other persons in the United Kingdom. Any person in the United Kingdom that is not a relevant person should not act or rely on this document or any of its contents.

Notice to Prospective Investors in Canada

The securities may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the securities must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

Notice to Prospective Investors in Australia

No prospectus or other disclosure document (as defined in the Corporations Act 2001 (Cth) of Australia, or Corporations Act) in relation to our common stock has been or will be lodged with the Australian Securities & Investments Commission, or ASIC. This document has not been lodged with ASIC and is only directed to certain categories of exempt persons. Accordingly, if you receive this document in Australia:

- you confirm and warrant that you are either:
  - a "sophisticated investor" under section 708(8)(a) or (b) of the Corporations Act;
  - a "sophisticated investor" under section 708(8)(c) or (d) of the Corporations Act and that you have provided an accountant's certificate to us which complies with the requirements of section 708(8)(c)(i) or (ii) of the Corporations Act and related regulations before the offer has been made; a person associated with the company under section 708(12) of the Corporations Act; or
  - a "professional investor" within the meaning of section 708(11)(a) or (b) of the Corporations Act, and to the extent that you are unable to confirm or warrant that you are an exempt sophisticated investor, associated person or professional investor under the Corporations Act any offer made to you under this document is void and incapable of acceptance; and
- you warrant and agree that you will not offer any of our common stock for resale in Australia within 12 months of that common stock being issued unless any such resale offer is exempt from the requirement to issue a disclosure document under section 708 of the Corporations Act

Notice to Prospective Investors in France

Neither this prospectus nor any other offering material relating to the shares of our common stock described in this prospectus has been submitted to the clearance procedures of the *Autorité des Marchés Financiers* or of the competent authority of another member state of the European Economic Area and notified to the *Autorité des Marchés Financiers*. The shares of our common stock have not been offered or sold and will not be offered or sold, directly or indirectly, to the public in France. Neither this prospectus nor any other offering material relating to the shares of our common stock has been or will be:

- released, issued, distributed or caused to be released, issued or distributed to the public in France; or
- used in connection with any offer for subscription or sale of the shares of our common stock to the public in France.

Such offers, sales and distributions will be made in France only:

- to qualified investors (*investisseurs qualifiés*) and/or to a restricted circle of investors (*cercle restreint d'investisseurs*), in each case investing for their own account, all as defined in, and in accordance with articles L.411-2, D.411-1, D.411-2, D.734-1, D.744-1, D.754-1 and D.764-1 of the French Code monétaire et financier;
- to investment services providers authorized to engage in portfolio management on behalf of third parties; or
- in a transaction that, in accordance with article L.411-2-II-1° -or-2° -or 3° of the French Code *monétaire et financier* and article 211-2 of the General Regulations (*Règlement Général*) of the *Autorité des Marchés Financiers*, does not constitute a public offer (*appel public à l'épargne*).

The shares of our common stock may be resold directly or indirectly, only in compliance with articles L.411-1, L.411-2, L.412-1 and L.621-8 through L.621-8-3 of the French Code *monétaire et financier*.

Notice to Prospective Investors in Hong Kong

The shares of our common stock may not be offered or sold in Hong Kong by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies

Ordinance (Cap. 32, Laws of Hong Kong), or (ii) to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder, or (iii) in other circumstances which do not result in the document being a "prospectus" within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong) and no advertisement, invitation or document relating to the shares of our common stock may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the laws of Hong Kong) other than with respect to shares of our common stock which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder.

Notice to Prospective Investors in Japan

The shares of our common stock offered in this prospectus have not been and will not be registered under the Financial Instruments and Exchange Law of Japan. The shares of our common stock have not been offered or sold and will not be offered or sold, directly or indirectly, in Japan or to or for the account of any resident of Japan (including any corporation or other entity organized under the laws of Japan), except (i) pursuant to an exemption from the registration requirements of the Financial Instruments and Exchange Law and (ii) in compliance with any other applicable requirements of Japanese law.

Notice to Prospective Investors in Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares of our common stock may not be circulated or distributed, nor may the shares of our common stock be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore, or the SFA, (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to compliance with conditions set forth in the SFA.

Where the shares of our common stock are subscribed or purchased under Section 275 of the SFA by a relevant party which is:

- a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or
- a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

shares, debentures and units of shares of our common stock and debentures of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares of our common stock pursuant to an offer made under Section 275 of the SFA except:

- to an institutional investor (for corporations, under Section 274 of the SFA) or to a relevant person defined in Section 275(2) of the SFA, or to any person pursuant to an offer that is made on terms that such shares, debentures and units of shares of our common stock and debentures of that corporation or such rights and interest in that trust are acquired at a consideration of not less than $200,000 (or its equivalent in a foreign currency) for each transaction, whether such amount is to be paid for in cash or by exchange of securities or other assets, and further for corporations, in accordance with the conditions specified in Section 275 of the SFA;

- where no consideration is or will be given for the transfer; or
- where the transfer is by operation of law.

LEGAL MATTERS

The validity of the shares of common stock offered hereby is being passed upon for us by Wilmer Cutler Pickering Hale and Dorr LLP, Boston, Massachusetts. Goodwin Procter LLP, New York, New York is acting as counsel for the underwriters in connection with this offering.

EXPERTS

The financial statements as of December 31, 2016 and 2015 and for each of the two years in the period ended December 31, 2016 included in this prospectus have been so included in reliance on the report (which contains an explanatory paragraph relating to the Company's ability to continue as a going concern as described in Note 1 to the consolidated financial statements) of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the Securities and Exchange Commission, or the SEC, a registration statement on Form S-1 under the Securities Act of 1933, as amended, with respect to the shares of common stock we are offering to sell. This prospectus, which constitutes part of the registration statement, does not include all of the information contained in the registration statement and the exhibits, schedules and amendments to the registration statement. For further information with respect to us and our common stock, we refer you to the registration statement and to the exhibits and schedules to the registration statement. Statements contained in this prospectus about the contents of any contract, agreement or other document are not necessarily complete, and, in each instance, we refer you to the copy of the contract, agreement or other document filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference.

You may read and copy the registration statement of which this prospectus is a part at the SEC's public reference room, which is located at 100 F Street, N.E., Room 1580, Washington, DC 20549. You can request copies of the registration statement by writing to the SEC and paying a fee for the copying cost. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the SEC's public reference room. In addition, the SEC maintains an Internet website, which is located at *http://www.sec.gov,* that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. You may access the registration statement of which this prospectus is a part at the SEC's Internet website. Upon completion of this offering, we will be subject to the information reporting requirements of the Securities Exchange Act of 1934, as amended, and we will file reports, proxy statements and other information with the SEC.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of
Arsanis, Inc.

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of operations, of comprehensive loss, of redeemable convertible preferred stock and stockholders' deficit and of cash flows present fairly, in all material respects, the financial position of Arsanis, Inc. and its subsidiary as of December 31, 2016 and 2015, and the results of their operations and their cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these financial statements in accordance with the standards of the Public Company Accounting Oversight Board (United States) and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the financial statements, the Company has incurred recurring losses from operations since inception, has an accumulated deficit, and will require additional financing to fund future operations. These circumstances raise substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

/s/ PricewaterhouseCoopers LLP

Boston, Massachusetts
August 10, 2017

ARSANIS, INC.

CONSOLIDATED BALANCE SHEETS

(Amounts in thousands, except share and per share amounts)

	December 31, 2015	December 31, 2016	March 31, 2017 (unaudited)	Pro Forma March 31, 2017 (unaudited)
Assets				
Current assets:				
Cash	$ 6,759	$ 3,035	$ 2,282	$ 2,282
Grant and incentive receivables	1,541	1,345	1,903	1,903
Restricted cash	—	—	1,595	1,595
Prepaid expenses and other current assets	87	1,336	3,291	3,291
Total current assets	8,387	5,716	9,071	9,071
Property and equipment, net	760	519	512	512
Restricted cash	338	394	372	372
Deferred offering costs	—	9	42	42
Other assets	25	966	978	978
Total assets	$ 9,510	$ 7,604	$ 10,975	$ 10,975
Liabilities, Redeemable Convertible Preferred Stock and Stockholders' Deficit				
Current liabilities:				
Accounts payable	$ 423	$ 1,645	$ 3,016	$ 3,016
Accrued expenses	1,541	2,156	3,386	3,386
Unearned income	430	504	2,119	2,119
Loans payable, net of discount	250	2,299	2,302	2,302
Convertible promissory notes, net of discount	2,240	2,863	8,150	8,150
Derivative liability	1,793	2,593	2,234	2,234
Total current liabilities	6,677	12,060	21,207	21,207
Loans payable, net of discount and current portion	4,704	10,127	9,747	9,747
Unearned income	2,433	2,054	1,949	1,949
Other long-term liabilities	70	87	81	34
Total liabilities	13,884	24,328	32,984	32,937
Commitments and contingencies (Note 16)				
Redeemable convertible preferred stock (Series A-1, A-2, B and C), $0.001 par value; 5,087,982 shares authorized as of December 31, 2015 and 6,711,755 shares authorized as of December 31, 2016 and March 31, 2017 (unaudited); 5,076,970 shares issued and outstanding as of December 31, 2015 and 6,108,312 shares issued and outstanding as of December 31, 2016 and March 31, 2017 (unaudited); aggregate liquidation preference of $39,952 as of December 31, 2016 and March 31, 2017 (unaudited); no shares issued or outstanding, pro forma as of March 31, 2017 (unaudited)	29,948	39,838	39,845	—
Stockholders' deficit:				
Common stock, $0.001 par value; 7,500,000 shares authorized as of December 31, 2015 and 10,000,000 shares authorized as of December 31, 2016 and March 31, 2017 (unaudited); 1,754,035 shares issued and outstanding as of December 31, 2015 and 2016 and March 31, 2017 (unaudited); 7,862,347 shares issued and outstanding, pro forma as of March 31, 2017 (unaudited)	2	2	2	8
Additional paid-in capital	371	990	1,165	41,051
Accumulated other comprehensive income	718	834	752	752
Accumulated deficit	(35,413)	(58,388)	(63,773)	(63,773)
Total stockholders' deficit	(34,322)	(56,562)	(61,854)	(21,962)
Total liabilities, redeemable convertible preferred stock and stockholders' deficit	$ 9,510	$ 7,604	$ 10,975	$ 10,975

The accompanying notes are an integral part of these consolidated financial statements.

ARSANIS, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS

(Amounts in thousands, except share and per share amounts)

	Year Ended December 31,		Three Months Ended March 31,	
	2015	2016	2016	2017
			(unaudited)	
Operating expenses:				
Research and development	$ 12,706	$ 17,831	$ 2,529	$ 4,391
General and administrative	2,119	6,515	1,340	1,436
Total operating expenses	14,825	24,346	3,869	5,827
Loss from operations	(14,825)	(24,346)	(3,869)	(5,827)
Other income (expense):				
Grant and incentive income	2,155	2,390	762	700
Interest expense	(472)	(2,515)	(511)	(1,019)
Change in fair value of warrant liability	1	39	—	—
Change in fair value of derivative liability	—	1,388	52	762
Loss on extinguishment of debt	—	(35)	—	—
Other income (expense), net	(77)	104	66	(1)
Total other income, net	1,607	1,371	369	442
Net loss	(13,218)	(22,975)	(3,500)	(5,385)
Accretion of redeemable convertible preferred stock to redemption value	(19)	(25)	(5)	(7)
Net loss attributable to common stockholders	$ (13,237)	$ (23,000)	$ (3,505)	$ (5,392)
Net loss per share attributable to common stockholders—basic and diluted	$ (7.62)	$ (13.12)	$ (2.00)	$ (3.07)
Weighted average common shares outstanding—basic and diluted	1,736,110	1,752,756	1,750,489	1,754,035
Pro forma net loss per share attributable to common stockholders—basic and diluted (unaudited)		$ (3.04)		$ (0.68)
Pro forma weighted average common shares outstanding—basic and diluted (unaudited)		7,570,827		7,862,347

The accompanying notes are an integral part of these consolidated financial statements.

ARSANIS, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS

(Amounts in thousands)

	Year Ended December 31,		Three Months Ended March 31,	
	2015	2016	2016	2017
			(unaudited)	
Net loss	$(13,218)	$(22,975)	$(3,500)	$(5,385)
Other comprehensive income (loss):				
Foreign currency translation gain (loss)	316	116	(205)	(82)
Comprehensive loss	$(12,902)	$(22,859)	$(3,705)	$(5,467)

The accompanying notes are an integral part of these consolidated financial statements.

ARSANIS, INC.

CONSOLIDATED STATEMENTS OF REDEEMABLE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT

(Amounts in thousands, except share amounts)

	Redeemable Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount				
Balances as of December 31, 2014	4,110,119	$ 22,941	1,724,093	$ 2	$ 249	$ 402	$ (22,195)	$ (21,542)
Issuance of Series B redeemable convertible preferred stock, net of issuance costs of $12	966,851	6,988	—	—	—	—	—	—
Foreign currency translation adjustment	—	—	—	—	—	316	—	316
Exercise of stock options	—	—	30,500	—	15	—	—	15
Forfeiture of unvested restricted common stock	—	—	(558)	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	126	—	—	126
Accretion of reedemable convertible preferred stock to redemption value	—	19	—	—	(19)	—	—	(19)
Net loss	—	—	—	—	—	—	(13,218)	(13,218)
Balances as of December 31, 2015	5,076,970	29,948	1,754,035	2	371	718	(35,413)	(34,322)
Issuance of Series C redeemable convertible preferred stock, net of issuance costs of $87	569,946	5,413	—	—	—	—	—	—
Issuance of Series C redeemable convertible preferred stock in connection with the extinguishment of convertible promissory note	461,396	4,452	—	—	—	—	—	—
Foreign currency translation adjustment	—	—	—	—	—	116	—	116
Stock-based compensation expense	—	—	—	—	644	—	—	644
Accretion of redeemable convertible preferred stock to redemption value	—	25	—	—	(25)	—	—	(25)
Net loss	—	—	—	—	—	—	(22,975)	(22,975)
Balances as of December 31, 2016	6,108,312	39,838	1,754,035	2	990	834	(58,388)	(56,562)
Foreign currency translation adjustment	—	—	—	—	—	(82)	—	(82)
Stock-based compensation expense	—	—	—	—	182	—	—	182
Accretion of redeemable convertible preferred stock to redemption value	—	7	—	—	(7)	—	—	(7)
Net loss	—	—	—	—	—	—	(5,385)	(5,385)
Balances as of March 31, 2017 (unaudited)	6,108,312	$ 39,845	1,754,035	$ 2	$ 1,165	$ 752	$ (63,773)	$ (61,854)

The accompanying notes are an integral part of these consolidated financial statements.

ARSANIS, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

(Amounts in thousands)

	Year Ended December 31,		Three Months Ended March 31,	
	2015	2016	2016	2017
			(unaudited)	
Cash flows from operating activities:				
Net loss	$(13,218)	$(22,975)	$ (3,500)	$ (5,385)
Adjustments to reconcile net loss to net cash used in operating activities:				
Stock-based compensation expense	126	644	51	182
Depreciation and amortization expense	389	285	101	48
Non-cash interest expense	394	2,307	484	941
Non-cash rent expense	47	9	21	(5)
Loss on extinguishment of debt	—	35	—	—
Change in fair value of warrant liability	(1)	(39)	—	—
Change in fair value of derivative liability	—	(1,388)	(52)	(762)
Changes in operating assets and liabilities:				
Grant and incentive receivables	(56)	152	(171)	(535)
Prepaid expenses and other current assets	(31)	(1,278)	(3,165)	(1,940)
Other assets	—	(941)	—	(12)
Accounts payable	77	1,264	290	1,339
Accrued expenses	758	521	(7)	1,144
Unearned income	699	(235)	(105)	1,474
Net cash used in operating activities	(10,816)	(21,639)	(6,053)	(3,511)
Cash flows from investing activities:				
Purchases of property and equipment	(170)	(73)	(56)	(17)
Changes in restricted cash	(77)	(65)	—	(1,569)
Net cash used in investing activities	(247)	(138)	(56)	(1,586)
Cash flows from financing activities:				
Proceeds from issuance of reedemable convertible preferred stock	7,000	5,500	—	—
Proceeds from issuance of loans payable	—	7,000	3,500	—
Proceeds from issuance of convertible promissory notes	4,000	5,500	—	4,935
Proceeds from issuance of loans under funding agreements	1,527	514	—	—
Exercise of stock options	16	—	—	—
Repayments of loans payable	(1,000)	(250)	(250)	(582)
Payments of issuance costs of convertible promissory notes	(26)	—	—	(17)
Payments of issuance costs of reedemable convertible preferred stock	(12)	(87)	—	—
Payments of issuance costs of loans payable	—	(30)	(27)	—
Net cash provided by financing activities	11,505	18,147	3,223	4,336
Effect of exchange rate changes on cash	(122)	(94)	10	8
Net increase (decrease) in cash	320	(3,724)	(2,876)	(753)
Cash at beginning of period	6,439	6,759	6,759	3,035
Cash at end of period	$ 6,759	$ 3,035	$ 3,883	$ 2,282
Supplemental disclosure of cash flow information:				
Cash paid for interest	$ 81	$ 291	$ 2	$ 59
Cash paid for taxes	$ 29	$ 4	$ —	$ —
Supplemental disclosure of non-cash investing and financing activities:				
Purchases of property and equipment included in accounts payable and accrued expenses	$ 23	$ 2	$ 2	$ 19
Issuance of Series C redeemable convertible preferred stock upon extinguishment of 2015 Notes	$ —	$ 4,452	$ —	$ —
Derivative liability in connection with issuance of convertible promissory notes	$ 1,793	$ 3,929	$ —	$ 403
Extinguishment of 2015 Notes	$ —	$ 2,677	$ —	$ —
Extinguishment of derivative liability in connection with extinguishment of 2015 Notes	$ —	$ 1,741	$ —	$ —
Issuance of warrants in connection with issuance of loans payable	$ —	$ 60	$ 35	$ —
Accretion of redeemable convertible preferred stock to redemption value	$ 19	$ 25	$ 5	$ 7

The accompanying notes are an integral part of these consolidated financial statements.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Nature of the Business and Basis of Presentation

Arsanis, Inc. (the "Company") is a clinical-stage biopharmaceutical company focused on applying monoclonal antibody immunotherapies to address serious infectious diseases. The Company believes that its monoclonal antibodies ("mAbs") offer a novel approach to address serious infectious diseases. Unlike antibiotics that propagate resistance, disrupt both disease-causing and beneficial bacteria and have adverse off-target effects, mAbs have the ability to precisely bind only to the intended target, thereby avoiding these undesired consequences. The Company's lead product candidate, ASN100, is a first-in-class mAb therapeutic in Phase 2 clinical development for the prevention of *Staphylococcus aureus* pneumonia in high-risk, mechanically ventilated patients, a potentially life-threatening and costly infection for which there are no approved preventive therapies. In addition to ASN100, the Company's preclinical pipeline is comprised of mAbs targeting multiple serious bacterial and viral pathogens, including respiratory syncytial virus ("RSV").

Arsanis was incorporated under the laws of the State of Delaware and is headquartered in Waltham, Massachusetts, with European research and preclinical development operations headquartered in Vienna, Austria.

The Company is subject to risks and uncertainties common to early-stage companies in the biotechnology industry, including, but not limited to, development by competitors of new technological innovations, dependence on key personnel, protection of proprietary technology, compliance with government regulations and the ability to secure additional capital to fund operations. Product candidates currently under development will require significant additional research and development efforts, including preclinical and clinical testing and regulatory approval, prior to commercialization. These efforts require significant amounts of additional capital, adequate personnel and infrastructure and extensive compliance-reporting capabilities. Even if the Company's product development efforts are successful, it is uncertain when, if ever, the Company will realize significant revenue from product sales.

The accompanying consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP") and include the accounts of the Company and its wholly owned subsidiary, Arsanis Biosciences GmbH, after elimination of all significant intercompany accounts and transactions.

Going Concern

In accordance with Accounting Standards Update ("ASU") 2014-15, *Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern (Subtopic 205-40)*, the Company has evaluated whether there are conditions and events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern within one year after the date that the consolidated financial statements are issued.

Through March 31, 2017, the Company has funded its operations primarily with proceeds from the sale of preferred and common stock, borrowings under convertible promissory notes, borrowings under a loan and security agreement, grant and loan proceeds from funding agreements with Österreichische Forschungsförderungsgesellschaft mbH ("FFG"), proceeds from a research and development incentive program provided by the Austrian government and proceeds from a grant agreement with the Bill & Melinda Gates Foundation (the "Gates Foundation"). The Company has incurred recurring losses since its inception, including net losses of $13.2 million and $23.0 million for the years ended December 31, 2015 and 2016, respectively, and $5.4 million for the three months ended March 31, 2017 (unaudited). In addition, as of December 31, 2016 and March 31, 2017 (unaudited), the Company had an accumulated deficit of $58.4 million and $63.8 million, respectively. The Company expects to continue to generate operating losses for the foreseeable future. As of August 10, 2017, the issuance date of the annual consolidated financial statements for the year ended

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2016 and the interim consolidated financial statements for the three months ended March 31, 2017, the Company expects that its cash of $2.3 million as of March 31, 2017 (unaudited), together with the $35.1 million of gross cash proceeds received from the Company's sale of Series D redeemable convertible preferred stock in April 2017 (see Note 20), will be sufficient to fund its operating expenses, capital expenditure requirements and debt service payments through April 30, 2018. The future viability of the Company beyond that point is dependent on its ability to raise additional capital to finance its operations.

The Company is seeking to complete an initial public offering ("IPO") of its common stock. In the event the Company does not complete an initial public offering, the Company expects to seek additional funding through private equity financings, debt financings, or other capital sources, including collaborations with other companies, government contracts or other strategic transactions. The Company may not be able to obtain funding on acceptable terms, or at all. The terms of any financing may adversely affect the holdings or the rights of the Company's stockholders.

If the Company is unable to obtain funding, the Company will be forced to delay, reduce or eliminate some or all of its research and development programs, product portfolio expansion or commercialization efforts, which could adversely affect its business prospects, or the Company may be unable to continue operations. Although management continues to pursue these plans, there is no assurance that the Company will be successful in obtaining sufficient funding on terms acceptable to the Company to fund continuing operations, if at all.

Based on its recurring losses from operations incurred since inception, expectation of continuing operating losses for the foreseeable future, and need to raise additional capital to finance its future operations, the Company has concluded that there is substantial doubt about its ability to continue as a going concern within one year after the date that the consolidated financial statements are issued.

The accompanying consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty. Accordingly, the consolidated financial statements have been prepared on a basis that assumes the Company will continue as a going concern and which contemplates the realization of assets and satisfaction of liabilities and commitments in the ordinary course of business.

2. Summary of Significant Accounting Policies

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting periods. Significant estimates and assumptions reflected in these financial statements include, but are not limited to, the accrual for research and development expenses and the valuation of common stock, stock options, warrants and derivative instruments. Estimates are periodically reviewed in light of changes in circumstances, facts and experience. Changes in estimates are recorded in the period in which they become known. Actual results could differ from those estimates.

Unaudited Interim Financial Information

The accompanying consolidated balance sheet as of March 31, 2017, the consolidated statements of operations, of comprehensive loss and of cash flows for the three months ended March 31, 2016 and 2017, and the consolidated statement of redeemable convertible preferred stock and stockholders' deficit for the three

months ended March 31, 2017 are unaudited. The unaudited interim consolidated financial statements have been prepared on the same basis as the audited annual consolidated financial statements and, in the opinion of management, reflect all adjustments, which include only normal recurring adjustments, necessary for the fair statement of the Company's financial position as of March 31, 2017 and the results of its operations and its cash flows for the three months ended March 31, 2016 and 2017. The financial data and other information disclosed in these notes related to the three months ended March 31, 2016 and 2017 are also unaudited. The results for the three months ended March 31, 2017 are not necessarily indicative of results to be expected for the year ending December 31, 2017, any other interim periods, or any future year or period.

Unaudited Pro Forma Information

The accompanying unaudited pro forma consolidated balance sheet as of March 31, 2017 has been prepared to give effect, upon the closing of a qualified IPO, to the automatic conversion of all outstanding shares of redeemable convertible preferred stock into 6,108,312 shares of common stock and all outstanding warrants to purchase shares of redeemable convertible preferred stock as of March 31, 2017 becoming warrants to purchase shares of common stock as if the Company's proposed IPO had occurred on March 31, 2017.

In the accompanying consolidated statements of operations, the unaudited pro forma basic and diluted net loss per share attributable to common stockholders for the year ended December 31, 2016 and the three months ended March 31, 2017 have been prepared to give effect, upon the closing of a qualified IPO, to the automatic conversion of all outstanding shares of redeemable convertible preferred stock into shares of common stock and all outstanding warrants to purchase shares of redeemable convertible preferred stock as of March 31, 2017 becoming warrants to purchase shares of common stock as if the proposed IPO had occurred on the later of January 1, 2016 or the issuance date of the redeemable convertible preferred stock or the warrants.

Foreign Currency and Currency Translation

The functional currency for the Company's wholly owned foreign subsidiary, Arsanis Biosciences GmbH, is the Euro. Assets and liabilities of Arsanis Biosciences GmbH are translated into United States dollars at the exchange rate in effect on the balance sheet date. Income items and expenses are translated at the average exchange rate in effect during the period. Unrealized translation gains and losses are recorded as a cumulative translation adjustment, which is included in the consolidated statements of redeemable convertible preferred stock and stockholder's deficit as a component of accumulated other comprehensive income (loss). Adjustments that arise from exchange rate changes on transactions denominated in a currency other than the local currency are included in other income (expense), net in the consolidated statements of operations as incurred.

Restricted Cash

In March 2017, the Company received a payment of $1.6 million under a grant agreement with the Gates Foundation (see Note 7). As of March 31, 2017 (unaudited), the payment received from the Gates Foundation was classified as restricted cash (current) in the consolidated balance sheet due to restrictions on the use of the funds imposed by the agreement. Such funds received from the Gates Foundation are no longer classified as restricted cash once the Company incurs qualifying expenses under the grant agreement and the restrictions no longer apply.

The Company maintains a letter of credit for the benefit of the landlords in connection with the Company's office leases (see Note 16) and another letter of credit in connection with the Company's corporate credit cards. As of December 31, 2015 and 2016 and March 31, 2017 (unaudited), restricted cash (non-current) consisted of

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

$0.1 million, $0.1 million and $0.1 million, respectively, held in connection with the Company's corporate credit cards and $0.3 million, $0.3 million and $0.3 million, respectively, held for the benefit of the landlords in connection with the Company's office leases.

Concentrations of Credit Risk

Financial instruments that potentially expose the Company to concentrations of credit risk consist primarily of cash. Periodically, the Company maintains deposits in accredited financial institutions in excess of federally insured limits. The Company deposits its cash in financial institutions that it believes have high credit quality and has not experienced any losses on such accounts and does not believe it is exposed to any unusual credit risk beyond the normal credit risk associated with commercial banking relationships.

Deferred Offering Costs

The Company capitalizes certain legal, professional accounting and other third-party fees that are directly associated with in-process equity financings as deferred offering costs until such financings are consummated. After consummation of the equity financing, these costs are recorded in stockholders' equity (deficit) as a reduction of proceeds generated as a result of the offering. Should the planned equity financing be abandoned, the deferred offering costs will be expensed immediately as a charge to operating expenses in the consolidated statement of operations. The Company recorded deferred offering costs of $0, $9,000 and $42,000 as of December 31, 2015 and 2016 and March 31, 2017 (unaudited), respectively.

Property and Equipment

Property and equipment are recorded at cost and depreciated or amortized using the straight-line method over the estimated useful lives of the respective assets. As of December 31, 2015, 2016 and March 31, 2017 (unaudited), the Company's property and equipment consisted of laboratory and office equipment, computer equipment and software, furniture and fixtures and leasehold improvements. Property and equipment are recorded at cost and depreciated or amortized using the straight-line method over the estimated useful lives of the respective assets as follows:

	Estimated Useful Life
Laboratory and office equipment	3 to 10 years
Furniture and fixtures	3 to 10 years
Computer equipment and software	1 to 5 years
Leasehold improvements	Shorter of lease term or 10 years

Upon retirement or sale, the cost of assets disposed of and the related accumulated depreciation are removed from the accounts and any resulting gain or loss is included in loss from operations. Expenditures for repairs and maintenance are charged to expense as incurred.

Impairment of Long-Lived Assets

Long-lived assets consist of property and equipment. Long-lived assets to be held and used are tested for recoverability whenever events or changes in business circumstances indicate that the carrying amount of the assets may not be fully recoverable. Factors that the Company considers in deciding when to perform an impairment review include significant underperformance of the business in relation to expectations, significant negative industry or economic trends and significant changes or planned changes in the use of the assets. If an impairment review is

performed to evaluate a long-lived asset group for recoverability, the Company compares forecasts of undiscounted cash flows expected to result from the use and eventual disposition of the long-lived asset group to its carrying value. An impairment loss would be recognized when estimated undiscounted future cash flows expected to result from the use of an asset group are less than its carrying amount. The impairment loss would be based on the excess of the carrying value of the impaired asset group over its fair value, determined based on discounted cash flows. To date, the Company has not recorded any impairment losses on long-lived assets.

Fair Value Measurements

Certain assets of the Company are carried at fair value under GAAP. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. Financial assets and liabilities carried at fair value are to be classified and disclosed in one of the following three levels of the fair value hierarchy, of which the first two are considered observable and the last is considered unobservable:

- Level 1—Quoted prices in active markets for identical assets or liabilities.
- Level 2—Observable inputs (other than Level 1 quoted prices), such as quoted prices in active markets for similar assets or liabilities, quoted prices in markets that are not active for identical or similar assets or liabilities, or other inputs that are observable or can be corroborated by observable market data.
- Level 3—Unobservable inputs that are supported by little or no market activity that are significant to determining the fair value of the assets or liabilities, including pricing models, discounted cash flow methodologies and similar techniques.

The Company's warrant liability and derivative liability are carried at fair value, determined according to Level 3 inputs in the fair value hierarchy described above (see Note 3). The carrying values of other current assets, accounts payable, and accrued expenses approximate their fair values due to the short-term nature of these assets and liabilities. The carrying value of the Company's loan and security agreement with Silicon Valley Bank approximates its fair value because the debt bears interest at a market rate. The carrying value of the loans received under the funding agreements with FFG approximates their fair value because the Company records imputed interest expense based on rates that approximate market rates of interest as of December 31, 2016 and March 31, 2017 (unaudited). The carrying value of the Company's convertible promissory notes approximates their fair value due to the short term of the notes.

Segment Information

The Company manages its operations as a single operating segment for the purposes of assessing performance and making operating decisions. The Company's singular current focus is on applying mAb therapies to address serious infectious diseases.

Government Contracts, Grant Agreements and Incentive Programs

The Company recognizes proceeds received from the FFG Grants, research and development incentives from the Austrian government and the grant agreement with the Gates Foundation (see Note 7) as other income, rather than as revenue, in the consolidated statements of operations because the corresponding agreements contain no specified performance obligations other than to conduct research on a particular program or in a particular field and contain no obligations to deliver specified products or technology.

Income from grants and incentives is recognized in the period during which the related qualifying expenses are incurred, provided that the conditions under which the grants or incentives were provided have been met. For

grants under the funding agreements with FFG and for proceeds under the research and development incentive program from the Austrian government, the Company recognizes grant and incentive income in an amount equal to the qualifying expenses incurred in each period multiplied by the applicable reimbursement percentage. For grants received under the grant agreement with the Gates Foundation, the Company recognizes grant income in an amount equal to the qualifying expenses incurred in each period, up to the amount previously funded by the Gates Foundation.

Grant funding that has been received by the Company in advance of incurring qualifying expenses is recorded in the consolidated balance sheet as unearned income. Grant and incentive income recognized upon incurring qualifying expenses in advance of receipt of grant funding or proceeds from research and development incentives is recorded in the consolidated balance sheet as grant and incentive receivables.

Loans the Company has received under the funding agreements with FFG bear interest at rates that are below market rates of interest. The Company accounts for the imputed benefit arising from the difference between a market rate of interest and the rate of interest charged by FFG as additional grant funding from FFG, and records interest expense for the FFG loans at a market rate of interest. On the date that FFG loan proceeds are received, the Company recognizes the portion of the loan proceeds allocated to grant funding as a discount to the carrying value of the loan and as unearned income, which is subsequently recognized as additional grant income over the term of the funding agreement.

Research and Development Costs

Research and development costs are expensed as incurred. Research and development expenses consist of costs incurred in performing research and development activities, including salaries, stock-based compensation and benefits, facilities costs, depreciation, third-party license fees, and external costs of outside vendors engaged to conduct clinical development activities and clinical trials as well as to manufacture clinical trial materials. Non-refundable prepayments for goods or services that will be used or rendered for future research and development activities are recorded as prepaid expenses. Such amounts are recognized as an expense as the goods are delivered or the related services are performed, or until it is no longer expected that the goods will be delivered or the services rendered.

Research Contract Costs and Accruals

The Company has entered into various research and development-related contracts with companies both inside and outside of the United States. These agreements are cancelable, and related costs are recorded as research and development expenses as incurred. The Company records accruals for estimated ongoing research costs. When evaluating the adequacy of the accrued liabilities, the Company analyzes progress of the studies or clinical trials, including the phase or completion of events, invoices received and contracted costs. Significant judgments and estimates are made in determining the accrued balances at the end of any reporting period. Actual results could differ from the Company’s estimates. The Company’s historical accrual estimates have not been materially different from the actual costs.

Patent Costs

All patent-related costs incurred in connection with filing and prosecuting patent applications are expensed as incurred due to the uncertainty about the recovery of the expenditure. Amounts incurred are classified as general and administrative expenses.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Stock-Based Compensation

The Company measures stock-based awards granted to employees and directors based on the fair value on the date of the grant and recognizes compensation expense for those awards over the requisite service period, which is generally the vesting period of the respective award. Forfeitures are accounted for as they occur. Generally, the Company issues stock-based awards with only service-based vesting conditions and records the expense for these awards using the straight-line method. The Company has not issued any stock-based awards with performance-based vesting conditions.

For stock-based awards granted to consultants and non-employees, compensation expense is recognized over the period during which services are rendered by such consultants and non-employees until completed. At the end of each financial reporting period prior to completion of the service, the fair value of these awards is remeasured using the then-current fair value of the Company's common stock and updated assumption inputs in the Black-Scholes option-pricing model.

The Company classifies stock-based compensation expense in its consolidated statement of operations in the same manner in which the award recipient's payroll costs are classified or in which the award recipient's service payments are classified.

The fair value of each stock option grant is estimated on the date of grant using the Black-Scholes option pricing model. The Company historically has been a private company and lacks company-specific historical and implied volatility information for its stock. Therefore, it estimates its expected stock price volatility based on the historical volatility of publicly traded peer companies and expects to continue to do so until such time as it has adequate historical data regarding the volatility of its own traded stock price. The expected term of the Company's stock options has been determined utilizing the "simplified" method for awards that qualify as "plain-vanilla" options. The expected term of stock options granted to non-employees is equal to the contractual term of the option award. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve in effect at the time of grant of the award for time periods approximately equal to the expected term of the award. Expected dividend yield is based on the fact that the Company has never paid cash dividends on common stock and does not expect to pay any cash dividends in the foreseeable future.

Warrant Liability

The Company classifies warrants for the purchase of shares of its redeemable convertible preferred stock (see Note 10) as a liability on its consolidated balance sheets (included in other long-term liabilities) as these warrants are free-standing financial instruments that may require the Company to transfer assets upon exercise. The warrant liability was initially recorded at fair value upon the date of the warrant issuance and is subsequently remeasured to fair value at each reporting date. Changes in the fair value of the warrant liability are recognized as a component of other income (expense), net in the consolidated statement of operations. Changes in the fair value of the warrant liability will continue to be recognized until the warrants are exercised, expire or qualify for equity classification.

The Company utilizes the Black-Scholes option-pricing model, which incorporates assumptions and estimates, to value these warrants. The Company assesses these assumptions and estimates on a quarterly basis as additional information impacting the assumptions is obtained. Estimates and assumptions impacting the fair value measurement include the fair value per share of the underlying redeemable convertible preferred stock issuable upon exercise of the warrant, remaining contractual term of the warrants, risk-free interest rate, expected dividend yield and expected volatility of the price of the underlying redeemable convertible preferred stock.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Derivative Liability

The Company's outstanding convertible promissory notes (see Note 9) contain a contingent put option and a conversion feature, each of which meets the definition of a derivative instrument. The Company classifies these instruments as a liability on its consolidated balance sheets because the contingent put option provides for the accelerated repayment of the notes at a substantial premium upon the occurence of specified events and the conversion feature is not clearly and closely related to its host instrument and meets the definition of a derivative. The derivative liability was initially recorded at fair value upon issuance of the convertible promissory notes and is subsequently remeasured to fair value at each reporting date. Changes in the fair value of the derivative liability are recognized as a component of other income (expense), net in the consolidated statement of operations. Changes in the fair value of the derivative liability will continue to be recognized until the convertible promissory notes are no longer outstanding.

Comprehensive Loss

Comprehensive loss includes net loss as well as other changes in stockholders' equity (deficit) that result from transactions and economic events other than those with stockholders. For the years ended December 31, 2015 and 2016, comprehensive loss included $0.3 million and $0.1 million, respectively, of foreign currency translation gain adjustments. For the three months ended March 31, 2016 and 2017 (unaudited), comprehensive loss included $0.2 million and $0.1 million, respectively, of foreign currency translation loss adjustments.

Income Taxes

The Company accounts for income taxes using the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in the consolidated financial statements or in the Company's tax returns. Deferred tax assets and liabilities are determined on the basis of the differences between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. Changes in deferred tax assets and liabilities are recorded in the provision for income taxes. The Company assesses the likelihood that its deferred tax assets will be recovered from future taxable income and, to the extent it believes, based upon the weight of available evidence, that it is more likely than not that all or a portion of the deferred tax assets will not be realized, a valuation allowance is established through a charge to income tax expense. Potential for recovery of deferred tax assets is evaluated by estimating the future taxable profits expected and considering prudent and feasible tax planning strategies.

The Company accounts for uncertainty in income taxes recognized in the consolidated financial statements by applying a two-step process to determine the amount of tax benefit to be recognized. First, the tax position must be evaluated to determine the likelihood that it will be sustained upon external examination by the taxing authorities. If the tax position is deemed more-likely-than-not to be sustained, the tax position is then assessed to determine the amount of benefit to recognize in the consolidated financial statements. The amount of the benefit that may be recognized is the largest amount that has a greater than 50% likelihood of being realized upon ultimate settlement. The provision for income taxes includes the effects of any resulting tax reserves, or unrecognized tax benefits, that are considered appropriate as well as the related net interest and penalties.

Net Income (Loss) per Share

The Company follows the two-class method when computing net income (loss) per share as the Company has issued shares that meet the definition of participating securities. The two-class method determines net income

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(loss) per share for each class of common and participating securities according to dividends declared or accumulated and participation rights in undistributed earnings. The two-class method requires income available to common stockholders for the period to be allocated between common and participating securities based upon their respective rights to receive dividends as if all income for the period had been distributed.

Basic net income (loss) per share attributable to common stockholders is computed by dividing the net income (loss) attributable to common stockholders by the weighted average number of shares of common stock outstanding for the period. Diluted net income (loss) attributable to common stockholders is computed by adjusting net income (loss) attributable to common stockholders to reallocate undistributed earnings based on the potential impact of dilutive securities. Diluted net income (loss) per share attributable to common stockholders is computed by dividing the diluted net income (loss) attributable to common stockholders by the weighted average number of shares of common stock outstanding for the period, including potential dilutive common shares. For purpose of this calculation, outstanding stock options, warrants to purchase shares of redeemable convertible preferred stock, unvested restricted stock, convertible promissory notes and redeemable convertible preferred stock are considered potential dilutive common shares.

The Company's redeemable convertible preferred stock contractually entitle the holders of such shares to participate in dividends but contractually do not require the holders of such shares to participate in losses of the Company. Accordingly, in periods in which the Company reports a net loss attributable to common stockholders, diluted net loss per share attributable to common stockholders is the same as basic net loss per share attributable to common stockholders, since dilutive common shares are not assumed to have been issued if their effect is anti-dilutive.

Recently Adopted Accounting Pronouncements

In March 2016, the Financial Accounting Standards Board ("FASB") issued ASU No. 2016-09, *Improvements to Employee Share-Based Payment Accounting* ("ASU 2016-09"). The new standard involves several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities and classification on the statement of cash flows. Certain of these changes are required to be applied retrospectively, while other changes are required to be applied prospectively. The Company early adopted ASU 2016-09 effective January 1, 2016, and its adoption of ASU 2016-09 had no material impact on the Company's financial position, results of operations or cash flows.

In November 2015, the FASB issued ASU No. 2015-17, *Balance Sheet Classification of Deferred Taxes* ("ASU 2015-17"). ASU 2015-17 requires deferred tax liabilities and assets to be classified as non-current in the consolidated balance sheet. ASU 2015-17 is required to be adopted for annual periods beginning after December 15, 2016, including interim periods within those fiscal years. The amendment may be applied either prospectively to all deferred tax liabilities and assets or retrospectively to all periods presented. The Company early adopted this guidance retrospectively to all periods presented, and its adoption had no impact on the Company's financial position, results of operations or cash flows.

In April 2015, the FASB issued ASU No. 2015-03, *Simplifying the Presentation of Debt Issuance Costs* ("ASU 2015-03"), which requires that debt issuance costs related to a debt liability be presented in the balance sheet as a direct reduction in the carrying amount of that debt liability. The amendments in ASU 2015-03 are effective for the annual periods ending after December 15, 2015. The Company adopted the standard retrospectively to all periods presented on the required effective date of January 1, 2016, and its adoption had no impact on the Company's financial position, results of operations or cash flows.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

In November 2014, the FASB issued ASU No. 2014-16, *Determining Whether the Host Contract in a Hybrid Financial Instrument Issued in the Form of a Share Is More Akin to Debt or to Equity* ("ASU 2014-16"). The guidance requires an entity to determine the nature of the host contract by considering all stated and implied substantive terms and features of the hybrid financial instrument, weighing each term and feature on the basis of the relevant facts and circumstances (commonly referred to as the whole-instrument approach). The Company adopted the standard retrospectively to all periods presented on the required effective date of January 1, 2016, and its adoption had no impact on the Company's financial position, results of operations or cash flows.

In August 2014, the FASB issued ASU No. 2014-15, *Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern* (Subtopic 205-40) ("ASU 2014-15"). The amendments in this update explicitly require a company's management to assess an entity's ability to continue as a going concern and to provide related footnote disclosures in certain circumstances. The new standard is effective in the first annual period ending after December 15, 2016. The Company adopted ASU 2014-15 as of the required effective date of December 31, 2016. This guidance relates to footnote disclosure only (see Note 1), and its adoption had no impact on the Company's financial position, results of operations or cash flows.

Recently Issued Accounting Pronouncements

In July 2017, the FASB issued ASU 2017-11, *Earnings Per Share (Topic 260), Distinguishing Liabilities from Equity (Topic 480), Derivatives and Hedging (Topic 815) I. Accounting for Certain Financial Instruments with Down Round Features II. Replacement of the Indefinite Deferral for Mandatorily Redeemable Financial Instruments of Certain Nonpublic Entities and Certain Mandatorily Redeemable Noncontrolling Interests with a Scope Exception***.** Part I applies to entities that issue financial instruments such as warrants, convertible debt or convertible preferred stock that contain down-round features. Part II replaces the indefinite deferral for certain mandatorily redeemable noncontrolling interests and mandatorily redeemable financial instruments of nonpublic entities contained within ASC Topic 480 with a scope exception and does not impact the accounting for these mandatorily redeemable instruments. ASU 2017-11 is required to be adopted for annual periods beginning after December 15, 2018, including interim periods within those fiscal years. The Company is currently evaluating the impact that the adoption of ASU 2017-11 will have on its consolidated financial statements.

In May 2017, the FASB issued ASU No. 2017-09, *Compensation—Stock Compensation (Topic 718): Scope of Modification Accounting* ("ASU 2017-09"), which clarifies when to account for a change to the terms or conditions of a share-based payment award as a modification. Under the new guidance, modification accounting is required only if the fair value, the vesting conditions, or the classification of the award (as equity or liability) changes as a result of the change in terms or conditions. The standard is effective for annual periods beginning after December 15, 2017, including interim periods within those fiscal years. Early adoption is permitted. The Company is currently evaluating the impact that the adoption of ASU 2017-09 will have on its consolidated financial statements.

In January 2017, FASB issued ASU No. 2017-01, *Business Combinations (Topic 805): Clarifying the Definition of a Business* ("ASU 2017-01"). The amendments in this update clarify the definition of a business with the objective of adding guidance to assist entities with evaluating whether transactions should be accounted for as acquisitions or disposals of assets or businesses. The definition of a business affects many areas of accounting including acquisitions, disposals, goodwill and consolidation. The standard is effective for annual periods beginning after December 15, 2017, including interim periods within those fiscal years. The Company is currently evaluating the impact that the adoption of ASU 2017-01 will have on its consolidated financial statements.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

In November 2016, the FASB issued ASU No. 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash* ("ASU 2016-18"), which requires restricted cash to be presented with cash and cash equivalents on the statement of cash flows and disclosure of how the statement of cash flows reconciles to the balance sheet if restricted cash is shown separately from cash and cash equivalents on the balance sheet. The standard is effective for annual periods beginning after December 15, 2017, including interim periods within those fiscal years. Early adoption is permitted. The Company is currently evaluating the impact that the adoption of ASU 2016-18 will have on its consolidated financial statements.

In October 2016, the FASB issued ASU No. 2016-16, *Income Taxes (Topic 740): Intra-Entity Transfer of Assets Other than Inventory* ("ASU 2016-16"), which requires the recognition of the income tax consequences of an intra-entity transfer of an asset, other than inventory, when the transfer occurs. The standard is effective for annual periods beginning after December 15, 2017, including interim periods within those fiscal years. The Company is currently evaluating the impact that the adoption of ASU 2016-16 will have on its consolidated financial statements.

In August 2016, the FASB issued ASU No. 2016-15, *Statement of Cash Flows: Classification of Certain Cash Receipts and Cash Payments* ("ASU 2016-15"), to address diversity in practice in how certain cash receipts and cash payments are presented and classified in the statement of cash flows. The standard is effective for annual periods beginning after December 15, 2017, including interim periods within those fiscal years. The Company is currently evaluating the impact that the adoption of ASU 2016-15 will have on its consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02*, Leases (Topic 842)* ("ASU 2016-02"), which sets out the principles for the recognition, measurement, presentation and disclosure of leases for both parties to a contract (i.e., lessees and lessors). The new standard requires lessees to apply a dual approach, classifying leases as either finance or operating leases based on the principle of whether or not the lease is effectively a financed purchase by the lessee. This classification will determine whether lease expense is recognized based on an effective interest method or on a straight-line basis over the term of the lease, respectively. A lessee is also required to record a right-of-use asset and a lease liability for all leases with a term of greater than 12 months regardless of their classification. Leases with a term of 12 months or less will be accounted for similar to existing guidance for operating leases today. ASU 2016-02 (Accounting Standards Codification ("ASC") (Topic 842) supersedes the previous leases standard, ASC 840, Leases. The standard is effective for public entities for annual periods beginning after December 15, 2018 including interim periods within those fiscal years. Early adoption is permitted. The Company is currently evaluating the impact that the adoption of ASU 2016-02 will have on its consolidated financial statements.

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)* ("ASU 2014-09"), which supersedes existing revenue recognition guidance under GAAP. The standard's core principle is that a company will recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the Company expects to be entitled in exchange for those goods or services. The standard defines a five-step process to achieve this principle, and will require companies to use more judgment and make more estimates than under the current guidance. The Company expects that these judgments and estimates will include identifying performance obligations in the customer contract, estimating the amount of variable consideration to include in the transaction price and allocating the transaction price to each separate performance obligation. ASU 2014-09 also requires additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts. In August 2015, the FASB issued ASU 2015-14, *Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date,* which delays the effective date of ASU 2014-09 such that the standard is effective for public entities for annual periods

beginning after December 15, 2017, including interim periods within those fiscal years. Early adoption of the standard is permitted for annual periods beginning after December 15, 2016, including interim periods within those fiscal years. In March 2016, the FASB issued ASU No. 2016-08, *Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations* ("ASU 2016-08"), which further clarifies the implementation guidance on principal versus agent considerations in ASU 2014-09. In April 2016, the FASB issued ASU No. 2016-10, *Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing*, clarifying the implementation guidance on identifying performance obligations and licensing. Specifically, the amendments in this update reduce the cost and complexity of identifying promised goods or services and improve the guidance for determining whether promises are separately identifiable. The amendments in this update also provide implementation guidance on determining whether an entity's promise to grant a license provides a customer with either a right to use the entity's intellectual property (which is satisfied at a point in time) or a right to access the entity's intellectual property (which is satisfied over time). In May 2016, the FASB issued ASU No. 2016-12, *Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients* ("ASU 2016-12"), which clarifies the objective of the collectability criterion, presentation of taxes collected from customers, non-cash consideration, contract modifications at transition, completed contracts at transition and how guidance in ASU 2014-09 is retrospectively applied. In December 2016, the FASB issued ASU No. 2016-20, *Technical Corrections and Improvements to Topic 606, Revenue from Contracts with Customers* ("ASU 2016-20"), which amends narrow aspects of the guidance in ASU 2014-09. ASU 2016-08, ASU 2016-10, ASU 2016-12 and ASU 2016-20 have the same effective dates and transition requirements as ASU 2014-09. The adoption of these standards is not expected to have an impact on the Company's financial position, results of operations or cash flows as the Company does not currently have any revenue-generating arrangements.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

3. Fair Value of Financial Assets and Liabilities

The following tables present information about the Company's financial assets and liabilities measured at fair value on a recurring basis and indicate the level of the fair value hierarchy utilized to determine such fair values (in thousands):

	Fair Value Measurements as of December 31, 2015 Using:			
	Level 1	Level 2	Level 3	Total
Liabilities:				
Warrant liability	$ —	$ —	$ 26	$ 26
Derivative liability	—	—	1,793	1,793
	$ —	$ —	$1,819	$1,819

	Fair Value Measurements as of December 31, 2016 Using:			
	Level 1	Level 2	Level 3	Total
Liabilities:				
Warrant liability	$ —	$ —	$ 47	$ 47
Derivative liability	—	—	2,593	2,593
	$ —	$ —	$2,640	$2,640

	Fair Value Measurements as of March 31, 2017 Using:			
	Level 1	Level 2	Level 3	Total
			(unaudited)	
Liabilities:				
Warrant liability	$ —	$ —	$ 47	$ 47
Derivative liability	—	—	2,234	2,234
	$ —	$ —	$2,281	$2,281

During the years ended December 31, 2015 and 2016, and the three months ended March 31, 2016 and 2017 (unaudited), there were no transfers between Level 1, Level 2 and Level 3.

Valuation of Warrant Liability

The warrant liability in the table above is composed of the fair value of warrants to purchase shares of Series A-2 redeemable convertible preferred stock (the "Series A-2 preferred stock) and Series B redeemable convertible preferred stock (the "Series B preferred stock") that were issued to the lender in connection with the Company's 2012 Loan Agreement, as amended (see Note 10). The fair value of the warrant liability was determined based on significant inputs not observable in the market, which represents a Level 3 measurement within the fair value hierarchy.

The Company used the Black-Scholes option-pricing model, which incorporates assumptions and estimates, to value the preferred stock warrants. Estimates and assumptions impacting the fair value measurement include the fair value per share of the underlying shares of Series A-2 and Series B preferred stock, the remaining contractual term of the warrants, risk-free interest rate, expected dividend yield and expected volatility of the

price of the underlying preferred stock. The Company determined the fair value per share of the underlying preferred stock by taking into consideration the most recent sales of its preferred stock, results obtained from third-party valuations and additional factors that are deemed relevant. The Company historically has been a private company and lacks company-specific historical and implied volatility information of its stock. Therefore, it estimates its expected stock volatility based on the historical volatility of publicly traded peer companies for a term equal to the remaining contractual term of the warrant. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve for time periods approximately equal to the remaining contractual term of the warrant. The Company estimated a 0% expected dividend yield based on the fact that the Company has never paid or declared dividends and does not intend to do so in the foreseeable future.

Valuation of Derivative Liability

The fair value of the derivative liability recognized in connection with the Company's convertible promissory notes (see Note 9) was determined based on significant inputs not observable in the market, which represents a Level 3 measurement within the fair value hierarchy. The fair value of the derivative liability was determined using the probability-weighted expected return method ("PWERM"), which considered as inputs the type, timing and probability of occurrence of a change-of-control event, the future equity financing and cash settlement of the convertible promissory notes; the potential amount of the payment under each of these potential settlement scenarios; and the risk-adjusted discount rate reflecting the expected risk profile for each of the potential settlement scenarios.

The following table provides a roll forward of the aggregate fair values of the Company's warrant liability and derivative liability, for which fair value is determined using Level 3 inputs (in thousands):

	Warrant Liability	Derivative Liability
Balance as of December 31, 2014	$ 27	$ —
Initial fair value of derivative liability in connection with 2015 Notes	—	1,793
Change in fair value	(1)	—
Balance as of December 31, 2015	26	1,793
Initial fair value of warrant liability in connection with First Amendment to the 2012 Loan Agreement	60	—
Extinguishment of derivative liability in connection with extinguishment of 2015 Notes	—	(1,741)
Initial fair value of derivative liability in connection with 2016 Notes	—	3,929
Change in fair value	(39)	(1,388)
Balance as of December 31, 2016	47	2,593
Initial fair value of derivative liability in connection with 2017 Notes	—	403
Change in fair value	—	(762)
Balance as of March 31, 2017 (unaudited)	$ 47	$ 2,234

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

4. Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets consisted of the following (in thousands):

	December 31, 2015	December 31, 2016	March 31, 2017 (unaudited)
Prepaid clinical trial costs	$—	$1,246	$ 3,239
Other	87	90	52
	$ 87	$1,336	$ 3,291

5. Property and Equipment, Net

Property and equipment, net consisted of the following (in thousands):

	December 31, 2015	December 31, 2016	March 31, 2017 (unaudited)
Laboratory and office equipment	$ 1,522	$ 1,489	$ 1,544
Furniture and fixtures	376	374	379
Leasehold improvements	240	265	268
Computer equipment and software	169	166	168
	2,307	2,294	2,359
Less: Accumulated depreciation and amortization	(1,547)	(1,775)	(1,847)
	$ 760	$ 519	$ 512

Depreciation and amortization expense for the years ended December 31, 2015 and 2016 and for the three months ended March 31, 2016 and 2017 (unaudited) was $0.4 million, $0.3 million, $0.1 million and $48,000, respectively.

6. Accrued Expenses

Accrued expenses consisted of the following (in thousands):

	December 31, 2015	December 31, 2016	March 31, 2017 (unaudited)
Accrued clinical trial costs	$ 2	$ 481	$ 1,264
Accrued compensation and benefits	949	1,295	1,629
Other	590	380	493
	$1,541	$2,156	$ 3,386

7. Collaboration, License and Funding Arrangements

Adimab Collaboration Agreement

In May 2011, the Company entered into a collaboration agreement with Adimab, LLC (“Adimab”), a related party (see Note 17) (the “Adimab Collaboration Agreement”). Under the Adimab Collaboration Agreement, the

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Company and Adimab were required to use reasonable efforts to conduct certain research, which was funded by the Company, to discover and optimize antibodies directed against targets selected by the Company. With respect to each target that was the subject of the research, the Company had an exclusive option to obtain, with respect to a specified number of antibodies directed against such target and discovered or optimized by Adimab, (i) ownership of certain patent rights relating to such antibodies and (ii) exclusive and non-exclusive licenses in a specified field, with the right to grant sublicenses, under certain patent rights and know-how.

Under the Adimab Collaboration Agreement, for each target for which the Company has exercised an option, the Company is required to use commercially reasonable efforts to develop and commercialize at least one product in major markets. If the Company does not fulfill these diligence obligations, Adimab may consider it a material breach, allowing Adimab to terminate the Adimab Collaboration Agreement with respect to such target and all associated products.

The Company is obligated to pay Adimab royalties at a mid single-digit percentage of net sales made by the Company or its affiliates of products based on antibodies for which the Company exercised its option, or products that use or are based on any antibody discovered or optimized under the agreement, any derivative or modified version of any such antibody, or any sequence information as to any such antibody. In addition, if the Company sells or licenses to any third party, or otherwise grants rights to any third party to, any of the products for which the Company is obligated to pay Adimab royalties, either alone or as part of a package including specified patents not directed to these antibodies, the Company is obligated to pay Adimab either (i) the same royalties on net sales of such products by such third party or (ii) a percentage, in the low to mid double digits, of the payments the Company receives from such third parties that are attributable to such grant of rights. In April 2017 the Company entered into a letter agreement with the Gates Foundation (see Note 20), pursuant to which the Company licensed to the Gates Foundation certain rights under its ASN100 program. The Company has no payment obligations under the Adimab Collaboration Agreement with respect to sales of certain antibody products if they are sold at cost in developing countries under its letter agreement with the Gates Foundation. However, if such products are sold in developing countries for an amount that exceeds cost, then the amount of such excess over cost will be subject to the royalty payment obligations described above.

If the Company (or one of its affiliates with rights under the agreement) undergoes a change in control and, at the time of such change in control, the Company has not sold or licensed to third parties all of its rights in antibodies for which the Company is obligated to pay Adimab royalties under the agreement, then the Company is obligated to either (i) pay Adimab a percentage, in the mid double digits, of the payments it receives from that change in control that are reasonably attributable to those rights and certain patents arising from the collaboration or (ii) require the Company's acquirer and all of its future third party collaborators to pay to Adimab the royalties at a mid single-digit percentage of net sales based on those rights. If the Company grants rights to a third party under certain patents that are not directed to the antibodies for which the Company is obligated to pay Adimab royalties (as described above), the Company is also obligated to pay Adimab, in place of royalties or a percentage of payments received from the third party, a lump sum in the high six digits.

The Company has the right to terminate the Adimab Collaboration Agreement for any reason by providing Adimab with a specified amount of prior written notice. Adimab has the right to terminate the Adimab Collaboration Agreement if the Company materially breaches the agreement and fails to cure such breach within a specified cure period, including for its failure to use commercially reasonable efforts to develop and commercialize at least one product directed at a target for which the Company has exercised an option in major markets. If Adimab terminates the Adimab Collaboration Agreement for the Company's breach, or if the Company terminates the agreement for convenience, then the Company must transfer or license to Adimab certain rights and assets relating to targets and antibodies for which the Company has exercised its option.

Adimab is then obligated to make payments to the Company with respect to these targets and antibodies that are similar to the payments the Company is required to make to Adimab during the term of the agreement. Certain of the Company's payment obligations relating to specified products and patents arising from the agreement survive expiration or termination of the agreement.

During the years ended December 31, 2015 and 2016 and the three months ended March 31, 2016 and 2017 (unaudited), the Company recognized research and development expense of $0.2 million, $8,000, $0 and $0, respectively, under the Adimab Collaboration Agreement.

Adimab Option and License Agreement

In February 2017, the Company entered into an option and license agreement with Adimab, a related party (see Note 17) (the "Adimab Option Agreement"). Under the Adimab Option Agreement, Adimab has provided to the Company certain proprietary antibodies against respiratory syncytial virus ("RSV antibodies") for its evaluation during a specified option period and has granted the Company an exclusive, non-sublicensable license in a specified field under certain Adimab patent rights and know-how during the option period. Under the Adimab Option Agreement, the Company has an exclusive option, exercisable during the option period upon payment of an option fee to Adimab, to require Adimab to assign to the Company all rights in up to a specified number of RSV antibodies selected by the Company and certain patent rights owned by Adimab that cover these antibodies, and to obtain from Adimab a non-exclusive license in a specified field, with the right to grant sublicenses, under certain other patent rights and know-how owned by Adimab.

If the Company exercises its option under the Adimab Option Agreement, the Company is required to use commercially reasonable efforts to develop and commercialize at least one product based on a licensed RSV antibody in major markets. If the Company materially breaches these diligence obligations, Adimab will have the right to terminate the Adimab Option Agreement.

If the Company exercises its option under the Adimab Option Agreement, the Company is obligated to pay Adimab an option fee of $0.3 million and make future milestone payments upon the achievement of specified clinical and regulatory milestones in the aggregate amount of up to $24.4 million. The Company is obligated to pay Adimab royalties at a mid single-digit percentage of net sales of products based on the initial RSV antibodies (including modified or derivative forms of those antibodies created by or for Arsanis) by the Company or any of its affiliates, licensees or sublicensees, regardless of whether these products practice any of the assigned or licensed patents or know-how.

In February 2017, the Company entered into a grant agreement with the Gates Foundation pursuant to which the Company has no payment obligations under the Adimab Option Agreement with respect to sales of products based on licensed RSV antibodies to the extent they are sold at cost in developing countries. However, if such products are sold in developing countries for an amount that exceeds cost, then the amount of such excess will be subject to the royalty payment obligations described in the preceding paragraph.

The Company has the right to terminate the Adimab Option Agreement for any reason by providing Adimab with a specified amount of prior written notice. Adimab has the right to terminate the Adimab Option Agreement if the Company materially breaches the agreement and fails to cure such breach within a specified cure period, including for the Company's failure to use commercially reasonable efforts to develop and commercialize at least one product based on a licensed RSV antibody in major markets. If Adimab terminates the Adimab Option Agreement for the Company's breach, or if the Company terminates the agreement for convenience, then the Company must assign certain patents covering certain RSV antibodies to Adimab, grant Adimab a non-exclusive,

royalty-free license under certain other patents, and grant Adimab a time-limited right of first negotiation to obtain an exclusive license to certain patents and know-how and the transfer and assignment of certain regulatory filings and approvals and other related assets related to products based on licensed RSV antibodies. Certain of the Company's payment obligations relating to specified products and patents arising from the agreement survive expiration or termination of the agreement.

During the three months ended March 31, 2017 (unaudited), the Company recognized research and development expense of $13,000 in connection with the Adimab Option Agreement, which consisted of reimbursement for services performed by Adimab.

Gates Foundation Grant Agreement

In February 2017, the Company entered into a grant agreement with the Gates Foundation, a related party (see Note 17), under which the Gates Foundation agreed to provide the Company up to $9.3 million to conduct preclinical development of monoclonal antibodies for the prevention of RSV infection in newborns (the "RSV project").

In connection with this grant agreement, the Company has granted to the Gates Foundation a non-exclusive, perpetual, royalty-free, fully paid up, sublicensable license to make, use, sell, offer to sell, import, distribute, copy, modify, create derivative works, publicly perform and display the funded developments and, to the extent incorporated into a funded development or required to use a funded development, any other technology created outside of the RSV project that was used as part of the RSV project, for the benefit of people in developing countries.

The Gates Foundation can modify, suspend or discontinue any payment under the grant agreement, or terminate the grant agreement, if it is not reasonably satisfied with the Company's progress on the RSV project; if there are significant changes to the Company's leadership or other factors that the Gates Foundation reasonably believes may threaten the RSV project's success; if the Company undergoes a change in control; if there is a change in the Company's tax status; if the RSV project is no longer aligned with the Gates Foundation's programmatic strategy; or if the Company fails to comply with the grant agreement. Any grant funds that have not been used for, or committed to, the RSV project upon the expiration or termination of the grant agreement must be returned to the Gates Foundation or otherwise used as directed by the Gates Foundation.

In March 2017, the Company received a payment of $1.6 million from the Gates Foundation under the grant agreement. During the three months ended March 31, 2017 (unaudited), the Company recognized grant income of $44,000 under the grant agreement with the Gates Foundation. As of March 31, 2017 (unaudited), unearned income under the grant agreement with the Gates Foundation was $1.6 million.

In April 2017, the Company entered into a letter agreement with the Gates Foundation (see Note 20).

Funding Agreements with FFG

Between September 2011 and March 2017, the Company entered into a series of funding agreements with FFG that provided for loans and grants to fund between 50% and 70% of qualifying research and development expenditures of the Company's subsidiary in Austria on a project-by-project basis, as approved by FFG.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

FFG Grants

For grants under the funding agreements with FFG, the Company recognized grant income of $0.7 million and $0.6 million during the years ended December 31, 2015 and 2016, respectively, and $0.2 million and $0.1 million during the three months ended March 31, 2016 and 2017 (unaudited), respectively. As of December 31, 2015 and 2016 and March 31, 2017 (unaudited), the Company recorded grant receivables from FFG of $0.4 million, $36,000 and $0.2 million, respectively, for qualifying expenses incurred that were reimbursable under the funding agreements. As of December 31, 2015 and 2016 and March 31, 2017 (unaudited), there were no amounts recorded as unearned income in connection with the FFG Grants.

FFG Loans

Loans under the funding agreements with FFG (see Note 8) bear interest at rates that are below market rates of interest. The Company accounts for the imputed benefit arising from the difference between a market rate of interest and the rate of interest charged by FFG as additional grant funding from FFG. On the date that FFG loan proceeds are received, the Company recognizes the portion of the loan proceeds allocated to grant funding as a discount to the carrying value of the loan and as unearned income, which is recognized as additional grant income over the term of the funding agreement.

The Company recognized grant income of $0.3 million and $0.4 million during the years ended December 31, 2015 and 2016, respectively, and $0.1 million and $0.1 million during the three months ended March 31, 2016 and 2017 (unaudited), respectively, related to the recognition of the unearned income recorded for the imputed benefit of FFG loans at below-market interest rates. Unearned income (current) related to the imputed benefit of FFG loans at below-market interest rates was $0.4 million, $0.5 million and $0.5 million as of December 31, 2015 and 2016 and March 31, 2017 (unaudited), respectively, and unearned income (non-current) related to such benefit was $2.4 million, $2.1 million and $1.9 million as of December 31, 2015 and 2016 and March 31, 2017 (unaudited), respectively.

Research and Development Incentive

The Company participates in a research and development incentive program provided by the Austrian government whereby the Company is entitled to reimbursement by the Austrian government for a percentage of qualifying research and development expenses incurred by the Company's subsidiary in Austria. Under the program, the reimbursement rate for qualifying research and development expenses incurred by the Company through its subsidiary in Austria was 10%, 12% and 12% for the years ended December 31, 2015 and 2016 and for the year ending December 31, 2017, respectively.

The Company recognizes incentive income from Austrian research and development incentives when qualifying expenses have been incurred, there is reasonable assurance that the payment will be received, and the consideration can be reliably measured. Management has assessed the Company's research and development activities and expenditures to determine which activities and expenditures are likely to be eligible under the research and development incentive program described above. At each reporting date, management estimates the reimbursable incentive income available to the Company based on available information at the time.

The Company recognized incentive income of $1.2 million and $1.4 million during the years ended December 31, 2015 and 2016, respectively, and of $0.5 million and $0.4 million during the three months ended March 31, 2016 and 2017 (unaudited), respectively, in connection with the Austrian research and development incentive program. As of December 31, 2015 and 2016 and March 31, 2017 (unaudited), the Company recorded receivables for amounts due under the program of $1.1 million, $1.3 million and $1.7 million, respectively, which amounts were included in grant and incentive receivables in the consolidated balance sheet.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

8. Loans Payable

The aggregate principal amount of debt outstanding as of December 31, 2015 and 2016 and March 31, 2017 (unaudited) consisted of the following (in thousands):

	December 31, 2015	December 31, 2016	March 31, 2017 (unaudited)
Term loans under 2012 Loan Agreement	$ 250	$ 7,000	$ 6,418
FFG loans	7,567	8,047	8,158
	$7,817	$15,047	$ 14,576

Current and non-current debt obligations reflected in the consolidated balance sheets as of December 31, 2015 and 2016 and March 31, 2017 (unaudited) consisted of the following (in thousands):

	December 31, 2015	December 31, 2016	March 31, 2017 (unaudited)
Current liabilities:			
Term loans under 2012 Loan Agreement	$ 250	$ 2,333	$ 2,333
FFG loans	—	—	—
Unamortized debt discount	—	(34)	(31)
Loans payable, net of discount	250	2,299	2,302
Non-current liabilities:			
Term loans under 2012 Loan Agreement	—	4,667	4,085
FFG loans	7,567	8,047	8,158
Unamortized debt discount	(2,863)	(2,587)	(2,496)
Loans payable, net of discount and current portion	4,704	10,127	9,747
Total loans payable, net of discount	$ 4,954	$12,426	$ 12,049

2012 Loan Agreement

On December 7, 2012, the Company entered into a loan and security agreement (the "2012 Loan Agreement") with Silicon Valley Bank ("SVB"), which provided for a term loan of up to $0.5 million (the "2012 Term Loan A Advance") on the closing date and additional term loans in the aggregate of $2.0 million (the "2012 Term Loan B Advance"). The Company borrowed the full $2.5 million available under the agreement in two separate tranches: $0.5 million under the 2012 Term Loan A Advance, which was borrowed in December 2012, and $2.0 million under the 2012 Term Loan B Advance, which was borrowed in February 2013. Borrowings under the 2012 Term Loan A Advance and 2012 Term Loan B Advance (collectively, the "2012 Term Loan Advance") bore interest at a rate per annum equal to greater of 3.25% and The Wall Street Journal prime rate; provided, however, that in an event of default, as defined in the 2012 Loan Agreement, the interest rate applicable to borrowings under the 2012 Loan Agreement would be increased by 4.0%.

The 2012 Loan Agreement required monthly payments of principal and interest, beginning on October 1, 2013 through March 1, 2016 (the "Maturity Date"), when all unpaid principal and interest became due and payable. The 2012 Loan Agreement also provided that the Company could voluntarily prepay all (but not less

than all) of the outstanding principal at any time. A final payment fee of 4.0% multiplied by the principal amount of the borrowings under the 2012 Term Loan A Advance and 2012 Term Loan B Advance was due upon the earlier to occur of the Maturity Date or prepayment of such borrowings.

In connection with the 2012 Loan Agreement, on December 7, 2012, the Company issued to SVB a warrant for the purchase of Series A-2 preferred stock, which warrant became exercisable as to 2,202 shares of Series A-2 preferred stock on December 12, 2012 in connection with the 2012 Term Loan A Advance and as to 8,811 shares of Series A-2 preferred stock on February 25, 2013 in connection with the 2012 Term Loan B Advance (see Note 10). On the dates the warrant became exercisable, the Company recorded a debt discount and a warrant liability in the Company's consolidated balance sheet equal to the fair value of the portions of the warrant on the dates they became exercisable.

In February 29, 2016, in connection with an amendment to the 2012 Loan Agreement, the Company repaid all remaining principal and accrued interest outstanding under the 2012 Term Loan A Advance and 2012 Term Loan B Advance.

First Amendment

On February 19, 2016, the Company entered into the First Amendment to the 2012 Loan Agreement (the "First Amendment"). The First Amendment provided for an additional borrowing of $3.5 million ("2016 Term Loan A Advance"), with a requirement that a portion of the proceeds be used to pay in full, all amounts then outstanding, under the 2012 Term Loan A Advance and the 2012 Term Loan B Advance.

The First Amendment provided for two additional advances not to exceed, in the aggregate, $3.5 million, with each advance being for a minimum of $0.5 million (collectively the "2016 Term Loan B Advance"), and total borrowings under the 2012 Loan Agreement not to exceed $7.0 million. The Company borrowed the full $7.0 million available in two separate tranches: $3.5 million under the 2016 Term Loan A Advance, which was borrowed on February 29, 2016, and $3.5 million under the 2016 Term Loan B Advance, which was borrowed on August 23, 2016. Following these borrowings in February and August 2016, no additional amounts were available to be borrowed under the 2012 Loan Agreement. Borrowings under the 2016 Term Loan A Advance and 2016 Term Loan B Advance (collectively, the "2016 Term Loan Advance") bear interest at a rate per annum equal to the greater of 3.25% and The Wall Street Journal prime rate, in each case minus 0.25%; provided, however, that in an event of default, as defined in the 2012 Loan Agreement, the interest rate applicable to borrowings under the First Amendment will be increased by 4.0%.

The Company is required to make equal monthly payments of principal as well as accrued interest beginning January 1, 2017 through December 1, 2019 (the "First Amendment Maturity Date"), when all unpaid principal and interest become due and payable. The First Amendment also provided that the Company could voluntarily prepay all (but not less than all) of the outstanding principal at any time prior to the maturity date, subject to a prepayment fee, which ranges from 0% to 2% of the outstanding principal if paid prior to the First Amendment Maturity Date. The Company has not accrued for this prepayment fee as it does not intend to prepay the outstanding balance. A final payment fee of 5.0% multiplied by the principal amount of the borrowings under the 2016 Term Loan Advance is due upon the earlier to occur of the First Amendment Maturity Date or prepayment of all outstanding principal. In connection with the First Amendment, the Company paid an arrangement fee of $20,000 to SVB and incurred legal costs of $7,000, both of which were recorded as a debt discount. The debt discount is reflected as a reduction of the carrying value of the loan payable on the Company's consolidated balance sheet and is being amortized to interest expense over the term of the loan using the effective interest method.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

In connection with the First Amendment, on February 29, 2016, the Company repaid all remaining principal and accrued interest outstanding under the 2012 Term Loan A Advance and 2012 Term Loan B Advance, totaling $0.1 million, and paid a final payment fee of $0.1 million. The Company accounted for the repayment of amounts due under the 2012 Term Loan A Advance and 2012 Term Loan B Advance in connection with the First Amendment to the 2012 Loan Agreement as an extinguishment of the 2012 Term Loan A Advance and 2012 Term Loan B Advance and as a new debt issuance, which did not result in an impact to the Company's statement of operations as there was no unamortized debt discount at the time of extinguishment.

Borrowings under the 2012 Loan Agreement are collateralized with 65% of the outstanding capital stock of the Company's foreign subsidiary. The 2012 Loan Agreement contains affirmative and negative covenants but does not contain any financial covenants.

In connection with the First Amendment to the 2012 Loan Agreement, on February 19, 2016, the Company issued to SVB a warrant for the purchase of Series B preferred stock, which warrant became exercisable as to 7,251 shares of Series B preferred stock on February 29, 2016 in connection with 2016 Term Loan A Advance and as to 7,251 shares of Series B preferred stock on August 23, 2016 in connection with the 2016 Term Loan B Advance. On the dates that the warrant became exercisable, the Company recorded a debt discount and a warrant liability in the Company's consolidated balance sheet equal to the fair value of the portions of the warrant on the dates they became exercisable. The debt discount is being amortized to interest expense using the effective interest method over the term of the loan.

The Company recognized interest expense under the 2012 Loan Agreement, as amended, of $49,000 and $0.3 million during the years ended December 31, 2015 and 2016, respectively, and $20,000 and $0.1 million during the three months ended March 31, 2016 and 2017 (unaudited), respectively, including interest expense related to the amortization of the debt discount of $26,000 and $0.1 million during the years ended December 31, 2015 and 2016, respectively, and $10,000 and $49,000 during the three months ended March 31, 2016 and 2017 (unaudited). As of December 31, 2015 and 2016 and March 31, 2017 (unaudited), the unamortized debt discount was $0, $0.1 million and $0.1 million, respectively.

During the years ended December 31, 2015 and 2016 and the three months ended March 31, 2017 (unaudited), the Company made aggregate principal payments in connection with the 2012 Loan Agreement of $1.0 million, $0.3 million and $0.6 million, respectively.

FFG Loans

In connection with the funding agreements with FFG (see Note 7), the Company received loans from FFG. Loans from FFG were made on a project-by-project basis and had an aggregate principal amount outstanding of $7.6 million, $8.0 million and $8.2 million as of December 31, 2015 and 2016 and March 31, 2017 (unaudited), respectively. Amounts due under the FFG loans bear interest at rates ranging from 0.75% to 2.0% per annum and mature at various dates between June 2020 and June 2022. Interest on amounts due under the loans is payable semi-annually in arrears, with all principal and remaining accrued interest due upon maturity.

In addition, the Company has recorded a discount to the carrying value of each FFG loan for the portion of the loan proceeds allocated to grant funding, which is being amortized to interest expense over the term of the loan using the effective interest method. As of December 31, 2015 and 2016 and March 31, 2017 (unaudited), the unamortized debt discount related to FFG loans was $2.9 million, $2.6 million and $2.5 million, respectively.

The Company recognized interest expense of $0.4 million and $0.5 million during the years ended December 31, 2015 and 2016, respectively, and of $0.1 million during each of the three months ended March 31,

2016 and 2017 (unaudited) related to the FFG loans, which included interest expense related to the amortization of debt discount of $0.3 million and $0.4 million during the years ended December 31, 2015 and 2016, respectively, and of $0.1 million during each of the three months ended March 31, 2016 and 2017 (unaudited). There were no principal payments due or paid under the FFG loans during the years ended December 31, 2015 and 2016 and the three months ended March 31, 2017 (unaudited).

In the event that the underlying program research results in a scientific or technical failure, the principal then outstanding under any loan may be forgiven by FFG and converted to non-repayable grant funding on a project-by-project basis. The FFG loans contain no affirmative, negative or financial covenants and are not secured by any of the Company's assets.

As of December 31, 2016, the aggregate minimum future principal payments due in connection with the 2012 Loan Agreement, as amended, and the FFG loans are summarized as follows (in thousands):

Year Ending December 31,	
2017	$ 2,333
2018	2,333
2019	2,334
2020	4,423
2021	—
Thereafter	3,624
	$15,047

9. Convertible Promissory Notes

At each balance sheet date, convertible promissory notes, net of discount, consisted of the following (in thousands):

	December 31,		March 31,
	2015	2016	2017 (unaudited)
Principal	$ 4,000	$ 5,500	$ 10,435
Accrued interest	1	27	46
Unamortized discount	(1,736)	(2,664)	(2,318)
Unamortized deferred issuance costs	(25)	—	(13)
Convertible promissory notes, net of discount	$ 2,240	$ 2,863	$ 8,150

2015 Notes

On December 16, 2015, the Company issued convertible promissory notes (the "2015 Notes") in the aggregate principal amount of $4.0 million. The 2015 Notes bore interest at a rate of 0.56% per annum, were unsecured and were due and payable, including accrued interest, on December 16, 2016. In the event of a qualified sale of preferred stock to one or more institutional investors resulting in gross proceeds to the Company of at least $5.0 million, all principal and accrued and unpaid interest under the 2015 Notes was automatically convertible into a number of shares of the Company's preferred stock issued in such a financing equal to the outstanding principal and accrued but unpaid interest under the 2015 Notes, divided by the price per share of the preferred stock sold in the financing, multiplied by 0.90. In addition, in the event of a dissolution, liquidation, winding-up or change-of-control event, the 2015 Notes contained a put option whereby the Company was

required to pay to the holder of the 2015 Notes an amount equal to the greater of (i) the principal amount then outstanding under the 2015 Notes, plus any accrued but unpaid interest, multiplied by 1.10 and (ii) such amount that would be received if all outstanding principal and interest under 2015 Notes had converted into shares of the Company's Series B preferred stock at the Series B Original Issue Price (see Note 11).

The Company concluded that the conversion feature in the event of a qualified financing and the put option each met the definition of embedded derivative that was required to be accounted for as a separate unit of accounting. The Company recorded the combined issuance-date fair value of the derivative liabilities of $1.8 million as a debt discount and as a derivative liability in the Company's consolidated balance sheet.

In connection with the 2015 Notes, the Company paid legal costs of $26,000 which were capitalized and recorded as debt discount and amortized using the effective interest method over the term of the loan. The Company recognized interest expense of $0.1 million, $0.4 million and $0.4 million, including amortization of debt discount of $0.1 million, $0.4 million and $0.4 million during the years ended December 31, 2015 and 2016 and the three months ended March 31, 2016 (unaudited), respectively, in connection with the 2015 Notes. As of December 31, 2015, the unamortized debt discount on the 2015 Notes was $1.8 million.

In April 2016, in connection with the Company's issuance and sale of Series C redeemable convertible preferred stock (the "Series C preferred stock"), all of the outstanding principal and accrued interest then-outstanding under the 2015 Notes, totaling $4.0 million, was converted into 461,396 shares of Series C preferred stock at a price equal to 90% of the $9.65 per share price paid by investors in the Series C financing.

The Company accounted for the conversion of the 2015 Notes as a debt extinguishment and recognized a loss on extinguishment of debt of $35,000 within other income (expense), net in the consolidated statement of operations. The loss on extinguishment was calculated as the difference between the fair value of the 461,396 shares of Series C preferred stock issued to settle the 2015 Notes of $4.5 million and the carrying value of the 2015 Notes, net of the unamortized debt discount, and the then-current fair value of derivative liability associated with the 2015 Notes at the time of the extinguishment of $4.4 million. In order to determine the fair value of the derivative liability immediately prior to the conversion, the Company remeasured the fair value of the derivative liability on the date of extinguishment and concluded there was no change in fair value determined on March 31, 2016 of $1.7 million.

2016 Notes

On April 12, 2016, the Company issued convertible promissory notes (the "2016 Notes") in the aggregate principal amount of $5.5 million. The 2016 Notes bear interest at a rate of 0.70% per annum, are unsecured and are due and payable, including accrued interest, on October 12, 2017. In the event of a qualified sale of preferred stock to one or more institutional investors resulting in gross proceeds to the Company of at least $20.0 million, all principal and accrued and unpaid interest under the 2016 Notes was automatically convertible into a number of shares of the Company's preferred stock issued in such a financing equal to the outstanding principal and accrued but unpaid interest under the 2016 Notes, divided by the price per share of the preferred stock sold in the financing, multiplied by 0.90. In addition, in the event of a dissolution, liquidation, winding-up or change-of-control event, the 2016 Notes contained a put option whereby the Company was required to pay to the holder of 2016 Notes an amount equal to the greater of (i) the principal amount then outstanding under the 2016 Notes plus any accrued but unpaid interest, multiplied by 1.10 and (ii) such amount that would be received if all outstanding principal and interest under 2016 Notes had converted into shares of the Company's Series C preferred stock at the Series C Original Issue Price (see Note 11). In addition, in the event that (i) any principal or interest under any of the 2016 Notes remains outstanding on October 12, 2017 (the maturity date); (ii) any amount under the 2016 Notes is to be prepaid; or (iii) any amount under any of the 2016 Notes becomes due and payable in connection with an event of

default, as defined, the 2016 Notes are convertible at the option of the holder into a number of shares of the Company's Series C preferred stock equal to the quotient of the outstanding principal amount all accrued and unpaid interest under the 2016 Notes divided by the Series C Original Issue Price (see Note 11).

The Company concluded that both the conversion feature in the event of a qualified financing and the put option met the definition of embedded derivatives that were required to be accounted for as a separate unit of accounting. The Company recorded the combined issuance-date fair value of the derivative liabilities of $3.9 million as a debt discount and as a derivative liability in the consolidated balance sheet.

The Company recognized interest expense of $1.3 million and $0.7 million, including amortization of debt discount of $1.3 million and $0.6 million during the year ended December 31, 2016 and the three months ended March 31, 2017 (unaudited), respectively, in connection with the 2016 Notes. As of December 31, 2016 and March 31, 2017 (unaudited), the unamortized debt discount on the 2016 Notes was $2.7 million and $2.0 million, respectively. There were no debt issuance costs associated with the 2016 Notes.

In April 2017, in connection with the Company's issuance and sale of Series D redeemable convertible preferred stock (the "Series D preferred stock"), all of the outstanding principal and accrued interest under the 2016 Notes, totaling $5.5 million, was automatically converted into 1,896,297 shares of Series D preferred stock at a price equal to 90% of $3.2457 per share, the per share price paid in cash by investors in the Series D preferred stock financing (see Note 20).

2017 Notes

On January 17, 2017, the Company issued convertible promissory notes (the "2017 Notes") in the aggregate principal amount of $4.9 million. The 2017 Notes bear interest at a rate of 0.96% per annum, are unsecured and are due and payable, including accrued interest, on October 12, 2017. In the event of a qualified sale of preferred stock to one or more institutional investors resulting in gross proceeds to the Company of at least $20.0 million, all principal and accrued and unpaid interest under the 2017 Notes was automatically convertible into a number of shares of the Company's preferred stock issued in such a financing equal to the outstanding principal and accrued but unpaid interest under the 2017 Notes, divided by the price per share of the preferred stock sold in the financing. In addition, in the event of a dissolution, liquidation, winding-up or change-of-control event, the 2017 Notes contained a put option whereby the Company was required to pay to the holder of 2017 Notes an amount equal to the greater of (i) the principal amount then outstanding under the 2017 Notes plus any accrued but unpaid interest, multiplied by 1.10 and (ii) such amount that would be received if all outstanding principal and interest under 2017 Notes had converted into shares of the Company's Series C preferred stock at the Series C Original Issue Price (see Note 11). In addition, in the event that (i) any principal or interest under any of the 2017 Notes remains outstanding on October 12, 2017 (the maturity date); (ii) any amount under the 2017 Notes is to be prepaid; or (iii) any amount under any of the 2017 Notes becomes due and payable in connection with an event of default, as defined, the 2017 Notes are convertible at the option of the holder into a number of shares of the Company's Series C preferred stock equal to the quotient of the outstanding principal amount and all accrued and unpaid interest under the 2017 Notes divided by the Series C Original Issue Price (see Note 11).

The Company concluded that the put option met the definition of an embedded derivative that was required to be accounted for as a separate unit of accounting. The Company recorded the issuance-date fair value of the derivative liability of $0.4 million as a debt discount and as a derivative liability in the consolidated balance sheet.

In connection with the 2017 Notes, the Company paid legal costs of $17,000, which were capitalized and recorded as debt discount and amortized using the effective interest method over the term of the loan. The

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Company recognized interest expense of $0.1 million, including amortization of debt discount of $0.1 million, during the three months ended March 31, 2017 (unaudited) in connection with the 2017 Notes. As of March 31, 2017 (unaudited), the unamortized debt discount on the 2017 Notes was $0.3 million.

In April 2017, in connection with the Company's issuance and sale of Series D preferred stock, all of the outstanding principal and accrued interest under the 2017 Notes, totaling $4.9 million, was automatically converted into 1,524,107 shares of Series D preferred stock at a price equal to $3.2457 per share, the per share price paid in cash by investors in the Series D preferred stock financing (see Note 20).

The terms of the 2015 Notes, 2016 Notes and 2017 Notes provided that (i) all outstanding principal and interest was due and payable in cash upon an event of default, as defined in the agreements; (ii) amounts outstanding under the notes were not pre-payable without the written consent of the holders of more than 50% of the outstanding principal of the notes; and (iii) indebtedness under the notes was subordinate to any indebtedness under other venture debt entered into by the Company. There were no financial or negative covenants associated with the convertible promissory notes.

10. Preferred Stock Warrants

As of each balance sheet date, outstanding warrants to purchase shares of redeemable convertible preferred stock consisted of the following:

December 31, 2015

Date Exercisable	Number of Shares Issuable	Exercise Price	Exercisable for	Classification	Expiration
December 12, 2012	2,202	$ 4.54	Series A-2	Liability	December 6, 2022
February 25, 2013	8,811	$ 4.54	Series A-2	Liability	December 6, 2022
	11,013				

December 31, 2016

Date Exercisable	Number of Shares Issuable	Exercise Price	Exercisable for	Classification	Expiration
December 12, 2012	2,202	$ 4.54	Series A-2	Liability	December 6, 2022
February 25, 2013	8,811	$ 4.54	Series A-2	Liability	December 6, 2022
February 29, 2016	7,251	$ 7.24	Series B	Liability	February 18, 2026
August 23, 2016	7,251	$ 7.24	Series B	Liability	February 18, 2026
	25,515				

March 31, 2017 (unaudited)

Date Exercisable	Number of Shares Issuable	Exercise Price	Exercisable for	Classification	Expiration
December 12, 2012	2,202	$ 4.54	Series A-2	Liability	December 6, 2022
February 25, 2013	8,811	$ 4.54	Series A-2	Liability	December 6, 2022
February 29, 2016	7,251	$ 7.24	Series B	Liability	February 18, 2026
August 23, 2016	7,251	$ 7.24	Series B	Liability	February 18, 2026
	25,515				

In connection with the 2012 Loan Agreement, on December 7, 2012, the Company issued to SVB a warrant for the purchase of Series A-2 preferred stock, which warrant became exercisable as to 2,202 shares of

Series A-2 preferred stock on December 12, 2012 in connection with the 2012 Term Loan A Advance and as to 8,811 shares of Series A-2 preferred stock on February 25, 2013 in connection with the 2012 Term Loan B Advance. The warrant was issued at an exercise price of $4.54 per share and expires on December 6, 2022.

The Company classifies the warrant as a liability on its consolidated balance sheet (included in other long-term liabilities) as the warrant is a free-standing financial instrument that may require the Company to transfer assets upon exercise. The liability associated with each portion of the warrant that became exercisable was recorded at fair value on the dates they became exercisable and is subsequently remeasured to fair value at each reporting date. Changes in the fair value of the warrant liability are recognized as a component of other income (expense), net in the Company's consolidated statement of operations. Changes in the fair value of the warrant liability will continue to be recognized until the warrant is exercised, expires or qualifies for equity classification. On the dates the warrant became exercisable, the fair value of the portion of the warrant to purchase 2,202 shares of Series A-2 preferred stock that became exercisable in connection with the 2012 Term Loan A Advance and the fair value of the portion of the warrant to purchase 8,811 shares of Series A-2 preferred stock that became exercisable in connection with the 2012 Term Loan B Advance were determined to be $7,000 and $26,000, respectively. The Company remeasured the liability associated with the warrant as of December 31, 2015 and 2016 and March 31, 2017 (unaudited) and determined that the fair value of the warrant liability was $26,000, $12,000 and $12,000, respectively. The Company recognized a gain of $1,000, $14,000, $0 and $0 within other income (expense), net in the consolidated statements of operations for the years ended December 31, 2015 and 2016 and the three months ended March 31, 2016 and 2017 (unaudited), respectively, related to the change in fair value of the warrant.

In connection with the First Amendment to the 2012 Loan Agreement, on February 19, 2016, the Company issued to SVB a warrant for the purchase of Series B preferred stock, which warrant became exercisable as to 7,251 shares of Series B preferred stock on February 29, 2016 in connection with 2016 Term Loan A Advance and as to 7,251 shares of Series B preferred stock on August 23, 2016 in connection with the 2016 Term Loan B Advance. The warrant was issued at an exercise price of $7.24 per share and expires on February 18, 2026.

The Company classifies the warrant as a liability on its consolidated balance sheet (included in other long-term liabilities) as the warrant is a free-standing financial instrument that may require the Company to transfer assets upon exercise. The liability associated with each portion of the warrant that became exercisable was recorded at fair value on the dates they became exercisable and is subsequently remeasured to fair value at each reporting date. Changes in the fair value of the warrant liability are recognized as a component of other income (expense), net in the Company's consolidated statement of operations. Changes in the fair value of the warrant liability will continue to be recognized until the warrant is exercised, expires or qualifies for equity classification. On the dates the warrant became exercisable, the fair value of the portion of the warrant to purchase 7,251 shares of Series B preferred stock that became exercisable in connection with 2016 Term Loan A Advance and the fair value of the portion of the warrant to purchase 7,251 shares of Series B preferred stock that became exercisable in connection with the 2016 Term Loan B Advance were determined to be $35,000 and $25,000, respectively. The Company remeasured the liability associated with the warrant as of December 31, 2016 and March 31, 2017 (unaudited) and determined that the fair value of the warrant liability was $35,000 and $35,000, respectively. The Company recognized a gain of $25,000, $0 and $0 within other income (expense), net in the consolidated statements of operations for the year ended December 31, 2016 and the three months ended March 31, 2016 and 2017 (unaudited), respectively, related to the change in fair value of the warrant.

11. Redeemable Convertible Preferred Stock

As of December 31, 2016 and March 31, 2017 (unaudited), the Company's certificate of incorporation, as amended and restated, authorized the Company to issue 6,711,755 shares of $0.001 par value preferred stock.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

The redeemable convertible preferred stock is classified outside of stockholders' equity (deficit) because the shares contain certain redemption features that are not solely within the control of the Company.

In September 2010, the Company issued and sold 200,001 shares of Series A-1 redeemable convertible preferred stock (the "Series A-1 preferred stock" and, collectively with the Series A-2 preferred stock, the Series B preferred stock and the Series C preferred stock, the "Preferred Stock") at a price of $2.00 per share, for proceeds of $0.4 million, net of issuance costs of $27,000.

In January 2011, the Company issued and sold 2,114,538 shares of Series A-2 preferred stock, at a price of $4.54 per share, for proceeds of $9.6 million, net of issuance costs of $8,000.

In July 2013, the Company issued and sold 1,795,580 shares of Series B preferred stock, at a price of $7.24 per share, for proceeds of $12.9 million, net of issuance costs of $68,000.

In May 2015, the Company issued and sold an additional 966,851 shares of Series B preferred stock, at a price of $7.24 per share, for proceeds of $7.0 million, net of issuance costs of $12,000.

In April 2016, the Company issued and sold 569,946 shares of Series C preferred stock, at a price of $9.65 per share, for proceeds of $5.4 million, net of issuance costs of $0.1 million. In addition, in connection with the issuance and sale of the Company's Series C preferred stock, all outstanding principal and accrued interest under the 2015 Notes was automatically converted into an aggregate of 461,396 shares of Series C preferred stock (see Note 9).

In April 2017, the Company issued and sold 10,799,880 shares of Series D preferred stock, at a price of $3.2457 per share, for cash proceeds of $35.1 million (see Note 20). In addition, in connection with the Company's issuance and sale of Series D preferred stock, all of the outstanding principal and accrued interest under the 2016 Notes and 2017 Notes were automatically converted into an aggregate of 1,896,297 shares and 1,524,107 shares, respectively, of Series D preferred stock (see Note 20).

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

As of each balance sheet date, Preferred Stock consisted of the following (in thousands, except share amounts):

	December 31, 2015				
	Preferred Shares Authorized	Preferred Shares Issued and Outstanding	Carrying Value	Liquidation Preference	Common Stock Issuable Upon Conversion
Series A-1 preferred stock	200,001	200,001	$ 394	$ 400	200,001
Series A-2 preferred stock	2,125,550	2,114,538	9,599	9,600	2,114,538
Series B preferred stock	2,762,431	2,762,431	19,955	20,000	2,762,431
	5,087,982	5,076,970	$29,948	$ 30,000	5,076,970

	December 31, 2016				
	Preferred Shares Authorized	Preferred Shares Issued and Outstanding	Carrying Value	Liquidation Preference	Common Stock Issuable Upon Conversion
Series A-1 preferred stock	200,001	200,001	$ 395	$ 400	200,001
Series A-2 preferred stock	2,125,550	2,114,538	9,599	9,600	2,114,538
Series B preferred stock	2,776,934	2,762,431	19,966	20,000	2,762,431
Series C preferred stock	1,609,270	1,031,342	9,878	9,952	1,031,342
	6,711,755	6,108,312	$39,838	$ 39,952	6,108,312

	March 31, 2017 (unaudited)				
	Preferred Shares Authorized	Preferred Shares Issued and Outstanding	Carrying Value	Liquidation Preference	Common Stock Issuable Upon Conversion
Series A-1 preferred stock	200,001	200,001	$ 395	$ 400	200,001
Series A-2 preferred stock	2,125,550	2,114,538	9,599	9,600	2,114,538
Series B preferred stock	2,776,934	2,762,431	19,968	20,000	2,762,431
Series C preferred stock	1,609,270	1,031,342	9,883	9,952	1,031,342
	6,711,755	6,108,312	$39,845	$ 39,952	6,108,312

The holders of the Preferred Stock have the following rights and preferences:

Voting Rights

The holders of the Preferred Stock are entitled to vote, together with the holders of common stock, on all matters submitted to the stockholders for a vote and are entitled to the number of votes equal to the number of whole shares of common stock into which such holders of Preferred Stock could convert on the record date of for determination of stockholders entitled to vote. In addition, the holders of Preferred Stock, voting as a single class, are entitled to elect five directors of the Company. The holders of Preferred Stock, together with the holders of common stock and voting as a single class, are entitled to elect the remaining directors of the Company by vote of a majority of such shares.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Dividends

The holders of the Preferred Stock are entitled to receive noncumulative dividends when, as and if declared by the board of directors. The Company may not pay any dividends on shares of common stock of the Company unless the holders of Preferred Stock then outstanding simultaneously receive dividends at the same rate and same time as dividends are paid with respect to common stock. Through December 31, 2016 and March 31, 2017 (unaudited), no cash dividends have been declared or paid.

Liquidation Rights

In the event of any voluntary or involuntary liquidation event, dissolution, winding up of the Company or Deemed Liquidation Event (as defined below), each holder of the then outstanding Series C preferred stock will be entitled to receive, prior and in preference to any distributions to the holders of Series B, Series A-1 and Series A-2 preferred stock and common stock, an amount equal to the greater of (i) the Original Issue Price (as defined below), plus any declared but unpaid dividends thereon, or (ii) the amount such holder would have received if such holder had converted its shares into common stock immediately prior to such liquidation event.

After the payment of all preferential amounts to the holders of Series C preferred stock, each holder of the then outstanding Series B preferred stock will be entitled to receive, prior and in preference to any distributions to the holders of Series A-1 and Series A-2 preferred stock and common stock, an amount equal to the greater of (i) the Original Issue Price (as defined below), plus any declared but unpaid dividends thereon, or (ii) the amount such holder would have received if such holder had converted its shares into common stock immediately prior to such liquidation event.

After the payment of all preferential amounts to the holders of Series B preferred stock, each holder of the then outstanding Series A-1 and Series A-2 preferred stock will be entitled to receive, prior and in preference to any distributions to the holders of common stock, an amount equal to the greater of (i) the Original Issue Price (as defined below), plus any declared but unpaid dividends thereon or (ii) the amount such holder would have received if such holder had converted its shares into common stock immediately prior to such liquidation event.

After payments have been made in full to the holders of Preferred Stock, then, to the extent available, the remaining amounts will be distributed among the holders of the shares of common stock, pro rata based on the number of shares held by each holder.

The majority of the holders of Preferred Stock, voting together as a single class, may deem a merger or consolidation (other than one in which stockholders of the Company own a majority by voting power of the outstanding shares of the surviving or acquiring corporation), sale, transfer or exclusive license of substantially all of the assets of the Company to be a Deemed Liquidation Event.

The Original Issue Price is $2.00 per share for Series A-1, $4.54 per share for Series A-2, $7.24 per share for Series B and $9.65 per share for Series C preferred stock, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Preferred Stock.

Conversion

Each share of Preferred Stock is convertible into common stock, at any time, at the option of the holder, and without the payment of additional consideration, at the applicable conversion ratio then in effect for each series of Preferred Stock and subject to adjustment in accordance with anti-dilution provisions. In addition, each share

of Preferred Stock will be automatically converted into common stock at the applicable conversion ratio then in effect for each series of Preferred Stock upon the earlier of (i) the closing of a firm commitment underwritten public offering of its common stock with gross proceeds to the Company of at least $50.0 million and at a price per share of not less than $28.95, subject to appropriate adjustment in the event of any stock split, stock dividend, combination or other similar recapitalization, or (ii) a date specified by vote or written consent of the holders of a 75% majority of the outstanding Preferred Stock on an as-converted to common stock basis. As of December 31, 2016 and March 31, 2017 (unaudited), each share of Preferred Stock was convertible into one share of common stock.

The conversion ratio of each series of Preferred Stock is determined by dividing the Original Issue Price of each series of preferred stock by the Conversion Price of each series. As of December 31, 2016 and March 31, 2017 (unaudited) the Conversion Price was $2.00 per share for Series A-1, $4.54 per share for Series A-2, $7.24 per share for Series B and $9.65 per share for Series C preferred stock, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Preferred Stock.

In April 2017, in connection with the Company's issuance and sale of Series D preferred stock (see Note 20), the Conversion Prices for Series A-2 preferred stock, Series B preferred stock and Series C preferred stock were amended to $3.7172 per share, $4.7510 per share and $5.6739 per share, respectively. The Conversion Price for Series A-1 preferred stock was not amended.

Redemption

At the written election of at least a majority of the holders of Preferred Stock, voting together as a single class, the shares of Preferred Stock outstanding are redeemable, at any time on or after April 12, 2021, in three equal installments commencing at least 90 days after the required vote, in an amount equal to the Original Issue Price per share of each series of Preferred Stock plus any declared but unpaid dividends thereon.

12. Common Stock

As of December 31, 2016 and March 31, 2017 (unaudited), the Company's certificate of incorporation, as amended and restated, authorized the Company to issue 10,000,000 shares of $0.001 par value common stock. The voting, dividend and liquidation rights of the holders of the Company's common stock are subject to and qualified by the rights, powers and preferences of the holders of the Preferred Stock set forth above.

Each share of common stock entitles the holder to one vote, together with the holders of Preferred Stock, on all matters submitted to the stockholders for a vote. The holders of Preferred Stock, voting as a single class, are entitled to elect five directors of the Company. The holders of common stock, together with the holders of Preferred Stock and voting as a single class, are entitled to elect the remaining directors of the Company by vote of a majority of such shares. Common stockholders are entitled to receive dividends, as may be declared by the board of directors, if any, subject to the preferential dividend rights of the Preferred Stock. Through December 31, 2016 and March 31, 2017 (unaudited), no cash dividends have been declared or paid.

As of December 31, 2016 and March 31, 2017 (unaudited), the Company had reserved 8,160,292 shares of common stock for the conversion of outstanding shares of Preferred Stock (see Note 11), the exercise of outstanding stock options, the number of shares remaining available for grant under the Company's 2010 Special Stock Incentive Plan and 2011 Equity Incentive Plan (see Note 13) and the exercise of outstanding warrants to purchase shares of Preferred Stock (see Note 10), assuming all warrants to purchase shares of Preferred Stock became warrants to purchase shares of common stock at the applicable conversion ratio.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

13. Stock-Based Compensation

2011 Stock Incentive Plan

The Company's 2011 Stock Incentive Plan, as amended (the "2011 Plan"), provides for the Company to issue restricted stock awards, or to grant incentive stock options or non-statutory stock options. Incentive stock options may be granted only to the Company's employees including officers and directors who are also employees. Restricted stock awards and non-statutory stock options may be granted to employees, members of the board of directors, outside advisors and consultants of the Company.

The total number of common shares that may be issued under the 2011 Plan was 1,750,000 shares as of December 31, 2016 and March 31, 2017 (unaudited), of which 114,923 shares remained available for future grant as of December 31, 2016 and 130,256 shares remained available for future grant as of March 31, 2017 (unaudited).

Shares that are expired, terminated, surrendered or canceled under the 2011 Plan without having been fully exercised will be available for future awards. In addition, shares of common stock that are tendered to the Company by a participant to exercise an award are added to the number of shares of common stock available for the grant of awards.

2010 Special Stock Incentive Plan

The Company's 2010 Special Stock Incentive Plan (the "Special Plan") provides for the Company to issue restricted stock awards or to grant incentive stock options or non-statutory stock options. Incentive stock options may be granted only to the Company's employees, including officers and directors who are also employees. Restricted stock awards and non-statutory stock options may be granted to employees, officers, members of the board of directors, advisors and consultants of the Company.

The total number of common shares that may be issued under the Special Plan was 2,000,000 shares as of December 31, 2016 and March 31, 2017 (unaudited), of which 7,465 shares remained available for future grant as of December 31, 2016 and March 31, 2017 (unaudited).

Shares that are expired, terminated, surrendered or canceled under the Special Plan without having been fully exercised will be available for future awards. In addition, shares of common stock that are tendered to the Company by a participant to exercise an award are added to the number of shares of common stock available for the grant of awards.

The 2011 Plan and the Special Plan are administered by the board of directors. The exercise prices, vesting and other restrictions are determined at the discretion of the board of directors, except that the exercise price per share of incentive stock options may not be less than 100% of the fair market value of the common stock on the date of grant (or 110% of fair value in the case of an award granted to employees who hold more than 10% of the total combined voting power of all classes of stock at the time of grant) and the term of stock options may not be greater than five years for an incentive stock option granted to a 10% stockholder and greater than ten years for all other options granted. Stock options awarded under both plans expire 10 years after the grant date, unless the board of directors sets a shorter term. Vesting periods for both plans are determined at the discretion of the board of directors. Incentive stock options granted to employees and restricted stock awards granted to employees, officers, members of the board of directors, advisors, and consultants of the Company under both plans typically vest over four years. Non-statutory options granted to employees, officers, members of the board of directors, advisors, and consultants of the Company under both plans typically vest over three or four years.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

During the years ended December 31, 2015 and 2016, the Company granted options to purchase 348,827 shares and 1,081,750 shares, respectively, of common stock to employees and directors. During the three months ended March 31, 2016 and 2017 (unaudited), the Company granted options to purchase 71,500 shares and 0 shares, respectively, of common stock to employees and directors. The Company recorded stock-based compensation expense for options granted to employees and directors of $0.1 million and $0.6 million during the years ended December 31, 2015 and 2016, respectively, and of $48,000 and $0.2 million during three months ended March 31, 2016 and 2017 (unaudited), respectively.

During the years ended December 31, 2015 and 2016, the Company granted options to purchase 8,000 shares and 16,000 shares, respectively, of common stock to non-employees. During the three months ended March 31, 2016 and 2017 (unaudited), the Company granted options to purchase 16,000 shares and 0 shares, respectively, of common stock to non-employees. The Company recorded stock-based compensation expense for options granted to non-employees of $16,000 and $15,000 during the years ended December 31, 2015 and 2016, respectively, and of $3,000 and $3,000 during three months ended March 31, 2016 and 2017 (unaudited), respectively.

Stock Option Valuation

The assumptions that the Company used to determine the grant-date fair value of stock options granted to employees and directors were as follows, presented on a weighted average basis:

	Year Ended December 31,		Three Months Ended March 31,	
	2015	2016	2016	2017
			(unaudited)	
Risk-free interest rate	1.81%	1.26%	1.26%	*
Expected term (in years)	5.98	5.80	5.80	*
Expected volatility	75.3%	75.3%	75.4%	*
Expected dividend yield	0%	0%	0%	*

* Not applicable as no stock options were issued during the three months ended March 31, 2017.

The assumptions that the Company used to determine the grant-date fair value of stock options granted to non-employees were as follows, presented on a weighted average basis:

	Year Ended December 31,		Three Months Ended March 31,	
	2015	2016	2016	2017
			(unaudited)	
Risk-free interest rate	1.95%	2.08%	2.08%	*
Expected term (in years)	8.55	8.82	8.82	*
Expected volatility	77.3%	77.8%	77.8%	*
Expected dividend yield	0%	0%	0%	*

* Not applicable as no stock options were issued during the three months ended March 31, 2017.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Stock Options

The following table summarizes the Company's stock option activity since December 31, 2015 (in thousands, except share and per share amounts):

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Outstanding as of December 31, 2015	790,431	$ 1.49	8.34	$ 720
Granted	1,097,750	2.73		
Exercised	—	—		
Forfeited	(14,604)	1.13		
Outstanding as of December 31, 2016	1,873,577	$ 2.22	8.62	$ 1,000
Granted	—	—		
Exercised	—	—		
Forfeited	(15,333)	2.75		
Outstanding as of March 31, 2017 (unaudited)	1,858,244	$ 2.21	8.37	$ 1,000
Options exercisable as of December 31, 2016	740,022	$ 1.53	7.53	$ 903
Options exercisable as of March 31, 2017 (unaudited)	837,368	$ 1.66	7.48	$ 914
Options unvested as of December 31, 2016	1,133,555	$ 2.66	9.34	$ 97
Options unvested as of March 31, 2017 (unaudited)	1,020,876	$ 2.67	9.10	$ 86

The aggregate intrinsic value of stock options is calculated as the difference between the exercise price of the stock options and the fair value of the Company's common stock for those stock options that had exercise prices lower than the fair value of the Company's common stock.

The weighted average grant-date fair value per share of stock options granted during the years ended December 31, 2015 and 2016 was $1.58 and $1.76, respectively. The weighted average grant-date fair value per share of stock options granted during the three months ended March 31, 2016 (unaudited) was $1.54. There were no options granted during the three months ended March 31, 2017 (unaudited).

The total fair value of options vested during the years ended December 31, 2015 and 2016 and the three months ended March 31 2016 and 2017 (unaudited), was $43,000, $0.5 million, $20,000 and $0.2 million, respectively.

Restricted Common Stock

The Company has granted restricted common stock with time-based vesting conditions. The exercise price of the restricted stock awards are determined by the board of directors. Unvested shares of restricted common stock may not be sold or transferred by the holder. These restrictions lapse according to the time-based vesting conditions of each award. The Company has the option to repurchase the restricted stock awards at the original purchase price if the grantee terminates its working relationship with the Company prior to the stock becoming vested. The following table summarizes the Company's restricted common stock activity since December 31, 2015:

	Number of Shares	Weighted Average Grant Date Fair Value
Unvested restricted common stock as of December 31, 2015	5,062	$ —
Issued	—	—
Vested	(5,062)	—
Unvested restricted common stock as of December 31, 2016	—	$ —

All shares of restricted common stock were vested as of December 31, 2016. The total fair value of restricted common stock vested during the years ended December 31, 2015 and 2016 was $21,000 and $1,000, respectively. The total fair value of restricted common stock vested during the three months ended March 31, 2016 (unaudited) was $1,000.

Stock-Based Compensation

Stock-based compensation expense was classified in the consolidated statements of operations as follows (in thousands):

	Year Ended December 31,		Three Months Ended March 31,	
	2015	2016	2016	2017
			(unaudited)	
Research and development expenses	$ 43	$294	$ 36	$ 62
General and administrative expenses	83	350	15	120
	$126	$644	$ 51	$ 182

As of December 31, 2016 and March 31, 2017 (unaudited), total unrecognized compensation cost related to the unvested stock-based awards was $1.8 million and $1.6 million, respectively, which is expected to be recognized over weighted average periods of 2.84 and 2.61 years, respectively.

14. Income Taxes

During the years ended December 31, 2015 and 2016 and the three months ended March 31, 2017, the Company recorded no income tax benefits for the net operating losses incurred and research and development tax credits earned in each year or interim period, due to its uncertainty of realizing a benefit from those items. The Company's losses before income taxes were generated in the United States and Austria.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Loss before the provision for income taxes for the years ended December 31, 2015 and 2016 consisted of the following (in thousands):

	Year Ended December 31,	
	2015	2016
United States	$ (2,261)	$(12,969)
Foreign (Austria)	(10,957)	(10,006)
	$(13,218)	$(22,975)

A reconciliation of the U.S. federal statutory income tax rate to the Company's effective income tax rate is as follows:

	Year Ended December 31,	
	2015	2016
U.S. federal statutory income tax rate	(35.0)%	(35.0)%
State income taxes, net of federal benefit	(0.9)	(2.8)
Foreign rate differential	7.1	3.2
Research and development tax credits	(0.3)	(1.0)
Nondeductible expenses	0.2	0.7
Uncertain tax position reserves	0.1	0.5
Stock-based compensation	0.1	0.3
Change in deferred tax asset valuation allowance	28.7	34.1
Effective income tax rate	— %	— %

Net deferred tax assets as of December 31, 2015 and 2016 consisted of the following (in thousands):

	December 31,	
	2015	2016
Net operating loss carryforwards	$ 9,243	$ 13,134
Research and development tax credit carryforwards	42	264
Start-up costs	879	3,917
Accrued expenses and other	203	689
Total deferred tax assets	10,367	18,004
Valuation allowance	(10,367)	(18,004)
Net deferred tax assets	$ —	$ —

As of December 31, 2016, the Company had U.S. federal and state net operating loss carryforwards of $8.3 million and $4.4 million, respectively, which may be available to offset future income tax liabilities and begin to expire in 2030 and 2035, respectively. In addition, as of December 31, 2016, the Company had foreign net operating loss carryforwards of $40.1 million, which do not expire. As of December 31, 2016, the Company also had U.S. federal and state research and development tax credit carryforwards of $0.2 million and $0.1 million, respectively, which begin to expire in 2031 and 2035, respectively. As of December 31, 2016, uncertain tax position reserves recorded were $0.1 million for U.S. federal research and development tax credits and $0.1 million for state research and development tax credits.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

During the three months ended March 31, 2017 (unaudited), gross deferred tax assets increased by approximately $2.0 million due to the operating loss incurred by the Company during that period.

Utilization of the U.S. net operating loss carryforwards and research and development tax credit carryforwards may be subject to a substantial annual limitation under Section 382 of the Internal Revenue Code of 1986 due to ownership changes that have occurred previously or that could occur in the future. These ownership changes may limit the amount of carryforwards that can be utilized annually to offset future taxable income. In general, an ownership change, as defined by Section 382, results from transactions increasing the ownership of certain shareholders or public groups in the stock of a corporation by more than 50% over a three-year period. The Company has not conducted a study to assess whether a change of control has occurred or whether there have been multiple changes of control since inception due to the significant complexity and cost associated with such a study. If the Company has experienced a change of control, as defined by Section 382, at any time since inception, utilization of the U.S. net operating loss carryforwards or research and development tax credit carryforwards would be subject to an annual limitation under Section 382, which is determined by first multiplying the value of the Company's stock at the time of the ownership change by the applicable long-term tax-exempt rate, and then could be subject to additional adjustments, as required. Any limitation may result in expiration of a portion of the net operating loss carryforwards or research and development tax credit carryforwards before utilization.

The Company has evaluated the positive and negative evidence bearing upon its ability to realize the deferred tax assets. Management has considered the Company's history of cumulative net losses incurred since inception and its lack of commercialization of any products or generation of any revenue from product sales since inception and has concluded that it is more likely than not that the Company will not realize the benefits of its deferred tax assets. Accordingly, a full valuation allowance has been established against the deferred tax assets as of December 31, 2015 and 2016 and March 31, 2017 (unaudited). Management reevaluates the positive and negative evidence at each reporting period.

Changes in the valuation allowance for deferred tax assets during the years ended December 31, 2015 and 2016 related primarily to the increases in net operating loss carryforwards and research and development tax credit carryforwards and were as follows (in thousands):

	Year Ended December 31,	
	2015	2016
Valuation allowance at beginning of year	$ (6,577)	$(10,367)
Increases recorded to income tax provision	(3,790)	(7,637)
Valuation allowance at end of year	$(10,367)	$(18,004)

Changes in unrecognized tax benefits consisted of the following (in thousands):

	Year Ended December 31,	
	2015	2016
Unrecognized tax benefits at beginning of year	$ 2	$ 21
Increases for tax positions taken in current year	19	105
Unrecognized tax benefits at end of year	$ 21	$ 126

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

The Company's U.S. federal and state income tax returns are generally subject to tax examinations for the tax years ended December 31, 2013 through December 31, 2015. There are currently no pending income tax examinations. To the extent the Company has tax attribute carryforwards, the tax years in which the attribute was generated may still be adjusted upon examination by the Internal Revenue Service and state tax authorities to the extent utilized in a future period. The Company's policy is to record interest and penalties related to income taxes as part of its income tax provision.

15. Net Loss per Share and Unaudited Pro Forma Net Loss per Share

Net Loss per Share Attributable to Common Stockholders

Basic and diluted net loss per share attributable to common stockholders was calculated as follows (in thousands, except share and per share amounts):

	Year Ended December 31,		Three Months Ended March 31,	
	2015	2016	2016	2017
			(unaudited)	
Numerator:				
Net loss	$ (13,218)	$ (22,975)	$ (3,500)	$ (5,385)
Accretion of redeemable convertible preferred stock to redemption value	(19)	(25)	(5)	(7)
Net loss attributable to common stockholders	$ (13,237)	$ (23,000)	$ (3,505)	$ (5,392)
Denominator:				
Weighted average common shares outstanding—basic and diluted	1,736,110	1,752,756	1,750,489	1,754,035
Net loss per share attributable to common stockholders— basic and diluted	$ (7.62)	$ (13.12)	$ (2.00)	$ (3.07)

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

The Company's potentially dilutive securities, which include stock options, warrants to purchase shares of Preferred Stock, unvested restricted stock, convertible promissory notes and Preferred Stock, have been excluded from the computation of diluted net loss per share as the effect would be to reduce the net loss per share. Therefore, the weighted average number of common shares outstanding used to calculate both basic and diluted net loss per share attributable to common stockholders is the same. The Company excluded the following potential common shares, presented based on amounts outstanding at each period end, from the computation of diluted net loss per share attributable to common stockholders for the periods indicated because including them would have had an anti-dilutive effect:

	Year Ended December 31,		Three Months Ended March 31,	
	2015	2016	2016	2017
			(unaudited)	
Options to purchase common stock	790,431	1,873,577	874,244	1,858,244
Restricted common stock	5,062	—	2,750	—
Redeemable convertible preferred stock (as converted to common stock)	5,076,970	6,108,312	5,076,970	6,108,312
Warrants to purchase redeemable convertible preferred stock (as converted to common stock)	11,013	25,515	18,264	25,515
	5,883,476	8,007,404	5,972,228	7,992,071

Unaudited Pro Forma Net Loss per Share Attributable to Common Stockholders

The unaudited pro forma basic and diluted net loss per share attributable to common stockholders for the year ended December 31, 2016 and the three months ended March 31, 2017 have been prepared to give effect to adjustments arising upon the closing of a qualified initial public offering. The unaudited pro forma net loss attributable to common stockholders used in the calculation of unaudited pro forma basic and diluted net loss per share attributable to common stockholders does not include the effects of the accretion of Preferred Stock to redemption value or the change in fair value of the warrant liability because the calculation gives effect to the automatic conversion of shares of Preferred Stock outstanding as of March 31, 2017 into common stock and all warrants to purchase shares of Preferred Stock outstanding as of March 31, 2017 becoming warrants to purchase shares of common stock as if the proposed initial public offering had occurred on the later of January 1, 2016 or the issuance date of the Preferred Stock or the warrants.

The unaudited pro forma basic and diluted weighted average common shares outstanding used in the calculation of unaudited pro forma basic and diluted net loss per share attributable to common stockholders for the year ended December 31, 2016 and the three months ended March 31, 2017 have been prepared to give effect, upon a qualified initial public offering, to the automatic conversion of all outstanding shares of Preferred Stock into shares of common stock as if the proposed initial public offering had occurred on the later of January 1, 2016 or the issuance date of the Preferred Stock.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Unaudited pro forma basic and diluted net loss per share attributable to common stockholders was calculated as follows (in thousands, except share and per share amounts):

	Year Ended December 31, 2016	Three Months Ended March 31, 2017
		(unaudited)
Numerator:		
Net loss attributable to common stockholders	$ (23,000)	$ (5,392)
Accretion of redeemable convertible preferred stock to redemption value	25	7
Change in fair value of warrant liability	(39)	—
Pro forma net loss attributable to common stockholders	$ (23,014)	$ (5,385)
Denominator:		
Weighted average common shares outstanding—basic and diluted	1,752,756	1,754,035
Pro forma adjustment to reflect assumed automatic conversion of redeemable convertible preferred stock into common stock upon the closing of the proposed initial public offering	5,818,071	6,108,312
Pro forma weighted average common shares outstanding—basic and diluted	7,570,827	7,862,347
Pro forma net loss per share attributable to common stockholders—basic and diluted	$ (3.04)	$ (0.68)

16. Commitments and Contingencies

Lease Agreements

In November 2010, the Company entered into a lease agreement for office, laboratory, parking and storage space, which expires on April 30, 2021. The Company has the option to extend the lease agreement for an additional year. Monthly lease payments, inclusive of base rent, ancillary charges and the respective value added tax to be paid on the base rent and the ancillary charges inclusive of non-rent shared tenant occupancy costs, total $45,000. Monthly lease payments include base rent charges of $38,000.

In July 2015, the Company entered into a lease agreement for an animal-use facility. The lease initially had a one-year noncancelable term, which expired in June 2016, after which the lease became cancelable by either party upon six months' prior written notice. Monthly lease payments, inclusive of the base rent and the respective value added tax to be paid on the base rent, total $37,000. Monthly lease payments include base rent charges of $31,000.

In November 2015, the Company entered into a lease agreement for office and laboratory space, which expires on January 31, 2019. Monthly lease payments, inclusive of non-rent shared tenant occupancy costs, total $26,000. Monthly lease payments include base rent charges of $26,000, which are subject to a 2.6% increase in the second year of the lease and a 2.5% increase in the third year of the lease.

The Company recognizes rent expense on a straight-line basis over the respective lease period and has recorded deferred rent for rent expense incurred but not yet paid.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

The Company recorded rent expense of $1.0 million, $1.2 million, $0.3 million and $0.3 million during the years ended December 31, 2015 and 2016 and the three months ended March 31, 2016 and 2017 (unaudited), respectively.

The following table summarizes the future minimum lease payments due under operating leases as of December 31, 2016 (in thousands):

Year Ending December 31,	
2017	$ 947
2018	768
2019	478
2020	452
2021	151
	$2,796

License Agreements

The Company entered into a license agreement with Adimab under which it is obligated to make contingent and non-contingent payments (see Note 7).

Manufacturing Commitments

In July 2016, the Company entered into an agreement with a contract manufacturing organization to provide clinical trial materials. As of December 31, 2016 and the three months ended March 31, 2017 (unaudited), the Company had committed to minimum payments under this agreement totaling $3.2 million and $1.1 million, respectively.

Indemnification Agreements

In the ordinary course of business, the Company may provide indemnification of varying scope and terms to vendors, lessors, business partners and other parties with respect to certain matters including, but not limited to, losses arising out of breach of such agreements or from intellectual property infringement claims made by third parties. In addition, the Company has entered into indemnification agreements with members of its board of directors that will require the Company, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors or officers. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is, in many cases, unlimited. To date, the Company has not incurred any material costs as a result of such indemnifications. The Company does not believe that the outcome of any claims under indemnification arrangements will have a material effect on its financial position, results of operations or cash flows, and it has not accrued any liabilities related to such obligations in its consolidated financial statements as of December 31, 2015, 2016 or March 31, 2017 (unaudited).

Legal Proceedings

The Company is not a party to any litigation and does not have contingency reserves established for any litigation liabilities.

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

17. Related Party Transactions

Agreements with Adimab, LLC

In May 2011, the Company entered into the Adimab Collaboration Agreement with Adimab (see Note 7). The chairman of the Company's board of directors is a co-founder of Adimab and currently serves as Adimab's Chief Executive Officer. During the year ended December 31, 2015 and 2016 and the three months ended March 31, 2016 and 2017 (unaudited), the Company made payments to Adimab of $0.2 million, $0.1 million, $0.1 million and $0, respectively, under the Adimab Collaboration Agreement. During the years ended December 31, 2015 and 2016 and the three months ended March 31, 2016 and 2017 (unaudited), the Company recognized research and development expense of $0.2 million, $8,000, $0 and $0, respectively, in connection with the Adimab Collaboration Agreement. As of December 31, 2015, amounts due to Adimab totaled $0.1 million. As of December 31, 2016 and March 31, 2017 (unaudited), no amounts were due to Adimab under the Adimab Collaboration Agreement.

In February 2017, the Company entered into the Adimab Option Agreement with Adimab (see Note 7). During the three months ended March 31, 2017 (unaudited), the Company made no payments and recognized $13,000 of research and development expense under the Adimab Option Agreement. As of March 31, 2017 (unaudited), the Company owed $13,000 to Adimab under the Adimab Option Agreement.

Agreements with the Gates Foundation

In February 2017, the Company entered into a grant agreement with the Gates Foundation (see Note 7). In April 2017, the Company entered into a letter agreement with the Gates Foundation (see Note 20). In connection with the letter agreement, the Gates Foundation purchased $8.0 million of shares of the Company's Series D preferred stock and the Gates Foundation became a principal stockholder of the Company. In March 2017, the Company received a payment of $1.6 million from the Gates Foundation under the grant agreement. During the three month ended March 31, 2017 (unaudited), the Company recognized grant income of $44,000 under the grant. As of March 31, 2017 (unaudited), unearned income under the grant agreement was $1.6 million.

Services and Facilities Agreement with EveliQure Biotechnologies GmbH

The Company's wholly owned subsidiary, Arsanis Biosciences GmbH, leases office and lab space in Vienna, Austria from a third party. In February 2015, Arsanis Biosciences GmbH entered into a services and facilities agreement with EveliQure Biotechnologies GmbH ("EveliQure") under which the Company provides certain laboratory services and sublets office and lab space to EveliQure. Tamas Henics, the husband of Eszter Nagy, the Company's Chief Scientific Officer and a member of its board of directors, serves as Chief Scientific Officer at EveliQure. During the years ended December 31, 2015 and 2016 and three months ended March 31, 2016 and 2017 (unaudited), the Company received payments from EveliQure under the agreement of less than $0.1 million in each period. During the years ended December 31, 2015 and 2016 and three months ended March 31, 2016 and 2017 (unaudited), the Company recognized other income under the agreement of less than $0.1 million in each period. As of December 31, 2015 and March 31, 2017 (unaudited), no amounts were due from EveliQure. As of December 31, 2016, amounts due from EveliQure totaled $13,000.

18. Benefit Plans

The Company established a defined contribution savings plan under Section 401(k) of the Internal Revenue Code. This plan covers substantially all employees who meet minimum age and service requirements and allows participants to defer a portion of their annual compensation on a pre-tax basis. Matching contributions to the plan may be made at the discretion of the Company's board of directors. The Company made no contributions to the plan during the year ended December 31, 2015 and 2016 and the three months ended March 31, 2017 (unaudited).

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

19. Geographic Information

The Company's property and equipment, net by location was as follows (in thousands):

	December 31, 2015	December 31, 2016	March 31, 2017 (unaudited)
United States	$ 57	$ 68	$ 59
Austria	703	451	453
Total property and equipment, net	$760	$519	$ 512

20. Subsequent Events

For its consolidated financial statements as of December 31, 2016 and for the year then ended and for its interim consolidated financial statements as of March 31, 2017 and for the three months then ended, the Company evaluated subsequent events through August 10, 2017, the date on which those financial statements were issued.

Sale of Series D Redeemable Convertible Preferred Stock

In April 2017, the Company issued and sold 10,799,880 shares of Series D preferred stock, at a price of $3.2457 per share, for cash proceeds of $35.1 million.

The rights and preferences of the Series D preferred stock are similar to all other series of the Company's Preferred Stock, except that, in the event of any voluntary or involuntary liquidation event, dissolution, winding up of the Company or Deemed Liquidation Event, holders of then outstanding Series D preferred stock have priority and preference to all other classes of Preferred Stock and common stock. The Original Issue Price and Conversion Price of the Series D preferred stock is $3.2457 per share, and each share of Series D preferred stock is convertible into common stock on a one-for-one basis.

In April 2017, in connection with the Company's sale of Series D preferred stock, the Company amended its certificate of incorporation, as amended and restated, to increase the total number of authorized shares of all classes of capital stock to 52,894,409 shares, consisting of 21,894,618 shares of preferred stock and 31,000,000 shares of common stock.

Because the price per share of the Series D preferred stock was lower than the Conversion Price of the Company's Series A-2, Series B and Series C preferred stock, in accordance with the Company's certificate of incorporation, as amended and restated, the Conversion Price of each of these series was amended to $3.7172 per share for Series A-2, $4.7510 per share for Series B and $5.6739 per share for Series C preferred stock. The Conversion Price for Series A-1 preferred stock was not amended.

Conversion of 2016 and 2017 Notes in Connection with Series D Preferred Stock Financing

In April 2017, in connection with the Company's issuance and sale of Series D preferred stock, all of the outstanding principal and accrued interest under the 2016 Notes, totaling $5.5 million, was automatically converted into 1,896,297 shares of Series D preferred stock at a price equal to 90% of $3.2457 per share, the per share price paid in cash by investors in the Series D preferred stock financing (see Note 9).

ARSANIS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

In April 2017, in connection with the Company's issuance and sale of Series D preferred stock, all of the outstanding principal and accrued interest under the 2017 Notes, totaling $4.9 million, was automatically converted into 1,524,107 shares of Series D preferred stock at a price equal to $3.2457 per share, the per share price paid in cash by investors in the Series D preferred stock financing (see Note 9).

Gates Foundation Letter Agreement and Investment

In April 2017, the Company entered into a letter agreement with the Gates Foundation. In connection with the letter agreement, the Gates Foundation purchased $8.0 million of shares of the Company's Series D preferred stock and the Company committed to use the proceeds from the investment by the Gates Foundation solely to advance the development of a specified monoclonal antibody program that involves the monoclonal antibodies ASN-1, ASN-2 and ASN-3 and the Company's product candidate, ASN100. Under the letter agreement, the Company also agreed to conduct up to four additional projects proposed and funded by the Gates Foundation.

The letter agreement contains certain global access obligations as well as requirements relating to the Company's use of the funds received from the Gates Foundation investment. In the event that the Company fails to comply with these obligations or requirements or other related U.S. tax obligations, the Gates Foundation will have the right, after expiration of a specified cure period, to require the Company to redeem all of the shares owned by the Gates Foundation or to locate a third party that will purchase such shares. For any redemption or purchase resulting from such default, the shares of the Company's stock held by the Gates Foundation will be redeemed at an amount equal to the greater of the original purchase price (plus specified interest) or the fair market value of such stock on the date of such redemption.

Increase in Shares Available for Issuance and Grant of Stock Options under the 2011 Plan

In April 2017, the Company effected an increase in the total number of shares of the Company's common stock reserved for issuance under the 2011 Plan from 1,750,000 shares to 4,433,620 shares.

In June 2017, the Company granted options to purchase 2,245,450 shares of common stock, at an exercise price of $1.17 per share, to employees as compensation for future services to the Company.

Shares

Common Stock

PRELIMINARY PROSPECTUS

Citigroup	Cowen	Piper Jaffray

, 2017

Until , 2017 (25 days after the date of this prospectus), all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth the expenses to be incurred in connection with the offering described in this Registration Statement, other than underwriting discounts and commissions, all of which will be paid by the Registrant. All amounts are estimates except the Securities and Exchange Commission, or SEC, registration fee, the Financial Industry Regulatory Authority, Inc., filing fee and The NASDAQ Global Market initial listing fee.

	Amount
Securities and Exchange Commission registration fee	$ *
Financial Industry Regulatory Authority, Inc. filing fee	*
NASDAQ Global Market initial listing fee	*
Accountants' fees and expenses	*
Legal fees and expenses	*
Blue Sky fees and expenses	*
Transfer agent's fees and expenses	*
Printing and engraving expenses	*
Miscellaneous	*
Total expenses	$ *

* To be filed by amendment.

Item 14. Indemnification of Directors and Officers.

Section 102 of the Delaware General Corporation Law, or the DGCL, permits a corporation to eliminate the personal liability of its directors or its stockholders for monetary damages for a breach of fiduciary duty as a director, except where the director breached his or her duty of loyalty, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of Delaware corporate law or obtained an improper personal benefit. Our certificate of incorporation that will be effective upon the closing of this offering provides that no director shall be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duty as a director, notwithstanding any provision of law imposing such liability, except to the extent that the DGCL prohibits the elimination or limitation of liability of directors for breaches of fiduciary duty.

Section 145 of the DGCL provides that a corporation has the power to indemnify a director, officer, employee or agent of the corporation and certain other persons serving at the request of the corporation in related capacities against expenses (including attorneys' fees), judgments, fines and amounts paid in settlements actually and reasonably incurred by the person in connection with an action, suit or proceeding to which he or she is or is threatened to be made a party by reason of such position, if such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the corporation, and, in any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful, except that, in the case of actions brought by or in the right of the corporation, no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or other adjudicating court determines that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnification for such expenses which the Court of Chancery or such other court shall deem proper.

Our certificate of incorporation that will be effective upon the closing of the offering provides that we will indemnify each person who was or is a party or threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action

by or in the right of us), by reason of the fact that he or she is or was, or has agreed to become, our director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (all such persons being referred to as an Indemnitee), or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding and any appeal therefrom if such Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, and, with respect to any criminal action or proceeding, he or she had no reasonable cause to believe his or her conduct was unlawful.

Our certificate of incorporation that will be effective upon the closing of the offering also provides that we will indemnify any Indemnitee who was or is a party to an action or suit by or in the right of us to procure a judgment in our favor by reason of the fact that the Indemnitee is or was, or has agreed to become, our director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise, or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees) and, to the extent permitted by law, amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding and any appeal therefrom, if the Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, except that no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to us, unless a court determines that, despite such adjudication but in view of all of the circumstances, he or she is entitled to indemnification of such expenses. Notwithstanding the foregoing, to the extent that any Indemnitee has been successful, on the merits or otherwise, he or she will be indemnified by us against all expenses (including attorneys' fees) actually and reasonably incurred by him or her or on his or her behalf in connection therewith. If we do not assume the defense, expenses must be advanced to an Indemnitee under certain circumstances.

In addition, we have entered into indemnification agreements with our directors, and we intend to enter into indemnification agreements with all of our executive officers prior to the completion of this offering. In general, these agreements provide that we will indemnify the executive officer or director to the fullest extent permitted by law for claims arising in his or her capacity as an executive officer or director of our company or in connection with his or her service at our request for another corporation or entity. The indemnification agreements also provide for procedures that will apply in the event that an executive officer or director makes a claim for indemnification and establish certain presumptions that are favorable to the executive officer or director.

We maintain a general liability insurance policy that covers certain liabilities of our directors and officers arising out of claims based on acts or omissions in their capacities as directors or officers.

The underwriting agreement we will enter into in connection with the offering of common stock being registered hereby provides that the underwriters will indemnify, under certain conditions, our directors and officers (as well as certain other persons) against certain liabilities arising in connection with such offering.

Insofar as the foregoing provisions permit indemnification of directors, executive officers or persons controlling us for liability arising under the Securities Act of 1933, as amended, or the Securities Act, we have been informed that, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Item 15. Recent Sales of Unregistered Securities.

Set forth below is information regarding shares of our common stock, shares of our preferred stock, warrants to purchase shares of our preferred stock and stock options granted by us within the past three years that

were not registered under the Securities Act. Also included is the consideration, if any, received by us for such shares and options and information relating to the section of the Securities Act, or rule of the SEC, under which exemption from registration was claimed.

(a) Issuances of Convertible Preferred Stock and Convertible Promissory Notes

On May 22, 2015, we issued and sold 966,851 shares of our Series B convertible preferred stock to 8 investors at a price per share of $7.24 for an aggregate purchase price of $7.0 million.

On December 16, 2015, we issued and sold an aggregate principal amount of $4.0 million of convertible promissory notes to 8 investors for an aggregate purchase price of $4.0 million. The convertible promissory notes accrued interest at a rate of 0.56% per annum and had a maturity date of December 16, 2016. On April 12, 2016, all outstanding principal and interest accrued under the convertible promissory notes was converted into shares of our Series C convertible preferred stock at approximately $8.69 per share.

On April 12, 2016, we issued and sold 1,031,342 shares of our Series C convertible preferred stock to 10 investors, consisting of (i) 569,946 shares sold for cash at a price per share of $9.65 for an aggregate cash purchase price of $5.5 million and (ii) 461,396 shares issued upon conversion of $4.0 million in outstanding principal and interest under our convertible promissory notes issued on December 16, 2015, at a price per share of approximately $8.69. In addition, on April 12, 2016, we issued and sold an aggregate principal amount of $5.5 million of convertible promissory notes to 10 investors for an aggregate purchase price of $5.5 million. The convertible promissory notes accrued interest at a rate of 0.7% per annum and had a maturity date of October 12, 2017. On April 24, 2017, all principal and interest accrued under the convertible promissory notes was converted into shares of our Series D convertible preferred stock at approximately $2.92 per share.

On January 23, 2017, we issued and sold an aggregate principal amount of $4.9 million in convertible promissory notes to 11 investors for an aggregate purchase price of $4.9 million. The convertible promissory notes accrued interest at a rate of 0.96% per annum and had a maturity date of October 12, 2017. On April 24, 2017, all principal and interest accrued under the convertible promissory notes was converted into shares of our Series D convertible preferred stock at approximately $3.2457 per share.

On April 24, 2017, we issued and sold 14,220,284 shares of our Series D convertible preferred stock to 18 investors, consisting of (i) 12,323,987 shares sold for an aggregate of $35.1 million in cash and conversion of $4.9 million in outstanding principal and interest under our convertible promissory notes issued on January 23, 2017 at a price per share of approximately $3.2457 and (ii) 1,896,297 shares issued upon conversion of $5.5 million in outstanding principal and interest under our convertible promissory notes issued on April 12, 2016 at a price per share of approximately $2.92.

No underwriters were involved in the foregoing issuances of securities. The securities described in this section (a) of Item 15 were issued to investors in reliance upon the exemption from the registration requirements of the Securities Act, as set forth in Section 4(a)(2) under the Securities Act and, in certain cases, Regulation D thereunder, relative to transactions by an issuer not involving any public offering, to the extent an exemption from such registration was required. All purchasers received written disclosures that the securities had not been registered under the Securities Act and that any resale must be made pursuant to a registration statement or an available exemption from such registration.

(b) Stock Option Grants and Exercises

Between August 10, 2014 and August 10, 2017, we granted options to purchase an aggregate of 3,700,027 shares of common stock, with exercise prices ranging from $1.17 to $2.75 per share, to our employees, directors, advisors and consultants pursuant to our 2011 Stock Incentive Plan. Between August 10, 2014 and August 10, 2017, we issued 30,500 shares of our common stock upon the exercise of stock options outstanding under our 2010 Special Stock Incentive Plan for aggregate consideration of $16,470.

The stock options and the shares of common stock issued upon the exercise of stock options described in this section (b) of Item 15 were issued pursuant to written compensatory plans or arrangements with our employees, directors and consultants, in reliance on the exemption provided by Rule 701 promulgated under the Securities Act. All recipients either received adequate information about our company or had access, through employment or other relationships, to such information.

(c) Issuance of Warrant

On February 19, 2016, we issued a warrant to purchase an aggregate of 14,502 shares of our Series B convertible preferred stock at a price of $7.24 per share to Silicon Valley Bank in connection with an amendment to our loan and security agreement with Silicon Valley Bank.

The issuance of this warrant was made in reliance on the exemption from the registration requirements of the Securities Act, as set forth in Section 4(a)(2) under the Securities Act relative to transactions by an issuer not involving any public offering, to the extent an exemption from such registration was required. The investor represented that it was an accredited investor and was acquiring the warrants for its own account for investment purposes only and not with a view to, or for sale in connection with, any distribution thereof and that it could bear the risks of the investment and could hold the warrant for an indefinite period of time and appropriate legends were affixed to the instruments representing such warrants issued in such transactions. Such recipient either received adequate information about us or had, through their relationships with us, access to such information.

Item 16. Exhibits and Financial Statement Schedules.

The exhibits to the registration statement are listed in the Exhibit Index attached hereto and incorporated by reference herein.

Item 17. Undertakings.

(a) The undersigned registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreements, certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

(b) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

(c) The undersigned registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Waltham, Commonwealth of Massachusetts, on this day of , 2017.

ARSANIS, INC.

By: _____
René Russo
President and Chief Executive Officer

SIGNATURES AND POWER OF ATTORNEY

We, the undersigned officers and directors of Arsanis, Inc., hereby severally constitute and appoint René Russo and Michael Gray, and each of them singly (with full power to each of them to act alone), our true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution in each of them for her or him and in her or his name, place and stead, and in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement, and any other registration statement for the same offering pursuant to Rule 462(b) under the Securities Act of 1933, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises, as full to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities held on the dates indicated.

Signature	Title	Date
_____ René Russo	President and Chief Executive Officer, Director (Principal Executive Officer)	, 2017
_____ Michael Gray	Chief Financial Officer and Chief Business Officer (Principal Financial and Accounting Officer)	, 2017
_____ Tillman U. Gerngross	Chairman of the Board	, 2017
_____ Jan Adams	Director	, 2017
_____ Daniel Burgess	Director	, 2017
_____ Carl Gordon	Director	, 2017

Signature	Title	Date
Terrance McGuire	Director	, 2017
Eszter Nagy	Chief Scientific Officer, Director	, 2017
Claudio Nessi	Director	, 2017
Michael Ross	Director	, 2017
Amy Schulman	Director	, 2017

Table of Contents

EXHIBIT INDEX

Exhibit Number	Description of Exhibit
1.1*	Form of Underwriting Agreement
3.1	Third Amended and Restated Certificate of Incorporation of the Registrant
3.2	Restated By-laws of the Registrant, as amended
3.3*	Form of Restated Certificate of Incorporation of the Registrant (to be effective upon the closing of this offering)
3.4*	Form of Amended and Restated By-laws of the Registrant (to be effective upon the closing of this offering)
4.1*	Specimen Stock Certificate evidencing the shares of common stock
5.1*	Opinion of Wilmer Cutler Pickering Hale and Dorr LLP
10.1	Second Amended and Restated Investors' Rights Agreement, as amended
10.2	2010 Special Stock Incentive Plan, as amended
10.3	Form of Non-Statutory Stock Option Agreement under the 2010 Special Stock Incentive Plan
10.4	2011 Stock Incentive Plan, as amended
10.5	Form of Incentive Stock Option Agreement under the 2011 Stock Incentive Plan
10.6	Form of Non-Statutory Stock Option Agreement under the 2011 Stock Incentive Plan
10.7*	2017 Stock Incentive Plan
10.8*	Form of Incentive Stock Option Agreement under the 2017 Stock Incentive Plan
10.9*	Form of Nonstatutory Stock Option Agreement under the 2017 Stock Incentive Plan
10.10*	2017 Employee Stock Purchase Plan
10.11	Offer letter, dated July 12, 2015, by and between the Registrant and René Russo
10.12	Offer letter, dated January 15, 2016, by and between the Registrant and Michael Gray
10.13	Offer letter, dated April 28, 2016, by and between the Registrant and Chris Stevens
10.14	Form of Indemnification Agreement between Registrant and each of Carl Gordon, Claudio Nessi, Jan Adams, Michael Ross, Terrance McGuire, Amy Schulman and Daniel Burgess
10.15	Form of Indemnification Agreement between Registrant and each of Eszter Nagy, Tillman U. Gerngross and Rene Russo
10.16	Lease, dated October 30, 2015, by and between the Registrant and Waltham Winter Street 890 LP and the Registrant
10.17	Lease Agreement, dated November 26, 2010, by and between Arsanis Biosciences GmbH and Wüstenrot Marxbox GmbH & Co. OG (as successor-in-interest to Marxbox Bauprojekt GmbH & Co. OG), as amended (English translation)
10.18†	Collaboration Agreement, dated as of May 1, 2011, by and between the Registrant and Adimab, LLC, as amended
10.19†	Option and License Agreement, dated as of February 27, 2017, by and between the Registrant and Adimab, LLC
10.20†	Grant Agreement, dated February 20, 2017, by and between the Registrant and Bill & Melinda Gates Foundation

Exhibit Number	Description of Exhibit
10.21†	Letter agreement, dated as of April 24, 2017, by and between the Registrant and Bill & Melinda Gates Foundation
10.22	Loan and Security Agreement, dated as of December 7, 2012, by and between the Registrant and Silicon Valley Bank, as amended
10.23	Warrant to purchase shares of Series A-2 Convertible Preferred Stock issued by the Registrant to Silicon Valley Bank
10.24	Warrant to purchase shares of Series B Convertible Preferred Stock issued by the Registrant to Silicon Valley Bank
10.25	Funding contract, dated September 20, 2011, by and between Arsanis Biosciences GmbH and Österreichische Forschungsförderungsgesellschaft mbH (English translation)
10.26	Funding contract, dated July 2, 2012, by and between Arsanis Biosciences GmbH and Österreichische Forschungsförderungsgesellschaft mbH (English translation)
10.27	Funding contract, dated December 5, 2012, by and between Arsanis Biosciences GmbH and Österreichische Forschungsförderungsgesellschaft mbH (English translation)
10.28	Funding contract, dated March 29, 2013, by and between Arsanis Biosciences GmbH and Österreichische Forschungsförderungsgesellschaft mbH (English translation)
10.29	Funding contract, dated August 6, 2013, by and between Arsanis Biosciences GmbH and Österreichische Forschungsförderungsgesellschaft mbH (English translation)
10.30	Funding contract, dated April 3, 2014, by and between Arsanis Biosciences GmbH and Österreichische Forschungsförderungsgesellschaft mbH (English translation)
10.31	Funding contract, dated June 9, 2014, by and between Arsanis Biosciences GmbH and Österreichische Forschungsförderungsgesellschaft mbH (English translation)
10.32	Funding contract, dated July 20, 2015, by and between Arsanis Biosciences GmbH and Österreichische Forschungsförderungsgesellschaft mbH (English translation)
10.33	Funding contract, dated July 20, 2015, by and between Arsanis Biosciences GmbH and Österreichische Forschungsförderungsgesellschaft mbH (English translation)
10.34	Funding contract, dated July 14, 2016, by and between Arsanis Biosciences GmbH and Österreichische Forschungsförderungsgesellschaft mbH (English translation)
10.35	Funding contract, dated March 23, 2017, by and between Arsanis Biosciences GmbH and Österreichische Forschungsförderungsgesellschaft mbH (English translation)
21.1	List of Subsidiaries
23.1*	Consent of PricewaterhouseCoopers LLP, independent registered public accounting firm
23.2*	Consent of Wilmer Cutler Pickering Hale and Dorr LLP (included in Exhibit 5.1)
24.1*	Power of Attorney (included on signature page)

* To be filed by amendment.

† Confidential treatment requested as to portions of the exhibit. Confidential materials omitted and filed separately with the Securities and Exchange Commission.

THIRD AMENDED AND RESTATED CERTIFICATE OF INCORPORATION OF ARSANIS, INC.

(Pursuant to Sections 242 and 245 of the
General Corporation Law of the State of Delaware)

Arsanis, Inc., a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the **"General Corporation Law"),**

DOES HEREBY CERTIFY:

1. That the name of this corporation is Arsanis, Inc. and that this corporation was originally incorporated pursuant to the General Corporation Law on August 2, 2010 under the same name.

2. That the Board of Directors duly adopted resolutions proposing to amend and restate the Second Amended and Restated Certificate of Incorporation of this corporation, declaring said amendment and restatement to be advisable and in the best interests of this corporation and its stockholders, and authorizing the appropriate officers of this corporation to solicit the consent of the stockholders therefor, which resolution setting forth the proposed amendment and restatement is as follows:

RESOLVED, that the Second Amended and Restated Certificate of Incorporation of this corporation, be amended and restated in its entirety to read as follows:

FIRST: The name of this corporation is Arsanis, Inc. (the **"Corporation").**

SECOND: The address of the registered office of the Corporation in the State of Delaware is 1209 Orange Street, in the City of Wilmington, Delaware 19801, County of New Castle. The name of its registered agent at such address is The Corporation Trust Company.

TIDRD: The nature of the business or purposes to be conducted or promoted is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law.

FOURTH: The total number of shares of all classes of capital stock which the Corporation shall have authority to issue shall be 52,894,409 shares divided into two classes, as follows: 31,000,000 shares of common stock, par value $0.001 per share (the **"Common Stock")** and 21,894,618 shares of Preferred Stock, par value $0.001 per share (the **"Preferred Stock").**

A description of the respective classes of stock and a statement of the designations, preferences, voting powers, relative, participating, optional or other special rights and privileges and the qualifications, limitations and restrictions of the Preferred Stock and Common Stock are as follows:

A. COMMON STOCK

1. Relative Rights of Preferred Stock and Common Stock. All preferences, voting powers, relative, participating, optional or other special rights and privileges, and qualifications, limitations or restrictions, of the Common Stock are expressly made subject and subordinate to those that may be fixed with respect to any shares of the Preferred Stock.

2. Voting Rights. Except as otherwise required by law or this Certificate of Incorporation, the holders of Common Stock will be entitled to one vote per share on all matters to be voted on by the stockholders of the Corporation.

3. Increase/Decrease of Common Stock. Notwithstanding the provisions of Section 242(b)(2) of the General Corporation Law, the number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares then outstanding) by (in addition to any vote of the holders of one or more series of Preferred Stock that may be required by the terms of this Certificate of lncorporation) the affirmative vote of the holders of a majority of the outstanding shares of capital stock of the Corporation, voting as a single class, with each such share being entitled to such number of votes per share as is provided in this Article FOURTH.

4. Dividends. Dividends may be paid on the Common Stock out of funds legally available therefor if, as and when determined by the Board of Directors of the Corporation subject to the restrictions of Section B(2) of this Article FOURTH.

5. Dissolution, Liquidation or Winding-Up. In the event of any dissolution, liquidation or winding-up of the affairs of the Corporation, after distribution in full of the preferential amounts, if any, to be distributed to the holders of shares of the Preferred Stock, holders of Common Stock shall be entitled, unless otherwise provided by law or this Certificate of Incorporation, to receive all of the remaining assets of the Corporation of whatever kind available for distribution to stockholders ratably in proportion to the number of shares of Common Stock held by them.

B. PREFERRED STOCK

1. Designation. Of the class of 21,894,618 shares of Preferred Stock which the Corporation has the authority to issue: (i) 200,001 shares shall be a series designated and known as "Series A-1 Convertible Preferred Stock" **("Series A-1 Preferred Stock"),** (ii) 2,125,550 shares shall be a series designated and known as the "Series A-2 Convertible Preferred Stock" **("Series A-2 Preferred Stock"** and, together with the Series A-1 Preferred Stock, the **"Series A Preferred Stock"),** (iii) 2,776,933 shares shall be a series designated and known as the "Series B Convertible Preferred Stock" **("Series B Preferred Stock"),** (iv) 1,031,342 shares shall be a series designated and known as the "Series C Convertible Preferred Stock" **("Series C Preferred Stock"),** and (v) 15,760,792 shares shall be a series designated and known as the "Series D Convertible Preferred Stock" **("Series D Preferred Stock"),** each such series with the following rights, preferences, powers, privileges and restrictions, qualifications and limitations. Unless otherwise indicated, references to "sections" or "subsections" in this Part B of this Article FOURTH refer to sections and subsections of Part B of this Article FOURTH.

2. Dividends. Dividends may be declared and paid on Preferred Stock from funds lawfully available therefor if, as and when, determined by the Board of Directors of the Corporation; provided, that the holders of the Preferred Stock shall be entitled to receive, out of funds legally available therefor, dividends at the same rate and same time as dividends (other than dividends paid in additional shares of Common Stock) are paid with respect to the Common Stock (treating each share of Preferred Stock as being equal to the number of shares of Common Stock (including fractions of a share) into which each share of Preferred Stock is then convertible).

3. Liquidation, Dissolution or Winding-Up; Certain Mergers, Consolidations and Asset Sales.

3.1 Payments to Holders of Preferred Stock.

3.1.1 Payments to Holders of Series D Preferred Stock. Upon any liquidation, dissolution or winding-up of the Corporation, whether voluntary or involuntary, the holders of each share of Series D Preferred Stock then outstanding shall be entitled to receive an amount, to be paid first out of the assets of the Corporation available for distribution to the holders of the capital stock of all classes, before any payment shall be made to the holders of Series C Preferred Stock, Series B Preferred Stock, Series A Preferred Stock or Common Stock, by reason of their ownership thereof, an amount per share equal to the greater of (a) the Series D Original Issue Price (as defined below), plus all declared and unpaid dividends thereon to and including the date full payment shall be tendered to the holders of Series D Preferred Stock with respect to such liquidation, dissolution or winding-up, or (b) such amount per share of Series D Preferred Stock as would have been payable had each such share been converted into Common Stock immediately prior to such event of liquidation, dissolution or winding-up pursuant to the provisions of Section 5 or Section 6, as applicable (the amount payable pursuant to this sentence is hereinafter referred to as the **"Series D Liquidation Amount").** If the assets of the Corporation shall be insufficient to permit the payment in full to the holders of the Series D Preferred Stock of all amounts distributable to them under this Subsection 3.1.1, then the entire assets of the Corporation available for such distribution shall be distributed ratably among the holders of shares of Series D Preferred Stock on a pari passu basis in proportion to the full preferential amount each such holder is otherwise entitled to receive in respect of such shares. The **"Series D Original Issue Price"** shall mean $3.2457 per share, subject to equitable adjustment whenever there shall occur a stock dividend, distribution, combination of shares, reclassification or other similar event affecting such shares.

3.1.2 Payments to Holders of Series C Preferred Stock. Upon any liquidation, dissolution or winding-up of the Corporation, whether voluntary or involuntary, after payment in full has been made to the holders of the Series D Preferred Stock of the full amounts to which they shall be entitled as provided in Subsection 3.1.1, the holders of each share of Series C Preferred Stock then outstanding shall be entitled to receive an amount, to be paid out of the remaining assets of the Corporation available for distribution to the holders of the capital stock of all classes, before any payment shall be made to the holders of Series B Preferred Stock, Series A Preferred Stock or Common Stock, by reason of their ownership thereof, an amount per share equal to the greater of (a) the Series C Original Issue Price (as defined below), plus all

declared and unpaid dividends thereon to and including the date full payment shall be tendered to the holders of Series C Preferred Stock with respect to such liquidation, dissolution or winding-up, or (b) such amount per share of Series C Preferred Stock as would have been payable had each such share been converted into Common Stock immediately prior to such event of liquidation, dissolution or winding-up pursuant to the provisions of Section 5 or Section 6, as applicable (the amount payable pursuant to this sentence is hereinafter referred to as the **"Series C Liquidation Amount").** If the assets of the Corporation shall be insufficient to permit the payment in full to the holders of the Series C Preferred Stock of all amounts distributable to them under this Subsection 3.1.2, then the entire assets of the Corporation available for such distribution shall be distributed ratably among the holders of shares of Series C Preferred Stock on a pari passu basis in proportion to the full preferential amount each such holder is otherwise entitled to receive in respect of such shares. The **"Series C Original Issue Price"** shall mean $9.65 per share, subject to equitable adjustment whenever there shall occur a stock dividend, distribution, combination of shares, reclassification or other similar event affecting such shares.

3.1.3 Payments to Holders of Series B Preferred Stock. Upon any liquidation, dissolution or winding-up of the Corporation, whether voluntary or involuntary, after payment in full has been made to the holders of the Series D Preferred Stock and Series C Preferred Stock of the full amounts to which they shall be entitled as provided in Subsection 3.1.1 and Subsection 3.1.2, the holders of each share of Series B Preferred Stock then outstanding shall be entitled to receive an amount, to be paid out of the remaining assets of the Corporation available for distribution to the holders of the capital stock of all classes, before any payment shall be made to the holders of Series A Preferred Stock or Common Stock, by reason of their ownership thereof, an amount per share equal to the greater of (a) the Series B Original Issue Price (as defined below), plus all declared and unpaid dividends thereon to and including the date full payment shall be tendered to the holders of Series B Preferred Stock with respect to such liquidation, dissolution or winding-up, or (b) such amount per share of Series B Preferred Stock as would have been payable had each such share been converted into Common Stock immediately prior to such event of liquidation, dissolution or winding-up pursuant to the provisions of Section 5 or Section 6, as applicable (the amount payable pursuant to this sentence is hereinafter referred to as the **"Series B Liquidation Amount").** If the assets of the Corporation shall be insufficient to permit the payment in full to the holders of the Series B Preferred Stock of all amounts distributable to them under this Subsection 3.1.3, then the entire assets of the Corporation available for such distribution shall be distributed ratably among the holders of shares of Series B Preferred Stock on a pari passu basis in proportion to the full preferential amount each such holder is otherwise entitled to receive in respect of such shares. The **"Series B Original Issue Price"** shall mean $7.24 per share, subject to equitable adjustment whenever there shall occur a stock dividend, distribution, combination of shares, reclassification or other similar event affecting such shares.

3.1.4 Payments to Holders of Series A Preferred Stock. Upon any liquidation, dissolution or winding-up of the Corporation, whether voluntary or involuntary, after payment in full has been made to the holders of the Series D Preferred Stock, Series C Preferred Stock and Series B Preferred Stock of the full amounts to which they shall be entitled as provided in Subsections 3.1.1, 3.1.2 and 3.1.3, the holders of each share of Series A Preferred Stock then outstanding shall be entitled to receive an amount, to be paid out of the remaining assets of the Corporation available for distribution to the holders of the capital stock of all classes, before any payment shall be made to the holders of Common Stock, by reason of their ownership thereof:

(a) In the case of the Series A-1 Preferred Stock, an amount per share equal to the greater of (i) $2.00 per share, subject to equitable adjustment whenever there shall occur a stock dividend, distribution, combination of shares, reclassification or other similar event affecting such shares (the **"Series A-1 Original Issue Price"),** plus all declared and unpaid dividends thereon to and including the date full payment shall be tendered to the holders of Series A-1 Preferred Stock with respect to such liquidation, dissolution or winding-up, or (ii) such amount per share of Series A-1 Preferred Stock as would have been payable had all shares of Series A-1 Preferred Stock been converted to Common Stock immediately prior to such event of liquidation, dissolution or winding-up pursuant to the provisions of Section 5 or Section 6, as applicable (the amount payable pursuant to this sentence is hereinafter referred to as the **"Series A-1 Liquidation Amount");** and

(b) In the case of the Series A-2 Preferred Stock, an amount per share equal to the greater of (i) $4.54 per share, subject to equitable adjustment whenever there shall occur a stock dividend, distribution, combination of shares, reclassification or other similar event affecting such shares (the **"Series A-2 Original Issue Price"),** plus all declared and unpaid dividends thereon to and including the date full payment shall be tendered to the holders of Series A-2 Preferred Stock with respect to such liquidation, dissolution or winding-up, or (ii) such amount per share of Series A-2 Preferred Stock as would have been payable had all shares of Series A-2 Preferred Stock been converted to Common Stock immediately prior to such event of liquidation, dissolution or winding-up pursuant to the provisions of Section 5 or Section 6, as applicable (the amount payable pursuant to this sentence is hereinafter referred to as the **"Series A-2 Liquidation Amount").**

If the assets of the Corporation shall be insufficient to permit the payment in full to the holders of the Series A Preferred Stock of all amounts distributable to them under this Subsection 3.1.4, then the entire assets of the Corporation available for such distribution shall be distributed ratably among the holders of shares of Series A Preferred Stock on a pari passu basis in proportion to the full preferential amount each such holder is otherwise entitled to receive in respect of such shares.

3.2 Payments to Holders of Common Stock. Upon any liquidation, dissolution or winding-up of the Corporation, whether voluntary or involuntary, after the payment of all preferential amounts required to be paid to the holders of shares of Preferred Stock as provided in Subsections 3.1.1, 3.1.2, 3.1.3 and 3.1.4, the remaining assets of the Corporation available for distribution to its stockholders shall be distributed among the holders of shares of Common Stock, pro rata based on the number of shares of Common Stock held by each such holder.

Upon conversion of shares of Preferred Stock into shares of Common Stock pursuant to Section 5 or Section 6, below, the holder of such Common Stock shall not be entitled to any preferential payment or distribution in case of any liquidation, dissolution or winding-up of the Corporation, but shall share ratably in any distribution of the assets of the Corporation to the holders of Common Stock in accordance with this Section 3.2.

3.3 Merger as Liquidation, etc. Unless otherwise determined by the affirmative vote or written consent of the holders of at least a majority of the then-outstanding shares of Preferred Stock, voting together as a single class on an as-converted to Common Stock basis, (i) a consolidation or merger of the Corporation or its subsidiary into or with any other entity or entities that results in the exchange of outstanding shares of the Corporation for securities or other consideration issued or paid or caused to be issued or paid by any such entity or affiliate thereof (except a consolidation or merger in which the holders of the Corporation's voting stock outstanding immediately prior to the transaction constitute a majority of the holders of voting stock of the surviving entity outstanding immediately following the transaction), (ii) the sale or transfer by the Corporation of all or substantially all of its assets in a single transaction or series of related transactions, (iii) the granting by the Corporation of an exclusive license in all fields with respect to all or substantially all of the Corporation's intellectual property in a single transaction or series of related transactions, or (iv) the sale or transfer by the Corporation's stockholders of capital stock representing a majority of the voting power at elections of directors of the Corporation (each, an **"Event"),** shall each be deemed to be a liquidation within the meaning of the provisions of this Section 3. Any cash, property, rights or securities distributed to such holders by the acquiring person, firm or other entity upon such Event shall be deemed to be applied toward, and all consideration received by the Corporation in such Event together with all other available assets of the Corporation shall be distributed toward the liquidation payments attributable to the shares of Preferred Stock. The value of such property, rights or other securities shall be determined in good faith by the Board of Directors of the Corporation.

3.4 Notice and Opportunity to Exercise Conversion Rights. Notwithstanding anything to the contrary that may be inferred from the provisions of this Section J, each holder of shares of Preferred Stock shall be entitled to receive notice from the Corporation pursuant to Section 5.10 hereof of any proposed Event, liquidation, dissolution or winding-up of the Corporation at least ten (10) days prior to the date on which any such Event, liquidation, dissolution or winding-up of the Corporation is scheduled to occur and, at any time prior to any such Event, liquidation, dissolution or winding-up of the Corporation, to convert any or all of such holder's shares of Preferred Stock into shares of Common Stock pursuant to Section 5 hereof.

3.5 Effecting an Event.

3.5.1 The Corporation shall not have the power to effect an Event unless the agreement or plan of merger or consolidation for such transaction (the **"Transaction Agreement")** provides that the consideration payable to the stockholders of the Corporation shall be allocated among the holders of capital stock of the Corporation in accordance with Sections J_J_ and 3.2 above.

3.5.2 In the event of an Event, if the Corporation does not effect a dissolution of the Corporation under the General Corporation Law within 30 days after such Event, then (a) the Corporation shall send a written notice to each holder of Preferred Stock no later than the 30th day after such Event advising such holders of their right (and the requirements to be met to secure such right) pursuant to the terms of the following clause (b) to require the redemption of such shares of Preferred Stock, and (b) if the holders of at least a majority of the then-outstanding shares of Preferred Stock so request in a written instrument delivered to the Corporation not later than 60 days after such Event, the Corporation shall use the consideration received by the Corporation for such Event (net of any retained liabilities associated with the assets sold or technology licensed, as determined in good faith by the Board of Directors of the Corporation) (the **"Net Proceeds"),** to the extent legally available therefor, on the 90th day after such Event, to redeem, on a pari passu basis, all outstanding shares of Preferred Stock at a price per share equal to the Series D Liquidation Amount, the Series C Liquidation Amount, the Series B Liquidation Amount, the Series A-2 Liquidation Amount and the Series A-1 Liquidation Amount, as applicable. Notwithstanding the foregoing, in the event of a redemption pursuant to the preceding sentence, if the Net Proceeds are not sufficient to redeem all outstanding shares of Preferred Stock, the Corporation shall redeem a pro rata portion of each holder's shares of Series D Preferred Stock to the fullest extent of such Net Proceeds, based on the respective amounts which would otherwise be payable in respect of the shares to be redeemed if the Net Proceeds were sufficient to redeem all such shares, and shall redeem the remaining shares of Series D Preferred Stock to have been redeemed as soon as practicable after the Corporation has funds legally available therefor. If and when all shares of Series D Preferred Stock have been redeemed, then the Corporation shall redeem a pro rata portion of each holder's shares of Series C Preferred Stock to the fullest extent of such Net Proceeds, based on the respective amounts which would otherwise be payable in respect of the shares to be redeemed if the Net Proceeds were sufficient to redeem all such shares, and shall redeem the remaining shares of Series C Preferred Stock to have been redeemed as soon as practicable after the Corporation has funds legally available therefor. If and when all shares of Series C Preferred Stock have been redeemed, then the Corporation shall redeem a pro rata portion of each holder's shares of Series B Preferred Stock to the fullest extent of such Net Proceeds, based on the respective amounts which would otherwise be payable in respect of the shares to be redeemed if the Net Proceeds were sufficient to redeem all such shares, and shall redeem the remaining shares of Series B Preferred Stock to have been redeemed as soon as practicable after the Corporation has funds legally available therefor. If and when all shares of Series B Preferred Stock have been redeemed, then the Corporation shall redeem a pro rata portion of each holder's shares of Series A Preferred Stock to the fullest extent of such Net Proceeds, based on the respective amounts which would otherwise be payable in respect of the shares to be redeemed if the Net Proceeds were sufficient to redeem all such shares, and shall redeem the remaining shares of Series A Preferred Stock to have been redeemed as soon as practicable after the Corporation has funds legally available therefor. The provisions of Section 7 shall apply, with such necessary changes in the details thereof as are necessitated by the context, to the redemption of the Preferred Stock pursuant to this Subsection 3.5.2. Prior to the distribution or redemption provided for in this Subsection 3.5.2, the Corporation shall not expend or dissipate the consideration received for such Event, except to discharge expenses incurred in connection with such Event or in the ordinary course of business.

3.5.3 Amount Deemed Paid or Distributed. If the amount deemed paid or distributed under this Section 3 is made in property other than in cash, the value of such distribution shall be the fair market value of such property, as determined in good faith by the Board of Directors of the Corporation (including a majority of the directors designated by holders of Preferred Stock); provided, however, any securities shall be valued as follows:

(a) Securities not subject to restrictions on free marketability covered by (b) below shall be valued as follows:

(i) if traded on a securities exchange or through the NASDAQ Global Market, the value shall be deemed to be the average of the closing prices of the securities on such exchange or market over the thirty (30) day period ending three days prior to the closing of such transaction;

(ii) if actively traded over-the-counter, the value shall be deemed to be the average of the closing bid or sale prices (whichever is applicable) over the thirty (30) day period ending three days prior to the closing of such transaction; or

(iii) if there is no active public market, the value shall be the fair market value thereof, as determined in good faith by the Board of Directors of the Corporation (including a majority of the directors designated by holders of Preferred Stock).

(b) The method of valuation of securities subject to investment letters or other similar restrictions on free marketability (other than restrictions arising solely by virtue of a stockholder's status as an affiliate or former affiliate) shall be to make an appropriate discount from the market value determined as above in (a) (i), (ii) or (iii) to reflect the approximate fair market value thereof, as determined in good faith by the Board of Directors of the Corporation (including a majority of the directors designated by holders of Preferred Stock).

3.5.4 Allocation of Escrow or Contingent Payments. In the case of an Event, if any portion of the consideration payable to the stockholders of the Corporation is placed into escrow and/or is payable to the stockholders of the Corporation subject to contingencies, the Transaction Agreement shall provide that (a) the portion of such consideration that is not placed in escrow and not subject to any contingencies (the **"Initial Consideration")** shall be allocated among the holders of capital stock of the Corporation in accordance with Sections 3.1 and 3.2 above as if the Initial Consideration were the only consideration payable in connection with such Event and (b) any additional consideration which becomes payable to the holders of capital stock of the Corporation upon release from escrow or satisfaction of

contingencies shall be allocated among the holders of capital stock of the Corporation in accordance with Sections 3.1 and 3.2 above after taking into account the previous payment of the Initial Consideration as part of the same transaction. For the avoidance of doubt, in all cases, the holders of each series of Preferred Stock shall be entitled to the greater of (a) the applicable original issue price for such series, plus all declared and unpaid dividends thereon, or (b) such amount per share of such series of Preferred Stock as would have been payable had each such share of such series of Preferred Stock been converted into Common Stock immediately prior to such Event.

4. Voting.

4.1 General. Each holder of outstanding shares of Preferred Stock shall be entitled to the number of votes equal to the number of whole shares of Common Stock into which the shares of Preferred Stock held by such holder are then convertible (as adjusted from time to time pursuant to Section 5 hereof), at each meeting of stockholders of the Corporation (and written actions of stockholders in lieu of meetings) with respect to any and all matters presented to the stockholders of the Corporation for their action or consideration. Except as provided by law or by the provisions establishing any other series of Preferred Stock, holders of Preferred Stock shall vote together with the holders of Common Stock as a single class on all actions to be taken by the stockholders of the Corporation, including, but not limited to actions amending the Certificate of Incorporation of the Corporation to increase the number of authorized shares of Common Stock.

4.2 Election of Directors. The holders of record of the shares of Preferred Stock, voting together exclusively and as a separate class, shall be entitled to elect five directors of the Corporation (collectively, the **"Preferred Directors")** by vote of a majority of the shares of Preferred Stock on an as-converted to Common Stock basis. The holders of record of the shares of Common Stock and of any other class or series of voting stock (including the Preferred Stock voting on an as-converted to Common Stock basis), exclusively and voting together as a single class on an as-converted to Common Stock basis, shall be entitled to elect the balance of the total number of directors of the Corporation by vote of a majority of such shares. At any meeting held for the purpose of electing a director, the presence in person or by proxy of the holders of a majority of the outstanding shares of the class or series entitled to elect such director shall constitute a quorum for the purpose of electing such director.

4.3 Preferred Stock Protective Provisions. In addition to any other rights provided by law, for so long as not less than twenty percent (20%) of the shares of Preferred Stock that have been issued remain outstanding (appropriately adjusted to take account of any stock split, stock dividend, combination of shares or the like), the Corporation shall not, whether by merger, consolidation or otherwise, without first obtaining the affirmative vote or written consent of (i) the holders of a majority of the then outstanding shares of Preferred Stock voting together as a single class on an as-converted to Common Stock basis and (ii) the holders of at least 75.0% of the then-outstanding shares of Series D Preferred Stock:

4.3.1 amend, alter, repeal or waive any provision of, or add any provision to, the Corporation's Certificate of lncorporation or Bylaws, including amendment by or incident to a merger;

4.3.2 incur any obligation to issue or create or authorize the creation of or issue any shares or other security convertible into or exercisable for any equity security, having rights, preferences, powers or privileges senior to or on parity with the Preferred Stock with respect to redemption, payment of dividends, liquidation or otherwise;

4.3.3 amend, alter, repeal or waive the preferences, rights, powers or privileges of the Preferred Stock including, without limitation the Series A-1 Preferred Stock, the Series A-2 Preferred Stock, the Series B Preferred Stock, the Series C Preferred Stock and/or the Series D Preferred Stock;

4.3.4 pay or declare any dividend or distribution on any shares of its capital stock (except dividends payable solely in shares of Common Stock), or apply any of its assets to the redemption, retirement, purchase or acquisition, directly or indirectly, through subsidiaries or otherwise, of any shares of its capital stock (other than repurchase of Common Stock upon termination of employment or service pursuant to written agreements in effect on the date hereof, pursuant to Section 7 hereof, or pursuant to written agreements approved by the Corporation's Board of Directors);

4.3.5 voluntarily liquidate, dissolve or wind-up or consent to any of the foregoing;

4.3.6 effect a change of control, liquidation, merger, reincorporation, recapitalization, or sale or other transfer of a substantial part of the Corporation's assets other than in the ordinary course of business, including without limitation an Event, or consent to any of the foregoing;

4.3.7 effect any acquisition of the capital stock of another entity which results in the consolidation of that entity into the results of operations of the Corporation or acquisition of all or substantially all of the assets of another entity;

4.3.8 incur indebtedness for borrowed funds, in a single or related series of transactions, in principal amount at any time outstanding in excess of $500,000, except to the extent incurred pursuant to, and in an aggregate principal amount not to exceed the total aggregate principal amount contemplated by, any line of credit approved by the Board of Directors prior to the initial date of issuance of shares of Series D Preferred Stock;

4.3.9 except as contemplated by Subsection 5.4.l(c)(iv), create a new plan or arrangement for the grant of stock options, stock appreciation rights, restricted stock or other similar stock-based compensation, or increase the number of shares or other rights available under such existing plan or arrangement; or

4.3.10 form a subsidiary, or acquire any equity interest in any other entity, other than a wholly-owned subsidiary, the composition of who's board of directors, managers or other similar governing body is identical to the composition of the Board of Directors of the Corporation.

5. Optional Conversion. The holders of the Preferred Stock shall have conversion rights as follows (the **"Conversion Rights"):**

5.1 Right to Convert. Each share of Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time and without the payment of additional consideration by the holder thereof, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing, (i) in the case of Series A-l Preferred Stock, the Series A-1 Original Issue Price by the Series A-1 Conversion Price (as defined below) in effect at the time of conversion, (ii) in the case of the Series A-2 Preferred Stock, the Series A-2 Original Issue Price by the Series A-2 Conversion Price (as defined below) in effect at the time of conversion, (iii) in the case of the Series B Preferred Stock, the Series B Original Issue Price by the Series B Conversion Price (as defined below) in effect at the time of conversion, (iv) in the case of the Series C Preferred Stock, the Series C Original Issue Price by the Series C Conversion Price (as defined below) in effect at the time of conversion, and (v) in the case of the Series D Preferred Stock, the Series D Original Issue Price by the Series D Conversion Price (as defined below) in effect at the time of conversion. Effective as of the date hereof, the **"Series A-1 Conversion Price"** shall be $2.00, the **"Series A-2 Conversion Price"** shall be $3.7172, the **"Series B Conversion Price"** shall be $4.7510, the **"Series C Conversion Price"** shall be $5.6739, and the **"Series D Conversion Price"** shall be $3.2457. The Series A-1 Conversion Price, the Series A-2 Conversion Price, the Series B Conversion Price, the Series C Conversion Price and the Series D Conversion Price shall collectively be referred to herein as the **"Conversion Prices."** Such initial Conversion Prices, and the rate at which shares of Preferred Stock may be converted into shares of Common Stock, shall be subject to adjustment as provided below. The foregoing Conversion Prices reflect all adjustments required in connection with the issuance of up to 15,760,792 shares of Series D Preferred Stock on or after the date hereof pursuant to that certain Series D Preferred Stock Purchase Agreement, dated on or about the date hereof, among the Corporation and the other parties thereto (the **"Purchase Agreement").**

5.2 Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of the Preferred Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the then effective applicable Conversion Price. Whether or not fractional shares would be issuable upon such conversion shall be determined on the basis of the total number of shares of Preferred Stock the holder is at the time converting into Common Stock and the aggregate number of shares of Common Stock issuable upon such conversion.

5.3 Mechanics of Conversion.

5.3.1 Notice of Conversion. In order for a holder of Preferred Stock to convert shares of Preferred Stock into shares of Common Stock, such holder shall surrender the certificate or certificates for such shares of Preferred Stock (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any

claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate), at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent), together with written notice that such holder elects to convert all or any number of the shares of Preferred Stock represented by such certificate or certificates. If required by the Corporation, certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or his, her or its attorney duly authorized in writing. The date of receipt of such certificates (or lost certificate affidavit and agreement) and notice by the transfer agent (or by the Corporation if the Corporation serves as its own transfer agent) shall be the conversion date **("Conversion Date"),** and the shares of Common Stock issuable upon conversion of the shares represented by such certificate shall be deemed to be outstanding of record as of such date. The Corporation shall, as soon as practicable after the Conversion Date, issue and deliver at such office to such holder of Preferred Stock a certificate or certificates for the number of shares of Common Stock to which such holder shall be entitled, together with cash in lieu of any fraction of a share.

5.3.2 Reservation of Shares. The Corporation shall at all times when any Preferred Stock shall be outstanding, reserve and keep available out of its authorized but unissued stock, for the purpose of effecting the conversion of the Preferred Stock, such number of its duly authorized shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding Preferred Stock. Before taking any action which would cause an adjustment reducing any of the Conversion Prices below the then par value of the shares of Common Stock issuable upon conversion of the Preferred Stock, the Corporation will take any corporate action which may, in the opinion of its counsel, be necessary in order that the Corporation may validly and legally issue fully paid and nonassessable shares of Common Stock at such adjusted Conversion Prices.

5.3.3 No Further Adjustment. Upon any such conversion, no adjustment to the Conversion Prices shall be made for any declared but unpaid dividends on the Preferred Stock surrendered for conversion or on the Common Stock delivered upon conversion.

5.3.4 Effect of Conversion. All shares of Preferred Stock which shall have been surrendered for conversion as herein provided shall no longer be deemed to be outstanding and all rights with respect to such shares, including the rights, if any, to receive notices and to vote such shares of Preferred Stock, shall immediately cease and terminate on the Conversion Date, except only the right of the holders thereof to receive shares of Common Stock in exchange therefor and payment of any dividends declared but unpaid thereon and cash in lieu of any fraction of a share. Any shares of Preferred Stock so converted shall be retired and cancelled and shall not be reissued, and the Corporation (without the need for stockholder action) may from time to time take such appropriate action as may be necessary to reduce the authorized number of shares of Preferred Stock and the number of shares of Series A-1 Preferred Stock, Series A-2 Preferred Stock, Series B Preferred Stock, Series C Preferred Stock and/or Series D Preferred Stock accordingly.

5.3.5 Taxes. The Corporation shall pay any and all issue and other taxes that may be payable in respect of any issuance or delivery of shares of Common Stock upon conversion of shares of Preferred Stock pursuant to this Section 5. The Corporation shall not, however, be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of shares of Common Stock in a name other than that in which the shares of Preferred Stock so converted were registered, and no such issuance or delivery shall be made unless and until the person or entity requesting such issuance has paid to the Corporation the amount of any such tax or has established, to the satisfaction of the Corporation, that such tax has been paid.

5.4 Adjustments to Conversion Price for Diluting Issues.

5.4.1 Special Definitions. For purposes of this Article FOURTH, the following definitions shall apply:

(a) **"Option"** shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.

(b) **"Convertible Securities"** shall mean any evidences of indebtedness, shares or other securities directly or indirectly convertible into or exchangeable for Common Stock, but excluding Options.

(c) "Additional Shares of Common Stock" shall mean all shares of Common Stock issued (or, pursuant to Subsection 5.4.3 below, deemed to be issued) by the Corporation after the date hereof other than (1) the following shares of Common Stock and (2) shares of Common Stock so deemed issued pursuant to the following Options and Convertible Securities (clauses (1) and (2), collectively, **"Exempted Securities"):**

(i) shares of Common Stock issued or issuable upon conversion of shares of Preferred Stock issued as of the date hereof or issued after the date hereof under the Purchase Agreement;

(ii) shares of Common Stock issued or issuable as a dividend or distribution on Preferred Stock;

(iii) shares of Common Stock issued or issuable by reason of a dividend, stock split, split-up or other distribution on shares of Common Stock that is covered by Subsection 5.5 or 5.6 below;

(iv) up to 6,433,620 shares (inclusive of shares of Common Stock or stock options previously issued pursuant to a plan, and

appropriately adjusted to take account of any stock split, stock dividend, combination of shares or the like) of Common Stock (or Options with respect thereto) issued or issuable to employees or directors of, or consultants to, the Corporation pursuant to a plan or arrangement in effect prior to the issuance of any Series D Preferred Stock or a plan or arrangement approved by the Board of Directors of the Corporation or any combination of such plans; or

(v) shares of Common Stock (including Options or Convertible Securities) (a) issued solely in consideration for the acquisition (whether by merger or otherwise) by the Corporation of all or substantially all of the capital stock or assets of any other corporation or entity, or (b) issued in connection with an equipment financing, line of credit or other lending arrangement; provided, however, the issuance of such shares pursuant to (a) or (b) above is approved by holders of at least a majority of the then outstanding shares of Preferred Stock voting together as a single class on an as-converted to Common Stock basis.

5.4.2 No Adjustment of Conversion Prices. No adjustment in the number of shares of Common Stock into which a share of any series of Preferred Stock is convertible shall be made by adjustment in the Conversion Price applicable to such series of Preferred Stock unless the consideration per share (determined pursuant to Subsection 5.4.5) for an Additional Share of Common Stock issued or deemed to be issued by the Corporation is less than such applicable Conversion Price as in effect immediately prior to the issue of such Additional Share of Common Stock. Further, no adjustment shall be made to the Conversion Price applicable to a series of Preferred Stock if the Corporation receives written notice from the holders of at least a majority of the then outstanding shares of such series of Preferred Stock agreeing that no such adjustment shall be made as the result of the issuance of Additional Shares of Common Stock.

5.4.3 Issue of Securities Deemed Issue of Additional Shares of Common Stock. If the Corporation at any time or from time to time hereafter shall issue any Options or Convertible Securities (excluding Options or Convertible Securities which are themselves Exempted Securities) or shall fix a record date for the determination of holders of any class of securities entitled to receive any such Options or Convertible Securities, then the

maximum number of shares of Common Stock (as set forth in the instrument relating thereto without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or, in the case of Convertible Securities and Options therefor, the conversion or exchange of such Convertible Securities, shall be deemed to be Additional Shares of Common Stock issued as of the time of such issue or, in case such a record date shall have been fixed, as of the close of business on such record date, provided that Additional Shares of Common Stock shall not be deemed to have been issued unless the consideration per share (determined pursuant to Subsection 5.4.5 hereof) of such Additional Shares of Common Stock would be less than the Series A-1 Conversion Price, Series A-2 Conversion Price, Series B Conversion Price, Series C Conversion Price or Series D Conversion Price, as applicable, in effect on the date of and immediately prior to such issue, or such record date, as the case may be, and provided further that in any such case in which Additional Shares of Common Stock are deemed to be issued:

(a) No further adjustment in any of the Conversion Prices shall be made upon the subsequent issue of Convertible Securities or shares of Common Stock upon the exercise of such Options or conversion or exchange of such Convertible Securities;

(b) If such Options or Convertible Securities by their terms provide, with the passage of time or otherwise, for any increase or decrease in the consideration payable to the Corporation, then upon the exercise, conversion or exchange thereof, the Conversion Prices computed upon the original issue thereof (or upon the occurrence of a record date with respect thereto), and any subsequent adjustments based thereon, shall, upon any such increase or decrease becoming effective, be recomputed to reflect such increase or decrease insofar as it affects such Options or the rights of conversion or exchange under such Convertible Securities;

(c) Upon the termination of any Option or any right to convert or exchange any Convertible Securities as to which an adjustment in either of the Conversion Price pursuant to Subsection 5.4.4 has previously been made upon the grant or issuance thereof, the Conversion Price(s) then in effect hereunder shall forthwith be increased to the Conversion Price(s) which would have been in effect at the time of such termination had such Option or Convertible Securities, to the extent outstanding immediately prior to such termination, never been issued;

(d) In the event of any change in the number of shares of Common Stock issuable upon the exercise, conversion or exchange of any such Option or Convertible Security, including, but not limited to, a change resulting from the anti-dilution provisions thereof, the Conversion Price(s) then in effect shall forthwith be readjusted to such Conversion Price(s) as would have obtained had the adjustment which was made upon the issuance of such Option or Convertible Security not exercised, converted or exchanged prior to such change been made upon the basis of such change; and

(e) No readjustment pursuant to clause (b), (c) or (d) above shall have the effect of increasing either of the Conversion Prices to an amount which exceeds the lower of (i) the Conversion Price(s) immediately preceding adjustment on the original adjustment date, or (ii) the Conversion Price(s) that would have resulted from any issuances of Additional Shares of Common Stock between the original adjustment date and such readjustment date.

In the event the Corporation amends the terms of any such Options or Convertible Securities so as to change the number of securities for which they are exercisable, convertible or exchangeable or the consideration payable thereunder, then such Options or Convertible Securities, as so amended, shall be deemed to have been issued after the date hereof and the provisions of this Subsection 5.4.3 shall apply.

5.4.4 Adjustment of Conversion Prices Upon Issuance of Additional Shares of Common Stock In the event the Corporation shall at any time hereafter issue Additional Shares of Common Stock (including Additional Shares of Common Stock deemed to be issued pursuant to Subsection 5.4.3), without consideration or for a consideration per share less than Series A-1 Conversion Price, the Series A-2 Conversion Price, the Series B Conversion Price, the Series C Conversion Price or the Series D Conversion Price in effect immediately prior to such issue, then and in such event, the applicable Conversion Price(s) shall be reduced, concurrently with such issue, to a price (calculated to the nearest cent) determined in accordance with the following formula:

$$CP2 = CP1* (A+ B) + (A+ C).$$

For purposes of the foregoing formula, the following definitions shall apply:

(a) “CP2” shall mean the Series A-1 Conversion Price, the Series A-2 Conversion Price, the Series B Conversion Price, the Series C Conversion Price or the Series D Conversion Price, as applicable, in effect immediately after such issue of Additional Shares of Common Stock;

(b) “CP1” shall mean the Series A-1 Conversion Price, the Series A-2 Conversion Price, the Series B Conversion Price, the Series C Conversion Price or the Series D Conversion Price, as applicable, in effect immediately prior to such issue of Additional Shares of Common Stock;

(c) “A” shall mean the number of shares of Common Stock outstanding immediately prior to such issue of Additional Shares of Common Stock;

(d) “B” shall mean the number of shares of Common Stock that would have been issued if such Additional Shares of Common Stock had been issued at a price per share equal to CP1 (determined by dividing the aggregate consideration received by the Corporation in respect of such issue by CP1); and

(e) "C" shall mean the number of such Additional Shares of Common Stock issued in such transaction.

For the purpose of this Subsection 5.4.4, (i) all shares of Common Stock issuable upon conversion or exchange of Convertible Securities or Options outstanding immediately prior to such issue shall be deemed to be outstanding, and (ii) the number of shares of Common Stock deemed issuable upon conversion or exchange of such outstanding Convertible Securities shall not give effect to any adjustments to the conversion or exchange price or conversion or exchange rate of such Convertible Securities resulting from the issuance of Additional Shares of Common Stock that is the subject of this calculation.

5.4.5 Determination of Consideration. For purposes of this Subsection 5.4, the consideration received by the Corporation for the issue of any Additional Shares of Common Stock shall be computed as follows:

(a) Cash and Property: Such consideration shall:

(i) insofar as it consists of cash, be computed at the aggregate of cash received by the Corporation, excluding amounts paid or payable for accrued interest;

(ii) insofar as it consists of property other than cash, be computed at the fair market value thereof at the time of such issue, as determined in good faith by the Board of Directors; and

(iii) in the event Additional Shares of Common Stock are issued together with other shares or securities or other assets of the Corporation for consideration which covers both, be the proportion of such consideration so received, computed as provided in clauses (i) and (ii) above, as determined in good faith by the Board of Directors.

(b) Options and Convertible Securities. The consideration per share received by the Corporation for Additional Shares of Common Stock deemed to have been issued pursuant to Subsection 5.4.3, relating to Options and Convertible Securities, shall be determined by dividing

(i) the total amount, if any, received or receivable by the Corporation as consideration for the issue of such Options or Convertible Securities, plus the minimum aggregate amount of additional consideration (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent

adjustment of such consideration) payable to the Corporation upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities, by

(ii) the maximum number of shares of Common Stock (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or the conversion or exchange of such Convertible Securities.

5.4.6 Multiple Closing Dates. In the event the Corporation shall issue on more than one date Additional Shares of Common Stock which are comprised of shares of the same series of Preferred Stock, and such issuance dates occur within a period of no more than 120 days, then, upon the final such issuance, the applicable Conversion Prices shall be adjusted to give effect to all such issuances as if they occurred on the date of the final such issuance (and without giving effect to any adjustments as a result of such prior issuances within such period).

5.5 Adjustment for Stock Splits and Combinations. If the Corporation shall at any time or from time to time after the date hereof effect a subdivision of the outstanding Common Stock, the Conversion Prices then in effect immediately before that subdivision shall be proportionately decreased. If the Corporation shall at any time or from time to time after the date hereof combine the outstanding shares of Common Stock, the Conversion Prices then in effect immediately before the combination shall be proportionately increased. Any adjustment under this paragraph shall become effective at the close of business on the date the subdivision or combination becomes effective.

5.6 Adjustment for Certain Dividends and Distributions. In the event the Corporation at any time, or from time to time after the date hereof shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive a dividend or other distribution payable in additional shares of Common Stock, then and in each such event each Conversion Price then in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the applicable Conversion Price then in effect by a fraction:

(a) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and

(b) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution;

provided, however, if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the Conversion Prices shall be recomputed accordingly as of the close of business on such record date and thereafter the Conversion Prices shall be adjusted pursuant to this paragraph as of the time of actual payment of such dividends or distributions; and provided further, however, that no such adjustment shall be made if the holders of Preferred Stock simultaneously receive (i) a dividend or other distribution of shares of Common Stock in a number equal to the number of shares of Common Stock as they would have received if all outstanding shares of Preferred Stock had been converted into Common Stock on the date of such event or (ii) a dividend or other distribution of shares of Preferred Stock which are convertible, as of the date of such event, into such number of shares of Common Stock as is equal to the number of additional shares of Common Stock being issued with respect to each share of Common Stock in such dividend or distribution.

5.7 Adjustments for Other Dividends and Distributions. In the event the Corporation at any time or from time to time after the date hereof shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive a dividend or other distribution payable in securities of the Corporation (other than shares of Common Stock) or in cash or other property (other than cash out of earnings or earned surplus, determined in accordance with generally accepted accounting principles), then and in each such event provision shall be made so that the holders of the Preferred Stock shall receive upon conversion thereof in addition to the number of shares of Common Stock receivable thereupon, the amount of securities of the Corporation that they would have received had the Preferred Stock been converted into Common Stock on the date of such event and had they thereafter, during the period from the date of such event to and including the conversion date, retained such securities receivable by them as aforesaid during such period, giving application to all adjustments called for during such period under this paragraph with respect to the rights of the holders of the Preferred Stock; and provided further, however, that no such adjustment shall be made if the holders of Preferred Stock simultaneously receive a dividend or other distribution of such securities in an amount equal to the amount of such securities as they would have received if all outstanding shares of Preferred Stock had been converted into Common Stock on the date of such event.

5.8 Adjustment for Merger or Reorganization. etc. Subject to the provisions of Section 3.3, if there shall occur any reorganization, recapitalization, consolidation or merger involving the Corporation in which the Common Stock is converted into or exchanged for securities, cash or other property (other than a transaction covered by Sections 5.5, 5.6 or 5.7), then, following any such reorganization, recapitalization, consolidation or merger, each

share of each senes of Preferred Stock shall be convertible into the kind and amount of securities, cash or other property which a holder of the number of shares of Common Stock of the Corporation issuable upon conversion of one share of such series of Preferred Stock immediately prior to such reorganization, recapitalization, consolidation or merger would have been entitled to receive pursuant to such transaction; and, in such case, appropriate adjustment (as determined in good faith by the Board of Directors) shall be made in the application of the provisions in this Section 5 set forth with respect to the rights and interest thereafter of the holders of the Preferred Stock, to the end that the provisions set forth in this Section 5 (including provisions with respect to changes in and other adjustments of the Conversion Prices) shall thereafter be applicable, as nearly as reasonably may be, in relation to any shares of stock or other property thereafter deliverable upon the conversion of the Preferred Stock.

5.9 Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of either of the Conversion Prices pursuant to this Section 5, the Corporation at its expense shall promptly compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of any applicable series of Preferred Stock a certificate setting forth such adjustment or readjustment and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, upon the written request at any time of any holder of Preferred Stock, furnish or cause to be furnished to such holder a certificate setting forth (i) the Conversion Prices then in effect, and (ii) the number of shares of Common Stock and the amount, if any, of other securities, cash or property which then would be received upon the conversion of each such series of Preferred Stock.

5.10 Notice of Record Date. In the event:

5.10.1 the Corporation shall take a record of the holders of its Common Stock (or other stock or securities at the time issuable upon conversion of the Preferred Stock) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of stock of any class or any other securities, or to receive any other right; or

5.10.2 of any capital reorganization of the Corporation, any reclassification of the Common Stock of the Corporation, any consolidation or merger of the Corporation with or into another corporation (other than a consolidation or merger in which the Corporation is the surviving entity and its Common Stock is not converted into or exchanged for any other securities or property), or any transfer of all or substantially all of the assets of the Corporation; or

5.10.3 of the voluntary or involuntary dissolution, liquidation or winding-up of the Corporation or any Event,

then, and in each such case, the Corporation will mail or cause to be mailed to the holders of the Preferred Stock a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation, winding-up or Event is to take place, and the time, if any is to be fixed,

as of which the holders of record of Common Stock (or such other stock or securities at the time issuable upon the conversion of the Preferred Stock) shall be entitled to exchange their shares of Common Stock (or such other stock or securities) for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation, winding-up or Event. Such notice shall be mailed at least 10 days prior to the record date or effective date for the event specified in such notice.

6. Mandatory Conversion.

6.1 Trigger Events. Upon either (a) the closing of the sale of shares of Common Stock in an underwritten firm commitment public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, in which (i) the price to the public per share is at least $9.83 (subject to equitable adjustment for any stock dividend, stock split, stock split-up, combination of shares or the like) and (ii) the aggregate offering price is at least $50,000,000 (based on the market price or fair value at the time of such offering) (a **"Qualified IPO")** or (b) the date and time, or the occurrence of an event, specified by vote or written consent of the holders of Preferred Stock holding at least 75% of the shares of Preferred Stock then outstanding voting together as a single class on an as-converted to Common Stock basis (the time of such closing or the date and time specified or the time of the event specified in such vote or written consent is referred to herein as the **"Mandatory Conversion Date"),** all outstanding shares of Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective applicable conversion rate and such shares may not be reissued by the Corporation, and all provisions included under the caption "Preferred Stock", and all references to the Preferred Stock, shall be deleted and shall be of no further force or effect.

6.2 Procedural Requirements. All holders of record of shares of Preferred Stock shall be given written notice of the relevant Mandatory Conversion Date and the place designated for mandatory conversion of all such Preferred Stock pursuant to this Section 6. Such notice need not be given in advance of the occurrence of the Mandatory Conversion Date. Such notice shall be sent by first class or registered mail, postage prepaid, to each record holder of Preferred Stock at such holder's address last shown on the records of the transfer agent for the Preferred Stock (or the records of the Corporation, if it serves as its own transfer agent). Upon receipt of such notice, each holder of shares of Preferred Stock shall surrender his, her or its certificate or certificates for all such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice, and shall thereafter receive certificates for the number of shares of Common Stock to which such holder is entitled pursuant to this Section 6. On the Mandatory Conversion Date, all outstanding shares of Preferred Stock shall be deemed to have been converted into shares of Common Stock, which shall be deemed to be outstanding of record, and all rights with respect to the Preferred Stock so converted, including the rights, if any, to receive notices and vote (other than as a holder of Common Stock) will terminate, except for the rights of the holders thereof, upon surrender of their certificate or certificates (or lost certificate affidavit and agreement) therefor, to receive certificates for the number of shares of Common Stock into which such Preferred Stock has been converted, and payment of any

declared but unpaid dividends thereon. If so required by the Corporation, certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by his, her or its attorney duly authorized in writing. As soon as practicable after the Mandatory Conversion Date and the surrender of the certificate or certificates for such Preferred Stock (or lost certificate affidavit and agreement), the Corporation shall cause to be issued and delivered to such holder, or on his, her or its written order, a certificate or certificates for the number of full shares of Common Stock issuable on such conversion in accordance with the provisions hereof and cash as provided in Subsection 5.2 in respect of any fraction of a share of Common Stock otherwise issuable upon such conversion.

6.3 All certificates evidencing shares of Preferred Stock which are required to be surrendered for conversion in accordance with the provisions hereof shall, from and after the Mandatory Conversion Date, be deemed to have been retired and cancelled and the shares of Preferred Stock represented thereby converted into Common Stock for all purposes, notwithstanding the failure of the holder or holders thereof to surrender such certificates on or prior to such date. Such converted Preferred Stock may not be reissued, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

7. Redemption.

7.1 Subject to the provisions of Section 7.5, at the written election of holders of at least a majority of the outstanding shares of Preferred Stock voting together as a single class on an as-converted to Common Stock basis made at any time on or after the fifth anniversary of the first date of issuance of a share of Series D Preferred Stock (the **"Redemption Election"),** the Corporation shall be required to redeem all, but not less than all, of the outstanding shares of Preferred Stock in three equal annual installments, upon the terms set forth in this Section 7. The first installment of such redemption (the **"First Redemption Date")** shall occur on the date specified in the Redemption Election, which shall be not less than ninety days after the date of the Redemption Election, and the second and third installhnents of such redemption shall occur on the first and second anniversaries, respectively, of the First Redemption Date. The Corporation shall redeem one-third of the outstanding shares of Preferred Stock held by each holder on the First Redemption Date, one half of the outstanding shares of Preferred Stock held by each holder on the first anniversary thereof and the remaining shares on the second anniversary thereof. On each such redemption date, the holders shall surrender the certificate or certificates for the shares to be redeemed (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate), duly endorsed for transfer or with duly executed stock transfer powers sufficient to permit transfer attached, at the offices of the Corporation or of any transfer agent for the Preferred Stock. The Corporation shall, as soon as practicable thereafter, issue and deliver to each holder a certificate or certificates for the balance of the shares not being redeemed. The redemption price per share of each series of Preferred Stock shall be equal to the Original Issue Price for such series of Preferred Stock, in each case subject to equitable adjustment for any stock dividend, stock split, stock split-up, combination of shares or the like, plus all dividends declared but unpaid on such share on the applicable redemption date.

7.2 Notice of redemption shall be sent by first class mail, postage prepaid, to each holder of record of the Preferred Stock, not less than thirty days nor more than sixty days prior to the First Redemption Date, at the address of such holder as it appears on the books of the Corporation. Such notice shall set forth: (i) the First Redemption Date, the dates of the second and third installments of such redemption, and the place of redemption; and (ii) the number of shares to be redeemed on each date of redemption and the redemption price on each such date. The Corporation shall be obligated to redeem the Preferred Stock on the dates and in the amounts set forth in the notice; provided, however, that any holder of Preferred Stock who is not party to a Redemption Election may convert any or all of the shares owned by such holder into Common Stock in accordance with Section 5 at any time prior to the First Redemption Date. The Corporation, if advised before the First Redemption Date by written notice from any holder of record of Preferred Stock to be redeemed who is not a party to a Redemption Election, shall credit against the number of shares of Preferred Stock required to be redeemed from such holder, and shall not redeem, the number of shares of Preferred Stock which had been converted by such holder on or before such date and which had not previously been credited against any redemption.

7.3 If, on or before a redemption date, the funds necessary for such redemption shall have been set aside by the Corporation and deposited with a bank or trust company, in trust for the pro rata benefit of the holders of the Preferred Stock that has been called for redemption, then, notwithstanding that any certificates for shares that have been called for redemption shall not have been surrendered for cancellation, the shares represented thereby shall no longer be deemed outstanding from and after such redemption date, and all rights of holders of such shares so called for redemption shall forthwith, after such redemption date, cease and terminate with respect to such shares, excepting only the right to receive the redemption funds therefor to which they are entitled. Any interest accrued on funds so deposited and unclaimed by stockholders entitled thereto shall be paid to such stockholders at the time their respective shares are redeemed or to the Corporation at the time unclaimed amounts are paid to it. In case the holders of Preferred Stock which shall have been called for redemption shall not, within six years after the final redemption date, claim the amounts so deposited with respect to the redemption thereof, any such bank or trust company shall, upon demand, pay over to the Corporation such unclaimed amounts and thereupon such bank or trust company shall be relieved of all responsibility in respect thereof to such holder and such holder shall look only to the Corporation for the payment thereof. Any funds so deposited with a bank or trust company which shall not be required for such redemption by reason of the exercise subsequent to the date of such deposit of the right of conversion of any shares or otherwise shall be returned to the Corporation forthwith.

7.4 If the Corporation for any reason fails to redeem any of the shares of Preferred Stock in accordance with Section 7.1 on or prior to the redemption dates determined in accordance with this Section 7, then, the Corporation shall become obligated to pay, in addition to the redemption price specified in Section 7.1, interest on the unpaid balance of such price, which shall accrue at a rate of one percent (1%) per month until such price is paid in full. For the purposes of this Section 7.4, shares of Preferred Stock for which funds have been set aside and deposited as provided in Section 7.3 shall be deemed to be redeemed.

7.5 If the funds of the Corporation legally available for redemption of shares of Preferred Stock on a redemption date are insufficient to redeem the total number of shares of Preferred Stock submitted for redemption, those funds which are legally available will be used: (i) first to redeem the maximum possible number of whole shares of Series D Preferred Stock ratably among the holders of such shares until redeemed in full; (ii) next to redeem the maximum possible number of whole shares of Series C Preferred Stock ratably among the holders of such shares until redeemed in full; (iii) next to redeem the maximum possible number of whole shares of Series B Preferred Stock ratably among the holders of such shares until redeemed in full; and (iv) next to redeem the maximum possible number of whole shares of Series A Preferred Stock ratably among the holders of such shares until redeemed in full. The shares of Preferred Stock not redeemed shall remain outstanding and entitled to all rights and preferences provided herein (including the accrual of interest as set forth in Section 7.4). At any time thereafter when additional funds of the Corporation are legally available for the redemption of shares of Preferred Stock, such funds will be used, at the end of the next succeeding fiscal quarter, to redeem the balance of such shares which the Corporation has become obliged to redeem but which it has not yet redeemed, or such portion thereof for which funds are then legally available, in each case based on the order of preferences set forth in this Section 7.5.

7.6 The Corporation may also redeem shares of its capital stock from the Bill & Melinda Gates Foundation (or any of its affiliates) pursuant to the terms and conditions of that certain letter agreement between the Corporation and such party, effective as of the date hereof and as the same may be amended from time to time. During any time that a "Charitability Default" (as defined thereunder) is continuing, the right of the Bill & Melinda Gates Foundation to be redeemed pursuant to this Section 7.6 shall be in priority to any other redemption rights of the holders of Preferred Stock under this Section 7.

8. Redeemed or Otherwise Acquired Shares. Any shares of Preferred Stock that are redeemed or otherwise acquired by the Corporation or any of its subsidiaries shall be automatically and immediately cancelled and retired and shall not be reissued, sold or transferred. Neither the Corporation nor any of its subsidiaries may exercise any voting or other rights granted to the holders of Preferred Stock following redemption.

9. Waiver or Amendment. Any of the rights of the holders of Preferred Stock set forth herein may be waived or amended by the affirmative written consent or vote of the holders of at least majority of the shares of Preferred Stock then outstanding voting together as a single class on an as-converted to Common Stock basis, except (a) if the provision being waived or amended, by its terms or pursuant to the General Corporation Law, specifically requires a higher threshold or different threshold for actions taken thereunder, then such higher threshold or different threshold shall be required for any waiver or amendment thereof, and (b) any such waiver or amendment to Section 7.6 shall also require the affirmative written consent or vote of the Bill & Melinda Gates Foundation.

10. Notices. Any notice required or permitted by the provisions of this Article FOURTH to be given to a holder of shares of Preferred Stock shall be mailed, postage prepaid, to the post office address last shown on the records of the Corporation, or given by electronic communication in compliance with the provisions of the General Corporation Law, and shall be deemed sent upon such mailing or electronic transmission.

FIFTH: Subject to any additional vote, limitations or exceptions required by the Certificate of Incorporation or the Bylaws of the Corporation, in furtherance of and not in limitation of powers conferred by statute, it is further provided that:

A. The Bylaws of the Corporation may be adopted, amended or repealed by the board of directors of the Corporation; and

B. Elections of directors need not be by written ballot unless, and only to the extent, otherwise provided in the Bylaws of the Corporation; and

C. Subject to any applicable requirements of law, meetings of stockholders may be held within or without the State of Delaware, as the Bylaws of the Corporation may provide, and the books of the Corporation may be kept outside the State of Delaware at such location or locations as may be designated by the board of directors of the Corporation or in the Bylaws of the Corporation; and

SIXTH: Subject to any additional vote required by the Certificate of Incorporation of the Corporation, the number of directors of the Corporation shall be determined in the manner set forth in the Bylaws of the Corporation or any applicable voting agreement among the Corporation and holders of at least a majority of the outstanding shares of Common Stock voting as a single class on an as-converted to Common Stock basis.

SEVENTH: The Corporation shall indemnify each person who at any time is, or shall have been, a director or officer of the Corporation and was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he or she is or was a director or officer of the Corporation, or is or was serving at the request of the Corporation as a director, officer, employee, or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement incurred in connection with any such action, suit or proceeding, to the maximum extent permitted by the General Corporation Law of the State of Delaware, as the same exists or may hereafter be amended; provided, however, that the foregoing shall not require the Corporation to indemnify or advance expenses to any person in connection with any action, suit, proceeding, claim or counterclaim initiated by or on behalf of such person. The foregoing right of indemnification shall in no way be exclusive of any other rights of indemnification to which any such director or officer may be entitled, under any by-law, agreement, vote of directors or stockholders or otherwise. No amendment to or repeal of the provisions of this Article SEVENTH shall deprive a director or officer of the benefit hereof with respect to any act or failure to act occurring prior to such amendment or repeal. In furtherance of and not in limitation of the foregoing, the Corporation shall advance the reasonable expenses, including attorneys'

fees, incurred by an officer or director of the Corporation in defending any civil, criminal, administrative or investigative action, suit or proceeding in advance of the final disposition of such action, suit or proceeding upon receipt of a written undertaking, satisfactory to the Corporation, by or on behalf of such director or officer to repay such advances if it shall be ultimately determined that he is not entitled to be indemnified by the Corporation.

EIGHTH: Whenever a compromise or arrangement is proposed between the Corporation and its creditors or any class of them or between this Corporation and its stockholders or any class of them, any court of equitable jurisdiction within the State of Delaware may, on the application in a summary way of this Corporation or of any creditor or stockholder thereof or on the application of any receiver or receivers appointed for this Corporation under Section 291 of Title 8 of the Delaware Code or on the application of trustees in dissolution or of any receiver or receivers appointed for this Corporation under Section 279 of Title 8 of the Delaware Code order a meeting of the creditors or class of creditors, and/or of the stockholders or class of stockholders of this Corporation, as the case may be, to be summoned in such manner as the said court directs. If a majority in number representing three-fourths in value of the creditors or class of creditors, and/or of the stockholders or class of stockholders of this Corporation, as the case may be, agree to any compromise or arrangement and to any reorganization of this Corporation as a consequence of such compromise or arrangement, the said compromise or arrangement and the said reorganization shall, if sanctioned by the court to which the said application has been made, be binding on all the creditors or class of creditors, and/or on all the stockholders or class of stockholders, of this Corporation, as the case may be, and also on this Corporation.

NINTH: No director of the Corporation shall be personally liable to the Corporation or to any of its stockholders for monetary damages arising out of such director's breach of fiduciary duty as a director of the Corporation, except to the extent that the elimination or limitation of such liability is not permitted by the General Corporation Law, as the same exists or may hereafter be amended. No amendment to or repeal of the provisions of this Article NINTH shall deprive any director of the Corporation of the benefit hereof with respect to any act or failure to act of such director occurring prior to such amendment or repeal.

TENTH: The Corporation renounces, to the fullest extent permitted by law, any interest or expectancy of the Corporation in, or in being offered an opportunity to participate in, any Excluded Opportunity. An **"Excluded Opportunity"** is any matter, transaction or interest that is presented to, or acquired, created or developed by, or which otherwise comes into the possession of, (i) any director of the Corporation who is not an employee of the Corporation or any of its subsidiaries, or (ii) any holder of Preferred Stock or any partner, member, director, stockholder, employee or agent of any such holder, other than someone who is an employee of the Corporation or any of its subsidiaries (collectively, **"Covered Persons"),** unless such matter, transaction or interest is presented to, or acquired, created or developed by, or otherwise comes into the possession of, a Covered Person expressly and solely in such Covered Person's capacity as a director of the Corporation.

ELEVENTH: Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery in the State of Delaware shall be the sole and exclusive forum for all "internal corporate claims." "Internal corporate claims" mean claims, including claims in the right of the Corporation, (i) that are based upon a violation of a duty by a current or former director or officer or stockholder in such capacity or (ii) as to which Title 8 of the Delaware Code confers jurisdiction upon the Court of Chancery, except for, as to each of (i) and (ii) above, any claim as to which the Court of Chancery determines that there is an indispensable party not subject to the jurisdiction of the Court of Chancery (and the indispensable party does not consent to the personal jurisdiction of the Court of Chancery within ten (10) days following such determination), which is vested in the exclusive jurisdiction of a court or forum other than the Court of Chancery, or for which the Court of Chancery does not have subject matter jurisdiction. If any provision or provisions of this Article ELEVENTH shall be held to be invalid, illegal or unenforceable as applied to any person or entity or circumstance for any reason whatsoever, then, to the fullest extent permitted by law, the validity, legality and enforceability of such provisions in any other circumstance and of the remaining provisions of this Article ELEVENTH (including, without limitation, each portion of any sentence of this Article ELEVENTH containing any such provision held to be invalid, illegal or unenforceable that is not itself held to be invalid, illegal or unenforceable) and the application of such provision to other persons or entities and circumstances shall not in any way be affected or impaired thereby.

* * *

3. That the foregoing amendment and restatement was approved by the holders of the requisite number of shares of this corporation in accordance with Section 228 of the General Corporation Law.

4. That this Third Amended and Restated Certificate of Incorporation, which restates and integrates and further amends the provisions of this Corporation's Second Amended and Restated Certificate of Incorporation, as amended, has been duly adopted in accordance with Sections 242 and 245 of the General Corporation Law.

* * *

IN **WITNESS WHEREOF,** this Third Amended and Restated Certificate of Incorporation has been executed by a duly authorized officer of this corporation on this 24th day of April, 2017.

By: /s/ Rene Russo

Rene Russo, Chief Executive Officer

RESTATED BY-LAWS

OF

ARSANIS, INC.

Adopted July 29, 2013

(As amended through April 12, 2016)

Table of Contents

Exhibit 3.2

AMENDED AND RESTATED

BY-LAWS

Section 1. NAME

1.1 The name of the corporation is Arsanis, Inc.

Section 2. OFFICES

2.1 Registered Office. The registered office shall be in the City of Wilmington, County of New Castle, State of Delaware.

2.2 Other Offices. The corporation may also have offices at such other places both within and without the State of Delaware as the board of directors may from time to time determine or the business of the corporation may require.

Section 3. STOCKHOLDERS

3.1 Location of Meetings. All meetings of the stockholders shall be held at such place either within or without the State of Delaware as shall be designated from time to time by the board of directors, or if not so designated, at the registered office of the corporation. Notwithstanding the foregoing, the board of directors may, in its sole discretion, determine that the meeting shall not be held at any place, but may instead be held solely by means of remote communication as authorized by Section 211(a)(2) of the Delaware General Corporation Law. If so authorized, and subject to such guidelines and procedures as the board of directors may adopt, stockholders and proxyholders not physically present at a meeting of stockholders may, by means of remote communication, participate in a meeting of stockholders whether such meeting is to be held at a designated place or solely by means of remote communication, provided that (i) the corporation shall implement reasonable measures to verify that each person deemed present and permitted to vote at the meeting by means of remote communication is a stockholder or proxyholder, (ii) the corporation shall implement reasonable measures to provide such stockholders and proxyholders a reasonable opportunity to participate in the meeting and to vote on matters submitted to the stockholders, including an opportunity to read or hear the proceedings of the meeting substantially concurrently with such proceedings, and (iii) if any stockholder or proxyholder votes or takes other action at the meeting by means of remote communication, a record of such vote or other action shall be maintained by the corporation. Any adjourned session of any meeting shall be held at the place designated in the vote of adjournment.

3.2 Annual Meeting. The annual meeting of stockholders shall be held at 10:00 a.m. on the second Wednesday in May for each year, unless that day be a legal holiday at the place where the meeting is to be held, in which case the meeting shall be held at the same hour on the next succeeding day not a legal holiday, or at such other date and time as shall be designated from time to time by the board of directors, at which they shall elect a board of directors and transact such other business as may be required by law or these by-laws or as may properly come before the meeting.

3.3 Special Meetings. Special meetings of the stockholders, for any purpose or purposes, unless otherwise prescribed by law or by the certificate of incorporation, may be called by the president and shall be called by the president or secretary at the request in writing of a majority of the board of directors, or at the request in writing of the holders of at least a majority of all capital stock of the corporation issued and outstanding and entitled to vote at such meeting. Such request shall state the purpose or purposes of the proposed meeting and business to be transacted at any special meeting of the stockholders.

3.4 Notice of Meetings. Except as otherwise provided by law, whenever stockholders are required or permitted to take any action at a meeting, written notice of the meeting stating the place, date and hour of the meeting and, in the case of a special meeting, the purposes for which the meeting is called, shall be given to each stockholder entitled to vote at such meeting not less than ten nor more than sixty days before the date of the meeting. No action shall be taken at such meeting unless such notice is given, or unless waiver of such notice is given by the holders of outstanding stock having not less than the minimum number of votes necessary to take such action at a meeting at which all shares entitled to vote thereon were voted. Prompt notice of all action taken in connection with such waiver of notice shall be given to all stockholders not present or represented at such meeting.

3.5 Stockholder List. The officer who has charge of the stock ledger of the corporation shall prepare and make, at least 10 days before every meeting of stockholders, a complete list of the stockholders entitled to vote at the meeting; provided, however, if the record date for determining the stockholders entitled to vote is less than 10 days before the meeting date, the list shall reflect the stockholders entitled to vote as of the tenth day before the meeting date, arranged in alphabetical order, and showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder for any purpose germane to the meeting for a period of at least ten days prior to the meeting: (i) on a reasonably accessible electronic network, provided that the information required to gain access to such list is provided with the notice of the meeting, or (ii) during ordinary business hours, at the principal place of business of the corporation. In the event that the corporation determines to make the list available on an electronic network, the corporation may take reasonable steps to ensure that such information is available only to stockholders of the corporation. If the meeting is to be held at a place, then the list shall be produced and kept at the time and place of the meeting during the whole time thereof and may be examined by any stockholder who is present. If the meeting is to be held solely by means of remote communication, then such list shall also be open to the examination of any stockholder during the whole time of the meeting on a reasonably accessible electronic network, and the information required to access such list shall be provided with the notice of the meeting.

3.6 Quorum of Stockholders. The holders of a majority of the stock issued and outstanding and entitled to vote thereat, present in person or represented by proxy, shall constitute a quorum at all meetings of the stockholders for the transaction of business except as otherwise required by law, by the certificate of incorporation or by these by-laws. Except as otherwise provided by law, no stockholder present at a meeting may withhold his shares from the quorum count by declaring his shares absent from the meeting.

3.7 Adjournment. Any meeting of stockholders may be adjourned from time to time to any other time and to any other place at which a meeting of stockholders may be held under these by-laws, which time and place shall be announced at the meeting, by a majority of votes cast upon the question, whether or not a quorum is present, or, if no stockholder is present or represented by proxy, by any officer entitled to preside at or to act as secretary of such meeting. At such adjourned meeting at which a quorum shall be present or represented any business may be transacted which might have been transacted at the original meeting. If the adjournment is for more than thirty days, or if after the adjournment a new record date is fixed for the adjourned meeting, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting.

3.8 Voting; Proxies. Except as otherwise provided by the certificate of incorporation, each stockholder entitled to vote at any meeting of stockholders shall be entitled to one vote for each share of stock held by him which has voting power upon the matter in question. Every stockholder may authorize another person or persons to act for him by proxy in all matters in which a stockholder is entitled to participate, whether by waiving notice of any meeting, objecting to or voting or participating at a meeting, or expressing consent or dissent without a meeting. Every proxy must be signed by the stockholder or by his attorney-in-fact. No proxy shall be voted or acted upon after three years from its date unless such proxy provides for a longer period. Except as provided by law, a revocable proxy shall be deemed revoked if the stockholder is present at the meeting for which the proxy was given. A duly executed proxy shall be irrevocable if it states that it is irrevocable and, if, and only as long as, it is coupled with an interest sufficient in law to support an irrevocable power. A proxy may be made irrevocable regardless of whether the interest with which it is coupled is an interest in the stock itself or an interest in the corporation generally. The authorization of a proxy may but need not be limited to specified action, provided, however, that if a proxy limits its authorization to a meeting or meetings of stockholders, unless otherwise specifically provided such proxy shall entitle the holder thereof to vote at any adjourned session but shall not be valid after the final adjournment thereof.

3.9 Inspectors. The directors or the person presiding at the meeting may, and shall if required by law, appoint one or more inspectors of election and any substitute inspectors to act at the meeting or any adjournment thereof. Each inspector, before entering upon the discharge of his duties, shall take and sign an oath faithfully to execute the duties of inspector at such meeting with strict impartiality and according to the best of his ability. The inspectors, if any, shall determine the number of shares of stock outstanding and the voting power of each, the shares of stock represented at the meeting, the existence of a quorum and the validity and effect of proxies, and shall receive votes, ballots or consents, hear and determine all challenges and questions arising in connection with the right to vote, count and tabulate all votes, ballots or consents, determine the result, and do such acts as are proper to conduct the election or vote with fairness to all stockholders. On request of the person presiding at the meeting, the inspectors shall make a report in writing of any challenge, question or matter determined by them and execute a certificate of any fact found by them.

3.10 Action by Vote. When a quorum is present at any meeting, whether the same be an original or an adjourned session, a plurality of the votes properly cast for election to any office shall elect to such office and a majority of the votes properly cast upon any question other than an election to an office shall decide the question, except when a larger vote is required by law, by the certificate of incorporation or by these by-laws. No ballot shall be required for any election unless requested by a stockholder present or represented at the meeting and entitled to vote in the election.

3.11 Action Without Meetings. Unless otherwise provided in the certificate of incorporation, any action required to be taken at any annual or special meeting of stockholders of the corporation, or any action which may be taken at any annual or special meeting of such stockholders, may be taken without a meeting, without prior notice and without a vote, if a consent in writing, setting forth the action so taken shall be signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted and shall be delivered to the corporation by delivery to its registered office in Delaware by hand or certified or registered mail, return receipt requested, to its principal place of business or to an officer or agent of the corporation having custody of the book in which the proceedings of meetings of stockholders are recorded. Each such written consent shall bear the signature of each stockholder who signs the consent. No written consent shall be effective to take the corporate action referred to therein unless written consents signed by a number of stockholders sufficient to take such action are delivered to the corporation in the manner specified in this paragraph within sixty days of the earliest dated consent so delivered.

If action is taken by consent of stockholders and in accordance with the foregoing, there shall be filed with the records of the meetings of stockholders the writing or writings comprising such consent.

If action is taken by less than unanimous consent of stockholders, prompt notice of the taking of such action without a meeting shall be given to those who have not consented in writing and a certificate signed and attested to by the secretary of the corporation that such notice was given shall be filed with the records of the meetings of stockholders.

In the event the action which is consented to is such as would have required the filing of a certificate under any provision of the Delaware General Corporation Law, if such action had been voted upon by the stockholders at a meeting thereof, the certificate filed under such provision shall state, in lieu of any statement required by such provision concerning a vote of stockholders, that written consent has been given under Section 228 of said General Corporation Law.

3.12 Organization. Meetings of stockholders shall be presided over by the chairman of the board of directors, if any, or in his absence by the president, or in his absence by a vice president, or in the absence of the foregoing persons by a chairman chosen at the meeting by the

board. The secretary shall act as secretary of the meeting, but in his absence the chairman of the meeting may appoint any person to act as secretary of the meeting. The chairman of the meeting shall announce at the meeting of stockholders the date and time of the opening and the closing of the polls for each matter upon which the stockholders will vote.

3.13 Conduct of Meetings. The board of directors of the corporation may adopt by resolution such rules and regulations for the conduct of the meeting of stockholders as it shall deem appropriate. Except to the extent inconsistent with such rules and regulations as adopted by the board of directors, the chairman of any meeting of stockholders shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such chairman, are appropriate for the proper conduct of the meeting. Such rules, regulations or procedures, whether adopted by the board of directors or prescribed by the chairman of the meeting, may include, without limitation, the following: (i) the establishment of an agenda or order of business for the meeting; (ii) rules and procedures for maintaining order at the meeting and the safety of those present; (iii) limitations on attendance at or participation in the meeting to stockholders of record of the corporation, their duly authorized and constituted proxies or such other persons as the chairman of the meeting shall determine; (iv) restrictions on entry to the meeting after the time fixed for the commencement thereof; and (v) limitations on the time allotted to questions or comments by participants. Unless and to the extent determined by the board of directors or the chairman of the meeting, meetings of stockholders shall not be required to be held in accordance with the rules of parliamentary procedure.

Section 4. DIRECTORS

4.1 Powers. The business of the corporation shall be managed by or under the direction of the board of directors which shall have and may exercise all the powers of the corporation and do all such lawful acts and things as are not by law, the certificate of incorporation or these by-laws directed or required to be exercised or done by the stockholders.

4.2 Number. The number of directors which shall constitute the whole board shall not be less than one. The first board shall consist of two directors. Thereafter, the stockholders at the annual meeting shall determine the number of directors, and the number of directors may be increased or decreased at any time or from time to time by the stockholders or by the directors by a vote of a majority of the directors then in office, except that any such decrease by vote of the directors shall only be made to eliminate vacancies existing by reason of death, resignation or removal of one or more directors. The directors shall be elected at the annual meeting of the stockholders, except as otherwise provided in these by-laws. Directors need not be stockholders.

4.3 Tenure. Except as otherwise provided by law, by the certificate of incorporation or by these by-laws, each director shall hold office until the next annual meeting and until his successor is elected and qualified, or until he sooner dies, resigns, is removed or becomes disqualified.

4.4 Vacancies. Vacancies and any newly created directorships resulting from any increase in the number of directors may be filled by vote of the stockholders at a meeting called for the purpose, or by a majority of the directors then in office, although less than a quorum, or by a sole remaining director. When one or more directors shall resign from the board, effective at

a future date, a majority of the directors then in office, including those who have resigned, shall have power to fill such vacancy or vacancies, the vote or action in writing thereon to take effect when such resignation or resignations shall become effective. The directors shall have and may exercise all their powers notwithstanding the existence of one or more vacancies in their number, subject to any requirements of law or of the certificate of incorporation or of these by-laws as to the number of directors required for a quorum or for any vote or other actions.

4.5 Committees. The board of directors may, by vote of a majority of the whole board, (a) designate, change the membership of or terminate the existence of any committee or committees, each committee to consist of one or more of the directors; (b) designate one or more directors as alternate members of any such committee who may replace any absent or disqualified member at any meeting of the committee; and (c) determine the extent to which each such committee shall have and may exercise the powers and authority of the board of directors in the management of the business and affairs of the corporation, including the power to authorize the seal of the corporation to be affixed to all papers which require it and the power and authority to declare dividends or to authorize the issuance of stock; excepting, however, such powers which by law, by the certificate of incorporation or by these by-laws they are prohibited from so delegating. In the absence or disqualification of any member of such committee and his alternate, if any, the member or members thereof present at any meeting and not disqualified from voting, whether or not constituting a quorum, may unanimously appoint another member of the board of directors to act at the meeting in the place of any such absent or disqualified member. Except as the board of directors may otherwise determine, any committee may make, alter and repeal rules for the conduct of its business, but unless otherwise provided by the board or such rules, its business shall be conducted as nearly as may be in the same manner as is provided by these by-laws for the conduct of business by the board of directors. Each committee shall keep regular minutes of its meetings and report the same to the board of directors upon request.

4.6 Regular Meeting. Regular meetings of the board of directors may be held without call or notice at such place within or without the State of Delaware and at such times as the board may from time to time determine, provided that notice of the first regular meeting following any such determination shall be given to absent directors. A regular meeting of the directors may be held without call or notice immediately after and at the same place as the annual meeting of the stockholders.

4.7 Special Meetings. Special meetings of the board of directors may be held at any time and at any place within or without the State of Delaware designated in the notice of the meeting, when called by the president, or by one-third or more in number of the directors, reasonable notice thereof being given to each director by the secretary or by the president or by any one of the directors calling the meeting.

4.8 Notice. It shall be reasonable and sufficient notice to a director to send notice by mail at least forty-eight hours or by telecopy or other form of electronic transmission at least twenty-four hours before the meeting, addressed to him at his usual or last known business or residence address or to give notice to him in person or by telephone at least twenty-four hours before the meeting. Notice of a meeting need not be given to any director if a written waiver of notice, executed by him before or after the meeting, is filed with the records of the meeting, or to any director who attends the meeting without protesting prior thereto or at its commencement the lack of notice to him. Neither notice of a meeting nor a waiver of a notice need specify the purposes of the meeting.

4.9 Quorum. Except as may be otherwise provided by law, by the certificate of incorporation or by these by-laws, at any meeting of the directors a majority of the directors then in office shall constitute a quorum. A quorum shall not in any case be less than one-third of the total number of directors constituting the whole board. Any meeting may be adjourned from time to time by a majority of the votes cast upon the question, whether or not a quorum is present, and the meeting may be held as adjourned without further notice.

4.10 Action by Vote. Except as may be otherwise provided by law, by the certificate of incorporation or by these by-laws, when a quorum is present at any meeting the vote of a majority of the directors present shall be the act of the board of directors.

4.11 Action Without a Meeting. Unless otherwise restricted by the certificate of incorporation or these by-laws, any action required or permitted to be taken at any meeting of the board of directors or of any committee thereof may be taken without a meeting if all the members of the board or of such committee, as the case may be, consent thereto in writing, and such writing or writings are filed with the records of the meetings of the board or of such committee. Such consent shall be treated for all purposes as the act of the board or of such committee, as the case may be.

4.12 Participation in Meetings by Conference Telephone. Unless otherwise restricted by the certificate of incorporation or these by-laws, members of the board of directors or of any committee thereof may participate in a meeting of such board or committee by means of conference telephone or similar communications equipment by means of which all persons participating in the meeting can hear each other. Such participation shall constitute presence in person at such meeting.

4.13 Compensation. Unless otherwise restricted by the certificate of incorporation or these by-laws, the board of directors shall have the authority to fix from time to time the compensation of directors. The directors may be paid their expenses, if any, of attendance at each meeting of the board of directors and the performance of their responsibilities as directors and may be paid a fixed sum for attendance at each meeting of the board of directors and/or a stated salary as director. No such payment shall preclude any director from serving the corporation or its parent or subsidiary corporations in any other capacity and receiving compensation therefor. The board of directors may also allow compensation for members of special or standing committees for service on such committees.

4.14 Interested Directors and Officers.

(a) No contract or transaction between the corporation and one or more of its directors or officers, or between the corporation and any other corporation, partnership, association, or other organization in which one or more of the corporation's directors or officers are directors or officers, or have a financial interest, shall be void or voidable solely for this reason, or solely because the director or officer is present at or participates in the meeting of the board or committee thereof which authorizes the contract or transaction, or solely because his or their votes are counted for such purpose, if:

(1) The material facts as to his relationship or interest and as to the contract or transaction are disclosed or are known to the board of directors or the committee, and the board or committee in good faith authorizes the contract or transaction by the affirmative votes of a majority of the disinterested directors, even though the disinterested directors be less than a quorum; or

(2) The material facts as to his relationship or interest and as to the contract or transaction are disclosed or are known to the stockholders entitled to vote thereon, and the contract or transaction is specifically approved in good faith by vote of the stockholders; or

(3) The contract or transaction is fair as to the corporation as of the time it is authorized, approved or ratified by the board of directors, a committee thereof, or the stockholders.

(b) Common or interested directors may be counted in determining the presence of a quorum at a meeting of the board of directors or of a committee which authorizes the contract or transaction.

4.15 Resignation or Removal of Directors. Unless otherwise restricted by the certificate of incorporation or by law, any director or the entire board of directors may be removed, with or without cause, by the holders of a majority of the stock issued and outstanding and entitled to vote at an election of directors. Any director may resign at any time by delivering his resignation in writing to the president or the secretary or to a meeting of the board of directors. Such resignation shall be effective upon receipt unless specified to be effective at some other time and without in either case the necessity of its being accepted unless the resignation shall so state. No director resigning and no director removed shall have any right to receive compensation as such director for any period following his resignation or removal, except where a right to receive compensation shall be expressly provided in a duly authorized written agreement with the corporation, or any right to damages on account of such removal, whether his compensation be by the month or by the year or otherwise; unless in the case of a resignation, the directors, or in the case of removal, the body acting on the removal, shall in their or its discretion provide for compensation.

Section 5. NOTICES

5.1 Form of Notice. Whenever, under the provisions of law, of the certificate of incorporation or of these by-laws, notice is required to be given to any director or stockholder, such notice may be given by mail, addressed to such director or stockholder, at his address as it appears on the records of the corporation, with postage thereon prepaid, and such notice shall be deemed to be given at the time when the same shall be deposited in the United States mail. Unless written notice by mail is required by law, written notice may also be given by telegram, telecopy, commercial delivery service or similar means, addressed to such director or stockholder at his address as it appears on the records of the corporation, in which case such notice shall be deemed to be given when delivered into the control of the persons charged with

effecting such transmission, the transmission charge to be paid by the corporation or the person sending such notice and not by the addressee. Notice may also be given to any stockholder and to any director by any form of electronic transmission, to the same extent permitted by Section 232 of the Delaware General Corporation Law with respect to stockholders, and will be deemed given at the time provided therein. Oral notice or other in-hand delivery (in person or by telephone) shall be deemed given at the time it is actually given.

5.2 Waiver of Notice. Whenever notice is required to be given under the provisions of law, the certificate of incorporation or these by-laws, a written waiver thereof, signed by the person entitled to notice, whether before or after the time stated therein, shall be deemed equivalent to notice. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any meeting of the stockholders, directors or members of a committee of the directors need be specified in any written waiver of notice.

Section 6. OFFICERS AND AGENTS

6.1 Enumeration; Qualification. The officers of the corporation shall be a president, a treasurer, a secretary and such other officers, if any, as the board of directors from time to time may in its discretion elect or appoint, including, without limitation, a chairman of the board and one or more vice presidents. Any officer may be, but none need be, a director or stockholder. Any two or more offices may be held by the same person. Any officer may be required by the board of directors to secure the faithful performance of his duties to the corporation by giving bond in such amount and with sureties or otherwise as the board of directors may determine.

6.2 Powers. Subject to law, to the certificate of incorporation and to the other provisions of these by-laws, each officer shall have, in addition to the duties and powers herein set forth, such duties and powers as are commonly incident to his office and such additional duties and powers as the board of directors may from time to time designate.

6.3 Election. The board of directors at its first meeting after each annual meeting of stockholders may choose a chairman of the board of directors and shall choose a president, a secretary and a treasurer. Other officers may be appointed by the board of directors at such meeting, at any other meeting or by written consent. At any time or from time to time, the directors may delegate to any officer their power to elect or appoint any other officer or any agents.

6.4 Tenure. Each officer shall hold office until the first meeting of the board of directors following the next annual meeting of the stockholders and until his successor is elected and qualified unless a shorter period shall have been specified in terms of his election or appointment, or in each case until he sooner dies, resigns, is removed or becomes disqualified. Each agent of the corporation shall retain his authority at the pleasure of the directors, or the officer by whom he was appointed or by the officer who then holds agent appointive power.

6.5 Chairman of the Board of Directors. The chairman of the board of directors, if any, shall have such duties and powers as shall be designated from time to time by the board of directors. Unless the board of directors otherwise specifies, the chairman of the board, or if there is none the president, shall preside, or designate the person who shall preside, at all meetings of the stockholders and of the board of directors.

6.6 President and Vice Presidents. The president shall be the chief executive officer and shall have direct and active charge of all business operations of the corporation and shall have general supervision of the entire business of the corporation, subject to the control of the board of directors. As provided in Section 6.5, in the absence of the chairman of the board of directors, the president shall preside at all meetings of the stockholders and of the board of directors at which he is present, except as otherwise voted by the board of directors.

The president or treasurer shall execute bonds, mortgages and other contracts requiring a seal, under the seal of the corporation, except where required or permitted by law to be otherwise signed and executed and except where the signing and execution thereof shall be expressly delegated by the board of directors to some other officer or agent of the corporation.

Any vice presidents shall have such duties and powers as shall be designated from time to time by the board of directors or by the president.

6.7 Treasurer and Assistant Treasurers. The treasurer shall be the chief financial officer of the corporation and shall be in charge of its funds and valuable papers, and shall have such other duties and powers as may be assigned to him from time to time by the board of directors or by the president.

Any assistant treasurers shall have such duties and powers as shall be designated from time to time by the board of directors, the president or the treasurer.

6.8 Secretary and Assistant Secretaries. The secretary shall record all proceedings of the stockholders, of the board of directors and of committees of the board of directors in a book or series of books to be kept therefor and shall file therein all writings of, or related to, action by stockholder or director consent. In the absence of the secretary from any meeting, an assistant secretary, or if there is none or he is absent, a temporary secretary chosen at the meeting, shall record the proceedings thereof. Unless a transfer agent has been appointed, the secretary shall keep or cause to be kept the stock and transfer records of the corporation, which shall contain the names and record addresses of all stockholders and the number of shares registered in the name of each stockholder. The secretary shall have such other duties and powers as may from time to time be designated by the board of directors or the president.

Any assistant secretaries shall have such duties and powers as shall be designated from time to time by the board of directors, the president or the secretary.

6.9 Resignation and Removal. Any officer may resign at any time by delivering his resignation in writing to the president or the secretary or to a meeting of the board of directors. Such resignation shall be effective upon receipt unless specified to be effective at some other time, and without in any case the necessity of its being accepted unless the resignation shall so state. The board of directors may at any time remove any officer either with or without cause.

The board of directors may at any time terminate or modify the authority of any agent. No officer resigning and no officer removed shall have any right to any compensation as such officer for any period following his resignation or removal, except where a right to receive compensation shall be expressly provided in a duly authorized written agreement with the corporation, or any right to damages on account of such removal, whether his compensation be by the month or by the year or otherwise; unless in the case of a resignation, the directors, or in the case of removal, the body acting on the removal, shall in their or its discretion provide for compensation.

6.10 Vacancies. If the office of the president or the treasurer or the secretary becomes vacant, the directors may elect a successor by vote of a majority of the directors then in office. If the office of any other officer becomes vacant, any person or body empowered to elect or appoint that office may choose a successor. Each such successor shall hold office for the unexpired term of his predecessor, and in the case of the president, the treasurer and the secretary until his successor is chosen and qualified, or in each case until he sooner dies, resigns, is removed or becomes disqualified.

Section 7. CAPITAL STOCK

7.1 Stock Certificates. Except as may otherwise be provided by the board of directors acting in accordance with Section 158 of the Delaware General Corporation Law, each stockholder shall be entitled to a certificate stating the number and class and the designation of the series, if any, of the shares held by such stockholder, in such form as shall, in conformity to law, the certificate of incorporation and the by-laws, be prescribed from time to time by the board of directors. Such certificate shall be signed by (i) the chairman of the board of directors or the president or a vice-president and (ii) the treasurer or an assistant treasurer or the secretary or an assistant secretary. Any or all of the signatures on the certificate may be a facsimile. In case an officer, transfer agent or registrar who has signed or whose facsimile signature has been placed on such certificate shall have ceased to be such officer, transfer agent or registrar before such certificate is issued, it may be issued by the corporation with the same effect as if he were such officer, transfer agent, or registrar at the time of its issue.

7.2 Lost Certificates. The board of directors may direct a new certificate or certificates to be issued in place of any certificate or certificates theretofore issued by the corporation alleged to have been lost, stolen or destroyed, upon the making of an affidavit of that fact by the person claiming the certificate of stock to be lost, stolen or destroyed. When authorizing such issue of a new certificate or certificates, the board of directors may, in its discretion and as a condition precedent to the issuance thereof, require the owner of such lost, stolen or destroyed certificate or certificates, or his legal representative, to advertise the same in such manner as it shall require and/or to give the corporation a bond in such sum as it may direct as indemnity against any claim that may be made against the corporation with respect to the certificate alleged to have been lost, stolen or destroyed.

Section 8. TRANSFER OF SHARES OF STOCK

8.1 Transfer on Books. Subject to any restrictions with respect to the transfer of shares of stock, shares of stock may be transferred on the books of the corporation by the surrender to the corporation or its transfer agent of the certificate therefor properly endorsed or accompanied by a written assignment and power of attorney properly executed, with necessary transfer stamps affixed, and with such proof of the authenticity of signature as the board of directors or the transfer agent of the corporation may reasonably require. Except as may be otherwise required by law, by the certificate of incorporation or by these by-laws, the corporation shall be entitled to treat the record holder of stock as shown on its books as the owner of such stock for all purposes, including the payment of dividends and the right to receive notice and to vote or to give any consent with respect thereto and to be held liable for such calls and assessments, if any, as may lawfully be made thereon, regardless of any transfer, pledge or other disposition of such stock until the shares have been properly transferred on the books of the corporation.

It shall be the duty of each stockholder to notify the corporation of his post office address.

8.2 Right of First Refusal. Any sale, assignment, transfer or other disposition, whether voluntarily or by operation of law (collectively, "Transfer"), of any shares of the corporation's Common Stock (the "Common Shares") by a holder of such shares (a "Common Stockholder") other than according to the terms of these by-laws shall be void and shall transfer no right, title, or interest in or to any of such Common Shares to the purported transferee.

(a) Offer of Transfer; Notice of Proposed Transfer. If a Common Stockholder desires to Transfer any of his, her or its Common Shares, or any interest in such Common Shares, in any transaction other than pursuant to a Permitted Transfer (as defined below), such Common Stockholder (a "Selling Common Stockholder") shall first deliver written notice of such Selling Common Stockholder's desire to do so (the "Seller's Notice") to the corporation. The Seller's Notice must specify: (i) the name and address of the party to which the Selling Common Stockholder proposes to Transfer the Common Shares or an interest in the Common Shares (the "Offeror"), (ii) the number of Common Shares the Selling Common Stockholder proposes to Transfer (the "Offered Shares"), (iii) the consideration per Offered Share to be delivered to the Selling Common Stockholder (if applicable) for the proposed Transfer, and (iv) all other material terms and conditions of the proposed transaction.

(b) The Corporation's Option to Purchase.

(1) The corporation shall have the first option to purchase all or any part of the Offered Shares of a Selling Common Stockholder for the consideration per share and on the terms and conditions no less favorable than those specified in the Seller's Notice. The corporation must exercise such option no later than 15 days after such Seller's Notice is received by the corporation by giving written notice to the Selling Common Stockholder.

(2) In the event the corporation does not exercise its option within such 15-day period with respect to all or part of the Offered Shares of a Selling Common Stockholder, the Secretary of the corporation shall, by the last day of such period, give written notice of that fact to each Investor (the "Investor Notice"). The Investor Notice shall specify the number of Offered Shares of a Selling Common Stockholder with respect to which the corporation has not exercised its option to purchase under Section 8.2(b)(1) (the "Remaining Shares"). An "Investor" is any holder of shares of the then outstanding shares of Preferred Stock of the corporation.

(3) In the event the corporation duly exercises its option to purchase all or part of the Offered Shares of a Selling Common Stockholder, the closing of such purchase shall take place at the offices of the corporation on the later of (i) the date five days after the expiration of the 15-day period described in Section 8.2(b)(1) or (ii) the date that the Investors consummate their purchases of Offered Shares under Section 8.2(c).

(4) To the extent that the consideration proposed to be paid by the Offeror for the Offered Shares consists of property other than cash or a promissory note, the consideration required to be paid by the corporation and/or the Investors when exercising their options under Sections 8.2(b) and 8.2(c) hereof may consist of cash equal to the value of such property, as determined in good faith by agreement of the Selling Common Stockholder, the corporation and/or the Investors acquiring such Offered Shares.

(c) Investors' Option to Purchase.

(1) Each Investor shall have an option, exercisable for a period of 15 days from the date of delivery of the Investor Notice, to purchase its pro rata share of the Remaining Shares for the consideration per share and on terms and conditions no less favorable than those set forth in the Seller's Notice. Such option shall be exercised by delivery of written notice to the Secretary of the corporation.

(2) In the event options to purchase have been exercised by the Investors with respect to some but not all of the Remaining Shares, those Investors who have exercised their options within the 15-day period specified in Section 8.2(c)(1) shall have an additional option, for a period of five (5) days next succeeding the expiration of such 15-day period, to purchase all or any part of the balance of such Remaining Shares on terms and conditions no less favorable than those set forth in the Seller's Notice, which option shall be exercised by the delivery of written notice to the Secretary of the corporation. In the event there are two or more such Investors that choose to exercise the last-mentioned option for a total number of Remaining Shares in excess of the number available, the Remaining Shares available for each such Investor's option shall be allocated to such Investor pro rata based on the number of shares of Preferred Stock calculated on an as-converted to Common Stock basis owned by the Investors so electing.

(3) If the options to purchase the Remaining Shares are exercised in full by the Investors, the Secretary of the corporation shall promptly notify all of the exercising Investors of that fact. The closing of the purchase of the Remaining Shares shall take place at the offices of the corporation no later than five days after the date of such notice to the Investors.

(d) Failure to Fully Exercise Options. Notwithstanding anything to the contrary in this Section 8.2, neither the corporation nor the Investors shall have any right to purchase any of the Offered Shares hereunder unless the corporation and/or the Investors exercise their option or options to purchase all of the Offered Shares. If the corporation and the Investors do not exercise their options to purchase all of the Offered Shares within the periods described in

Section 8.2(b)(1) and Section 8.2(c)(1) (collectively, the "Option Period"), then all options of the corporation and the Investors to purchase the Offered Shares, whether exercised or not, shall terminate and the Selling Common Stockholder shall be entitled to sell to the Offeror, according to the terms set forth in the Seller's Notice, the number of Offered Shares desired to be purchased by the Offeror. If the Selling Common Stockholder wishes to Transfer any such Offered Shares at a price per Offered Share which differs from that set forth in the Seller's Notice, upon terms that differ in any material respect from those previously offered to the corporation and the Investors, or more than 60 days after the expiration of the Option Period, then, as a condition precedent to such transaction, such Offered Shares must first be offered to the corporation and the Investors (if applicable) on terms and conditions no less favorable than those given the Offeror, and in accordance with the procedures and time periods set forth in this Section 8.2.

(e) Exception for Certain Transfers. Anything to the contrary contained herein notwithstanding, the following Transfers (each, a "Permitted Transfer") shall be exempt from the provisions of this Section 8.2:

(1) the repurchase of Common Shares by the corporation (i) at cost, upon occurrence of certain events, such as termination of employment or services; or (ii) at any price pursuant to the corporation's exercise of a contractual right of first refusal to repurchase such shares;

(2) the Transfer of any or all of an individual Common Stockholder's Common Shares to (i) his or her spouse, lineal ancestors or descendants (including adopted children and grandchildren) (collectively, "Family Members") or to a trust established for the benefit of any of his or her Family Members, (ii) under his or her will or otherwise pursuant to the laws of descent and distribution, (iii) to a partnership, limited liability company or other entity controlled by such Common Stockholder, the partners or members of which consist solely of such Common Stockholder, his or her spouse and/or any of his or her other Family Members, or (iv) to a charitable organization or educational institution qualifying for exemption from Federal income taxes pursuant to Section 501(c)(3) of the Internal Revenue Code;

(3) if the Common Stockholder is a partnership, limited liability company or a corporation, any transfer to (i) a partner of such partnership, a member of such limited liability company of a stockholder of such corporation, (ii) an affiliate of such partnership, limited liability company or corporation (including, without limitation, any affiliated investment fund of such Common Stockholder), or (iii) the estate of any such partner, member or stockholder;

(4) any Transfer approved by the board of directors; or

(5) any Transfer by a Common Stockholder made (i) pursuant to an Event, as defined in the certificate of incorporation, or (ii) pursuant to the sale of the corporation's capital stock to the public in an offering pursuant to an effective registration statement under the Securities Act of 1933, as amended (the "Act").

(f) Contractual Restrictions to Govern. Notwithstanding the foregoing, (1) this Section 8.2 shall not apply to any Common Stockholder which is a party to that certain Amended and Restated Stockholders' Agreement dated July 30, 2013 among the corporation and the other parties thereto, as the same may be amended from time to time, and (2) the restrictions set forth in Sections 8.2(a) through 8.2(e) shall not apply to any Common Shares transferred in accordance with any contractual right of first refusal in favor of the corporation, including pursuant to the corporation's 2010 Special Stock Incentive Plan or the corporation's 2011 Stock Incentive Plan, in each case as may be amended from time to time after the date hereof, and any Common Stockholder that has complied with any such contractual right of first refusal applicable to the Common Shares held by such Common Stockholder will be deemed to have complied with the provisions of this Section 8.2.

8.3 Transfers to Competitors Prohibited. Except in the case of (i) a sale of the corporation's capital stock to the public in an offering pursuant to an effective registration statement under the Act, (ii) any merger or consolidation which results in the voting securities of the corporation outstanding immediately prior thereto representing immediately thereafter (either by remaining outstanding or being converted into voting securities of the surviving or acquiring entity) less than a majority of the combined voting power of the voting securities of the corporation or such surviving or acquiring entity outstanding immediately after such merger or consolidation, or (iii) the sale of shares of capital stock of the Company, in a single transaction or series of related transactions, representing more than 50% of the voting power of the voting securities of the corporation, any Transfer of shares of the corporation's capital stock by a holder of such shares to a competitor of the corporation, as determined in good faith by the board of directors shall be void and shall transfer no right, title, or interest in or to any of such shares of capital stock to the purported transferee, *provided that*, a private equity fund shall not be deemed to be a competitor of the corporation.

Section 9. GENERAL PROVISIONS

9.1 Record Date. In order that the corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, or to express consent to corporate action in writing without a meeting, or entitled to receive payment of any dividend or other distribution or allotment of any rights, or entitled to exercise any rights in respect of any change, conversion or exchange of stock or for the purpose of any other lawful action, the board of directors may fix, in advance, a record date, which shall not be more than sixty days nor less than ten days before the date of such meeting, nor more than sixty days prior to any other action to which such record date relates. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; provided, however, that the board of directors may fix a new record date for the adjourned meeting. If no record date is fixed,

(a) The record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held;

(b) The record date for determining stockholders entitled to express consent to corporate action in writing without a meeting, when no prior action by the board of directors is necessary, shall be the day on which the first written consent is expressed; and

(c) The record date for determining stockholders for any other purpose shall be at the close of business on the day on which the board of directors adopts the resolution relating to such purpose.

9.2 Dividends. Dividends upon the capital stock of the corporation may be declared by the board of directors at any regular or special meeting or by written consent, pursuant to law. Dividends may be paid in cash, in property, or in shares of the capital stock, subject to the provisions of the certificate of incorporation.

9.3 Payment of Dividends. Before payment of any dividend, there may be set aside out of any funds of the corporation available for dividends such sum or sums as the directors from time to time, in their absolute discretion, think proper as a reserve or reserves to meet contingencies, or for equalizing dividends, or for repairing or maintaining any property of the corporation, or for such other purpose as the directors shall think conducive to the interest of the corporation, and the directors may modify or abolish any such reserve in the manner in which it was created.

9.4 Checks. All checks or demands for money and notes of the corporation shall be signed by such officer or officers or such other person or persons as the board of directors may from time to time designate.

9.5 Fiscal Year. The fiscal year of the corporation shall begin on the first of January in each year and shall end on the last day of December next following, unless otherwise determined by the board of directors.

9.6 Seal. The board of directors may, by resolution, adopt a corporate seal. The corporate seal shall have inscribed thereon the name of the corporation, the year of its organization and the word “Delaware.” The seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise. The seal may be altered from time to time by the board of directors.

Section 10. INDEMNIFICATION

10.1 It being the intent of the corporation to provide maximum protection available under the law to its officers and directors, the corporation shall indemnify its officers and directors to the full extent the corporation is permitted or required to do so by the General Corporation Law of Delaware; provided, however, that the foregoing shall not require the corporation to indemnify or advance expenses to any person in connection with any action, suit, proceeding, claim or counterclaim initiated by or on behalf of such person. In furtherance of and not in limitation of the foregoing, the corporation shall advance expenses, including attorneys’ fees, incurred by an officer or director of the corporation in defending any civil, criminal, administrative or investigative action, suit or proceeding in advance of the final disposition of such action, suit or proceeding upon receipt of an undertaking by or on behalf of such director or officer to repay such advances if it shall ultimately be determined that he is not entitled to be indemnified by the corporation. The corporation shall have the power to purchase and maintain

insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation, or who is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against any liability asserted against such person and incurred by such person in any such capacity, or arising out of such person's status as such, whether or not the corporation has the power to indemnify such person under the General Corporation Law of Delaware.

Section 11. AMENDMENTS

11.1 These by-laws may be altered, amended or repealed or new by-laws may be adopted by the stockholders or by the board of directors when such power is conferred upon the board of directors by the certificate of incorporation, at any regular meeting of the stockholders or of the board of directors or at any special meeting of the stockholders or of the board of directors. If the power to adopt, amend or repeal by-laws is conferred upon the board of directors by the certificate of incorporation, it shall not divest or limit the power of the stockholders to adopt, amend or repeal by-laws.

Register of Amendments to the Restated By-Laws of Arsanis, Inc.

Date	Section Affected	Change
April 12, 2016	4.15	By deleting in its entirety the first sentence thereof and inserting in its place the following sentence: "*Unless otherwise restricted by the certificate of incorporation, by that certain Second Amended and Restated Stockholders' Agreement dated as of April 12, 2016 among the corporation and the other parties thereto (as the same may be amended from time to time), or by law, any director or the entire board of directors may be removed, with or without cause, by the holders of a majority of the stock issued and outstanding and entitled to vote at an election of directors.*"
April 12, 2016	8.2(f)	By deleting the reference to the "*Amended and Restated Stockholders' Agreement dated as of July 30, 2013*" as such reference appears therein, and replacing it with a reference to the "*Second Amended and Restated Stockholders' Agreement dated as of April 12, 2016*".

Exhibit 10.1

Execution Version

ARSANIS, INC.

SECOND AMENDED AND RESTATED
INVESTORS' RIGHTS AGREEMENT

Dated as of April 12, 2016

TABLE OF CONTENTS

ARSANIS, INC.

SECOND AMENDED AND RESTATED
INVESTORS' RIGHTS AGREEMENT

This Second Amended and Restated Investors' Rights Agreement (this "Agreement") is entered into this 12th day of April, 2016, by and among Arsanis, Inc., a Delaware corporation (the "Company") and the individuals and entities listed on Exhibit A attached hereto (the "Investors").

Recitals

WHEREAS, the Company and the Investors are parties to that certain Series C Securities Purchase Agreement of even date herewith (the "Purchase Agreement");

WHEREAS, certain of the Investors (the "Existing Investors") hold certain shares of the Company's Series A-1 Convertible Preferred Stock, $0.001 par value per share (the "Series A-1 Preferred Stock"), certain shares of the Company's Series A-2 Convertible Preferred Stock, $0.001 par value per share (the "Series A-2 Preferred Stock" and, together with the Series A-1 Preferred Stock, the "Series A Preferred Stock") and certain shares of the Company's Series B Preferred Stock, $0.001 par value per shares (the "Series B Preferred Stock"), and possess registration rights, rights to certain information, rights of first refusal with respect to the sale of certain securities of the Company and other rights pursuant to that certain Amended and Restated Investors' Rights Agreement dated as of July 30, 2013 by and among the Company and such Existing Investors (the "Prior Agreement");

WHEREAS, the undersigned Existing Investors hold a majority of the Registrable Shares (as defined in the Prior Agreement), and desire to amend and restate the Prior Agreement in its entirety and to accept the rights created pursuant to this Agreement in lieu of the rights granted to them under the Prior Agreement; and

WHEREAS, in order to induce the Company to enter into the Purchase Agreement and to induce the Investors to purchase shares of the Company's Series C Preferred Stock, $0.001 par value per shares (the "Series C Preferred Stock" and, together with the Series A Preferred Stock and the Series B Preferred Stock, the "Preferred Stock") pursuant to the Purchase Agreement, the parties hereto agree that this Agreement shall provide for rights of the Investors in connection with (i) certain arrangements with respect to the registration of shares of capital stock of the Company under the Securities Act of 1933, as amended, (ii) a right of first refusal with respect to the sale of any securities of the Company, and (iii) certain affirmative covenants of the Company, and shall govern certain other matters as set forth in this Agreement.

NOW, THEREFORE, the parties agree that the provisions of the Prior Agreement are hereby amended and restated in their entirety, and hereby further agree, as follows:

ARTICLE I. DEFINITIONS

As used in this Agreement, the following terms shall have the following respective meanings:

"Commission" means the United States Securities and Exchange Commission, or any other federal agency at the time administering the Securities Act.

"Common Stock" means the common stock, $0.001 par value per share, of the Company.

"Exchange Act" means the Securities Exchange Act of 1934, as amended, or any similar federal statute, and the rules and regulations of the Commission issued under such Act, as they each may, from time to time, be in effect.

"Founders" means Eszter Nagy, Tillman U. Gerngross and Errik B. Anderson.

"Initial Public Offering" means the sale of shares of Common Stock in the Company's first firm commitment underwritten public offering pursuant to a Registration Statement at a price to the public of at least $28.95 per share (adjusted for stock splits, stock dividends and similar events) and an aggregate offering price of at least $50,000,000 (based on the market price or fair value at the time of such offering).

"Registration Statement" means a registration statement filed by the Company with the Commission for a public offering and sale of Common Stock by the Company (other than a registration statement on Form S-8 or Form S-4, or their successors, or any other form for a similar limited purpose, or any registration statement covering only securities proposed to be issued in exchange for securities or assets of another corporation).

"Registration Expenses" means the expenses described in Section 2.4.

"Registrable Shares" means (i) the shares of Common Stock issued or issuable upon conversion of the Shares, (ii) any shares of Common Stock, and any shares of Common Stock issued or issuable upon the conversion or exercise of any other securities, acquired by the Investors pursuant to Article III of this Agreement or pursuant to the Second Amended and Restated Stockholders' Agreement of even date herewith among the Company, the Investors and certain other parties thereto, and (iii) any other shares of Common Stock issued in respect of such shares (because of stock splits, stock dividends, reclassifications, recapitalizations, or similar events); provided, however, that shares of Common Stock which are Registrable Shares shall cease to be Registrable Shares (a) upon any sale of such shares pursuant to a Registration Statement or Rule 144 under the Securities Act, (b) upon any sale of such shares in any manner to a person or entity which, by virtue of Section 5.2 is not entitled to the rights provided by this Agreement, or (c) at such time as they become eligible for resale without restriction pursuant to Rule 144(b)(1) under the Securities Act. Wherever reference is made in this Agreement to a request or consent of holders of a certain percentage of Registrable Shares, the determination of such percentage shall include shares of Common Stock issuable upon conversion of the Shares even if such conversion has not been effected at the time of such determination.

"Securities Act" means the Securities Act of 1933, as amended, or any similar federal statute, and the rules and regulations of the Commission issued under such Act, as they each may, from time to time, be in effect.

"Shares" means the shares of Preferred Stock held by the Investors.

"Stockholders" means the Investors and any persons or entities to whom the rights granted to the Investors under this Agreement are transferred by the Investors or their successors or permitted assigns pursuant to Section 5.2.

ARTICLE II. REGISTRATION RIGHTS

2.1. Required Registrations.

(a) At any time after the date which is six (6) months after the closing of the Company's first firm commitment underwritten public offering of shares of Common Stock pursuant to a Registration Statement, a Stockholder or Stockholders holding at least 25% of the Registrable Shares may request, in writing, that the Company effect the registration on Form S-1 (or any successor form) of Registrable Shares owned by such Stockholders having an aggregate offering price of at least $10,000,000 (based on the market price or fair value at the time of such request). If the Stockholders initiating the registration intend to distribute the Registrable Shares by means of an underwriting, they shall so advise the Company in their request. Upon receipt of any such request, the Company shall promptly give written notice of such proposed registration to all Stockholders. Such Stockholders shall have the right, by giving written notice to the Company within ten (10) business days after the Company provides its notice, to elect to have included in such registration such of their Registrable Shares as such Stockholders may request in such notice of election; provided, however, if the underwriter (if any) managing the offering determines that, because of marketing factors, not all of the Registrable Shares requested to be registered by all of the Stockholders may be included in the offering, then all Stockholders who have requested registration shall participate in the registration pro rata based upon the number of Registrable Shares which they have requested to be so registered. Thereupon, the Company shall, as expeditiously as possible, use its reasonable best efforts to effect the registration on Form S-1 (or any successor form) of all Registrable Shares which the Company has been requested to so register.

(b) At any time after the Company becomes eligible to file a Registration Statement on Form S-3 (or any successor form relating to secondary offerings) and subject to paragraph (c) below, a Stockholder or Stockholders may request the Company, in writing, to effect the registration on Form S-3 (or such successor form), of Registrable Shares having an aggregate offering price of at least $1,000,000 (based on the public market price at the time of such request). If the Stockholders initiating the registration intend to distribute the Registrable Shares by means of an underwriting, they shall so advise the Company in their request. Upon receipt of any such request, the Company shall promptly give written notice of such proposed registration to all Stockholders. Such Stockholders shall have the right, by giving written notice to the Company within ten (10) business days after the Company provides its notice, to elect to have included in such registration such of their Registrable Shares as such Stockholders may request in such notice of election; provided, however, if the underwriter (if any) managing the offering

determines that, because of marketing factors, not all of the Registrable Shares requested to be registered by all of the Stockholders may be included in the offering, then all Stockholders who have requested registration shall participate in the registration pro rata based upon the number of Registrable Shares which they have requested to be so registered. Thereupon, subject to this Section 2.1(b), the Company shall, as expeditiously as possible, use its reasonable best efforts to effect the registration on Form S-3 (or such successor form) of all Registrable Shares which the Company has been requested to so register. The Company shall have the right to reasonably approve the managing underwriter of any underwritten offering effected pursuant to Section 2.1(a) or this Section 2.1(b).

(c) The Company shall not be required to effect more than two registrations pursuant to Section 2.1(a) and shall not be required to effect more than two registrations pursuant to Section 2.1(b) in any 12-month period; provided, however, that such obligations shall be deemed satisfied only when a registration statement covering the applicable Registrable Shares shall have (i) become effective or (ii) been withdrawn at the request of the Stockholders requesting such registration (other than as a result of information concerning the business or financial condition of the Company which is made known to the Stockholders after the date on which such registration was requested).

(d) Notwithstanding the foregoing obligations, if at the time of any request to register Registrable Shares pursuant to this Section 2.1, the Company is engaged or has plans to engage within 30 days of the time of the request in a registered public offering of securities for its own account or is engaged in any other activity which, in the good faith determination of the Company's Board of Directors, would be adversely affected by the requested registration to the material detriment of the Company, then the Company may at its option direct that such request be delayed for a period not in excess of three months from the effective date of such offering or the date of commencement of such other material activity, as the case may be, such right to delay a request to be exercised by the Company not more than once in any 12-month period.

2.2. Incidental Registration.

(a) Whenever the Company proposes to file a Registration Statement at any time and from time to time, it will, prior to such filing, give written notice to all Stockholders of its intention to do so and, upon the written request of a Stockholder or Stockholders, given within ten (10) business days after the date that the Company provides such notice (which request shall state the intended method of disposition of such Registrable Shares), the Company shall use its reasonable best efforts to cause all Registrable Shares which the Company has been requested by such Stockholder or Stockholders to register, to be registered under the Securities Act to the extent necessary to permit their sale or other disposition in accordance with the intended methods of distribution specified in the request of such Stockholder or Stockholders; provided, however, that the Company shall have the right to postpone or withdraw any registration effected pursuant to this Section 2.2 without obligation to any Stockholder.

(b) In connection with any registration under this Section 2.2 involving an underwriting, the Company shall not be required to include any Registrable Shares in such registration unless the holders thereof accept the terms of the underwriting as agreed upon between the Company and the underwriters selected by it. If in the opinion of the managing

underwriter it is desirable because of marketing factors to limit the number of Registrable Shares to be included in the offering, then the Company shall be required to include in the registration only that number of Registrable Shares, if any, which the managing underwriter believes should be included therein; provided, however, that no persons or entities other than the Company, the Stockholders and other persons or entities holding registration rights shall be permitted to include securities in the offering. If the number of Registrable Shares to be included in the offering in accordance with the foregoing is less than the total number of shares which the holders of Registrable Shares have requested to be included, then the holders of Registrable Shares who have requested registration and other holders of securities entitled to include them in such registration shall participate in the registration pro rata based upon their total ownership of shares of Common Stock (giving effect to the conversion into Common Stock of all securities convertible thereinto). If any holder would thus be entitled to include more securities than such holder requested to be registered, the excess shall be allocated among other requesting holders pro rata in the manner described in the preceding sentence.

2.3. Registration Procedures. If and whenever the Company is required by the provisions of this Agreement to use its reasonable best efforts to effect the registration of any of the Registrable Shares under the Securities Act, the Company shall:

(a) as expeditiously as possible prepare and file with the Commission a Registration Statement with respect to such Registrable Shares and use its reasonable best efforts, including preparing and filing any amendments and supplements to the Registration Statement and the prospectus included therein, to cause that Registration Statement to become and remain effective for 180 days from the effective date or such lesser period until all such Registrable Shares are sold;

(b) as expeditiously as possible furnish to each selling Stockholder such reasonable numbers of copies of the prospectus, including a preliminary prospectus, in conformity with the requirements of the Securities Act, and such other documents as the selling Stockholder may reasonably request in order to facilitate the public sale or other disposition of the Registrable Shares owned by the selling Stockholder;

(c) as expeditiously as possible use its best reasonable efforts to register or qualify the Registrable Shares covered by the Registration Statement under the securities or Blue Sky laws of such states as the selling Stockholders shall reasonably request, and do any and all other acts and things that may be necessary or desirable to enable the selling Stockholders to consummate the public sale or other disposition in such states of the Registrable Shares owned by the selling Stockholders; provided, however, that the Company shall not be required in connection with this paragraph 2.3(c) to qualify as a foreign corporation or execute a general consent to service of process in any jurisdiction;

(d) in the case of an underwritten offering, enter into an underwriting agreement containing such terms as are customarily included in an underwriting agreement for comparable offerings, including requirements that the Company's counsel furnish a customary legal opinion and that the Company's accountants furnish a customary comfort letter.

(e) use its commercially reasonable efforts to cause all such Registrable Shares covered by such registration statement to be listed on a national securities exchange or trading system and each securities exchange and trading system (if any) on which similar securities issued by the Company are then listed;

(f) provide a transfer agent and registrar for all Registrable Shares registered pursuant to this Agreement and provide a CUSIP number for all such Registrable Shares, in each case not later than the effective date of such registration;

(g) promptly make available for inspection by the selling Stockholders, any managing underwriter(s) participating in any disposition pursuant to such registration statement, and any attorney or accountant or other agent retained by any such underwriter or selected by the selling Stockholders, all financial and other records, pertinent corporate documents, and properties of the Company, and cause the Company's officers, directors, employees, and independent accountants to supply all information reasonably requested by any such seller, underwriter, attorney, accountant, or agent, in each case, as necessary or advisable to verify the accuracy of the information in such registration statement and to conduct appropriate due diligence in connection therewith;

(h) notify each selling Stockholder, promptly after the Company receives notice thereof, of the time when such registration statement has been declared effective or a supplement to any prospectus forming a part of such registration statement has been filed; and

(i) after such registration statement becomes effective, notify each selling Stockholder of any request by the SEC that the Company amend or supplement such registration statement or prospectus.

If the Company has delivered preliminary or final prospectuses to the selling Stockholders and after having done so the prospectus is amended to comply with the requirements of the Securities Act, the Company shall promptly notify the selling Stockholders and, if requested, the selling Stockholder shall immediately cease making offers of Registrable Shares and return all prospectuses to the Company. The Company shall promptly provide each selling Stockholder with revised prospectuses and, following receipt of the revised prospectuses, the selling Stockholder shall be free to resume making offers of the Registrable Shares.

Notwithstanding the foregoing, each selling Stockholder shall cease making offers or sales pursuant to a "shelf" Registration Statement during any Postponement Period (not to exceed 90 days in the aggregate in any 12-month period). A "Postponement Period" shall be any period in which there exists at the time material non-public information relating to the Company disclosure of which, the Company, in its good faith judgment by the Board of Directors reasonably believes:

(i) that the filing thereof at the time requested, or the offering of Registrable Shares pursuant thereto, would materially and adversely affect (A) a pending or scheduled public offering or private placement of the Company's securities, (B) an acquisition, merger, consolidation or similar transaction by or of the Company, or (C) pre-existing and continuing negotiations, discussions or pending proposals with respect to any of the foregoing transactions; and

(ii) that the failure to disclose any material information with respect to the foregoing would cause a violation of the Securities Act or the Exchange Act.

If, after a Registration Statement becomes effective, the Company becomes engaged in any activity which, in the good faith determination of the Company's Board of Directors, involves information that would have to be disclosed in the Registration Statement but which the Company desires to keep confidential for valid business reasons including any event giving rise to a Postponement Period, then the Company may at its option, by notice to such Stockholders, require that the Stockholders who have included Registrable Shares in such Registration Statement cease sales of such Registrable Shares under such Registration Statement for a period not in excess of 90 days in the aggregate in any 12-month period. If, in connection therewith, the Company considers it appropriate for such Registration Statement to be amended, the Company shall so amend such Registration Statement as promptly as practicable and such Stockholders shall suspend any further sales of their Registrable Shares until the Company advises them that such Registration Statement has been amended. The time periods referred to in this Section 2.3 during which such Registration Statement must be kept effective shall be extended for an additional number of days equal to the number of days during which the right to sell Registrable Shares was suspended pursuant to this paragraph.

2.4. Allocation of Expenses. The Company will pay all Registration Expenses of all registrations under this Agreement. For purposes of this Section 2.4, the term "Registration Expenses" shall mean all expenses incurred by the Company in complying with this Article II, including, without limitation, all registration and filing fees, exchange listing fees, printing expenses, fees and expenses of counsel for the Company to represent the selling Stockholder(s), state Blue Sky fees and expenses, the expense of any special audits incidental to or required by any such registration, and the reasonable fees and expenses of one counsel for the selling Stockholders selected by the Stockholders holding a majority of the Registrable Shares to be registered, but excluding underwriting discounts and selling commissions.

2.5. Indemnification and Contribution.

(a) In the event of any registration of any of the Registrable Shares under the Securities Act pursuant to this Agreement, the Company will indemnify and hold harmless the seller of such Registrable Shares and the partners, members, officers, directors and stockholders of each such stockholder, each underwriter of such Registrable Shares, and each other person, if any, who controls such seller or underwriter within the meaning of the Securities Act or the Exchange Act against any losses, claims, damages or liabilities, joint or several, to which such seller, underwriter or controlling person may become subject under the Securities Act, the Exchange Act, state securities or Blue Sky laws or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon any untrue statement or alleged untrue statement of any material fact contained in any Registration Statement under which such Registrable Shares were registered under the Securities Act, any preliminary prospectus or final prospectus contained in the Registration Statement, or any amendment or supplement to such Registration Statement, or arise out of or are based upon the

omission or alleged omission to state a material fact required to be stated therein or necessary to make the statements therein not misleading; and the Company will reimburse such seller, underwriter and each such controlling person for any legal or any other expenses reasonably incurred by such seller, underwriter or controlling person in connection with investigating or defending any such loss, claim, damage, liability or action; provided, however, that the Company will not be liable in any such case to the extent that any such loss, claim, damage or liability arises out of or is based upon any untrue statement or omission made in such Registration Statement, preliminary prospectus or final prospectus, or any such amendment or supplement, in reliance upon and in conformity with information furnished to the Company, in writing, by or on behalf of such seller, underwriter or controlling person specifically for use in the preparation thereof.

(b) In the event of any registration of any of the Registrable Shares under the Securities Act pursuant to this Agreement, each seller of Registrable Shares, severally and not jointly, will indemnify and hold harmless the Company, each of its directors and officers and each underwriter (if any) and each person, if any, who controls the Company or any such underwriter within the meaning of the Securities Act or the Exchange Act, against any losses, claims, damages or liabilities, joint or several, to which the Company, such directors and officers, underwriter or controlling person may become subject under the Securities Act, Exchange Act, state securities or Blue Sky laws or otherwise, insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon any untrue statement or alleged untrue statement of a material fact contained in any Registration Statement under which such Registrable Shares were registered under the Securities Act, any preliminary prospectus or final prospectus contained in the Registration Statement, or any amendment or supplement to the Registration Statement, or arise out of or are based upon any omission or alleged omission to state a material fact required to be stated therein or necessary to make the statements therein not misleading, if the statement or omission was made in reliance upon and in conformity with information relating to such seller furnished in writing to the Company by or on behalf of such seller specifically for use in connection with the preparation of such Registration Statement, prospectus, amendment or supplement; provided, however, that the obligations of each such Stockholder hereunder shall be limited to an amount equal to the proceeds to such Stockholder of Registrable Shares sold in connection with such registration.

(c) Each party entitled to indemnification under this Section 2.5 (the "Indemnified Party") shall give notice to the party required to provide indemnification (the "Indemnifying Party") promptly after such Indemnified Party has actual knowledge of any claim as to which indemnity may be sought, and shall permit the Indemnifying Party to assume the defense of any such claim or any litigation resulting therefrom; provided, that counsel for the Indemnifying Party, who shall conduct the defense of such claim or litigation, shall be approved by the Indemnified Party (whose approval shall not be unreasonably withheld); and, provided, further, that the failure of any Indemnified Party to give notice as provided herein shall not relieve the Indemnifying Party of its obligations under this Section 2.5, unless and except to the extent that the Indemnifying Party is prejudiced by the failure of the Indemnified Party to provide timely notice. The Indemnified Party may participate in such defense at such party's expense; provided, however, that the Indemnifying Party shall pay such expense if representation of such Indemnified Party by the counsel retained by the Indemnifying Party would be inappropriate due

to actual or potential differing interests between the Indemnified Party and any other party represented by such counsel in such proceeding. No Indemnifying Party, in the defense of any such claim or litigation shall, except with the consent of each Indemnified Party, consent to entry of any judgment or enter into any settlement which does not include as an unconditional term thereof the giving by the claimant or plaintiff to such Indemnified Party of a release from all liability in respect of such claim or litigation, and no Indemnified Party shall consent to entry of any judgment or settle such claim or litigation without the prior written consent of the Indemnifying Party.

(d) In order to provide for just and equitable contribution to joint liability under the Securities Act in any case in which either (i) any holder of Registrable Shares exercising rights under this Agreement, or any controlling person of any such holder, makes a claim for indemnification pursuant to this Section 2.5 but it is judicially determined (by the entry of a final judgment or decree by a court of competent jurisdiction and the expiration of time to appeal or the denial of the last right of appeal) that such indemnification may not be enforced in such case notwithstanding the fact that this Section 2.5 provides for indemnification in such case, or (ii) contribution under the Securities Act may be required on the part of any such selling Stockholder or any such controlling person in circumstances for which indemnification is provided under this Section 2.5; then, in each such case, the Company and such Stockholder will contribute to the aggregate losses, claims, damages or liabilities to which they may be subject (after contribution from others) in such proportions so that such holder is responsible for the portion represented by the percentage that the public offering price of its Registrable Shares offered by the Registration Statement bears to the public offering price of all securities offered by such Registration Statement, and the Company is responsible for the remaining portion; provided, however, that, in any such case, (A) no such holder will be required to contribute any amount in excess of the proceeds to it of all Registrable Shares sold by it pursuant to such Registration Statement, and (B) no person or entity guilty of fraudulent misrepresentation, within the meaning of Section 11(f) of the Securities Act, shall be entitled to contribution from any person or entity who is not guilty of such fraudulent misrepresentation.

2.6. Indemnification with Respect to Underwritten Offering. In the event that Registrable Shares are sold pursuant to a Registration Statement in an underwritten offering pursuant to Section 2.1 hereof, the Company agrees to enter into an underwriting agreement containing customary representations and warranties with respect to the business and operations of an issuer of the securities being registered and customary covenants and agreements to be performed by such issuer, including, without limitation, customary provisions with respect to indemnification by the Company of the underwriters of such offering.

2.7. Information by Holder. Each Stockholder including Registrable Shares in any registration shall furnish to the Company such information regarding such Stockholder and the distribution proposed by such Stockholder as the Company may reasonably request in writing and as shall be required in connection with any registration, qualification or compliance referred to in this Agreement.

2.8. "Stand-Off" Agreement. Each Stockholder, if requested by the Company and the managing underwriter of an offering by the Company of Common Stock or other securities of the Company pursuant to a Registration Statement, shall agree not to sell publicly or otherwise transfer or dispose of any Registrable Shares or other securities of the Company held by such Stockholder for a specified period of time (not to exceed 180 days, which period may be extended upon the request of the managing underwriter for a period of up to fifteen (15) days if the Company issues or proposes to issue an earnings or other public release within fifteen (15) days of the expiration of the 180-day lockup period) following the effective date of such Registration Statement; provided, that:

(a) all officers and directors of the Company, all holders of 1% or more of the Company's equity securities and all selling stockholders in such offering enter into similar agreements, and any discretionary modification, waiver or termination of the restrictions of such agreements (including this agreement) by the Company or the managing underwriter shall apply to all persons subject to such agreements on a pro rata basis, based upon the number of shares held by each subject to such agreements;

(b) such agreement shall only apply to the first Registration Statement covering Common Stock to be sold by or on behalf of the Company to the public in an underwritten offering; and

(c) such agreement shall not apply to securities acquired in an open market transaction after such Registration Statement is declared effective.

2.9. Limitations on Subsequent Registration Rights. The Company shall not, without the prior written consent of Stockholders holding at least a majority of the Registrable Shares held by the Stockholders, enter into any agreement (other than this Agreement) with any holder or prospective holder of any securities of the Company which would allow such holder or prospective holder to include securities of the Company in any Registration Statement upon terms which are more favorable to such holder or prospective holder than the terms on which holders of Registrable Shares may include shares in such registration.

2.10. Rule 144 Requirements. After the earliest of (a) the closing of the sale of securities of the Company pursuant to a Registration Statement, (b) the registration by the Company of a class of securities under Section 12 of the Exchange Act, or (c) the issuance by the Company of an offering circular pursuant to Regulation A under the Securities Act, the Company agrees to:

(i) comply with the requirements of Rule 144(c) under the Securities Act with respect to current public information about the Company;

(ii) use its best efforts to file with the Commission in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act (at any time after it has become subject to such reporting requirements); and

(iii) furnish to any holder of Registrable Shares upon request (A) a written statement by the Company as to its compliance with the requirements of said Rule 144(c), and the reporting requirements of the Securities Act and the Exchange Act (at any time after it has become subject to such reporting requirements), (B) a copy of the most recent annual or quarterly report of the Company, and (C) such other reports and documents of the Company as such holder may reasonably request to avail itself of any similar rule or regulation of the Commission allowing it to sell any such securities without registration.

ARTICLE III. RIGHT OF FIRST REFUSAL

3.1. Right of First Refusal.

(a) So long as at least twenty percent (20%) of the Shares that have been issued remain outstanding, the Company shall not issue, sell or exchange, agree to issue, sell or exchange, or reserve or set aside for issuance, sale or exchange, (i) any shares of its Common Stock, (ii) any other equity securities of the Company, including, without limitation, shares of preferred stock, (iii) any option, warrant or other right to subscribe for, purchase or otherwise acquire any equity securities of the Company, or (iv) any debt securities convertible into capital stock of the Company (collectively, the "Offered Securities"), unless in each such case the Company shall have first complied with Article III of this Agreement.

(b) The Company shall deliver to each Investor a written notice of any proposed or intended issuance, sale or exchange of Offered Securities (the "Offer"), which Offer shall (i) identify and describe the Offered Securities, (ii) describe the price and other terms upon which they are to be issued, sold or exchanged, and the number or amount of the Offered Securities to be issued, sold or exchanged, (iii) identify the persons or entities, if known, to which or with which the Offered Securities are to be offered, issued, sold or exchanged, and (iv) offer to issue and sell to or exchange with such Investor (A) that number of the Offered Securities which represents the same percentage of the total Offered Securities as the number of shares of Common Stock into which all of the Company's capital stock held by such Investor are convertible represents of the total number of outstanding shares of Common Stock (including all shares of the Company's capital stock convertible into Common Stock, counting such shares as if converted (the "Basic Amount")) and (B) such additional portion of the Offered Securities as such Investor shall indicate it will purchase or acquire should any other Investor subscribe for less than its Basic Amount (the "Undersubscription Amount"). Each Investor shall have the right, for a period of 10 business days following delivery of the Offer, to accept the Offer in the manner provided in paragraph 3.1(c) below. The Offer by its terms shall remain open and irrevocable until the earlier of the expiration of such 10-business-day period or the receipt by the Company of notice from all of the Investors.

(c) To accept an Offer, in whole or in part, an Investor must deliver a written notice to the Company prior to the end of the 10-business-day period of the Offer, setting forth the portion of the Investor's Basic Amount that such Investor elects to purchase and, if such Investor shall elect to purchase all of its Basic Amount, the Undersubscription Amount (if any) that such Investor elects to purchase (the "Notice of Acceptance"). If the Basic Amounts subscribed for by all Investors are less than the total Basic Amounts, then each Investor who has set forth an Undersubscription Amount in its Notice of Acceptance shall be entitled to purchase, in addition to the Basic Amounts subscribed for, the Undersubscription Amount it has subscribed for; provided, however, that should the Undersubscription Amounts subscribed for exceed the difference between the total Basic Amounts and the Basic Amounts subscribed for (the "Available Undersubscription Amount"), each Investor who has subscribed for any

Undersubscription Amount shall be entitled to purchase only that portion of the Available Undersubscription Amount as the Undersubscription Amount subscribed for by such Investor bears to the total Undersubscription Amounts subscribed for by all Investors, subject to rounding by the Board of Directors to the extent it reasonably deems necessary.

(d) In the event that Notices of Acceptance are not given by such Investors in respect of all the Offered Securities, the Company shall have 90 days from the expiration of the 10-day period set forth in Section 3.1(b) hereof, to issue, sell or exchange all or any part of such Offered Securities as to which a Notice of Acceptance has not been given by the Investors (the "Refused Securities"), but only to the offerees or purchasers described in the Offer and only upon terms and conditions (including, without limitation, unit prices and interest rates) which are not more favorable, in the aggregate, to the acquiring person or persons or less favorable to the Company than those set forth in the Offer.

(e) In the event the Company shall propose to sell less than all of the Refused Securities, then each Investor may, at its sole option and in its sole discretion, reduce the number or amount of the Offered Securities specified in its Notice of Acceptance to an amount that shall be not less than the number or amount of the Offered Securities that the Investor elected to purchase pursuant to Section 3.1(c) hereof, multiplied by a fraction (i) the numerator of which shall be the number or amount of Offered Securities the Company actually proposes to issue, sell or exchange (including Offered Securities to be issued or sold to Investors pursuant to Section 3.1(c) hereof prior to such reduction) and (ii) the denominator of which shall be the amount of all Offered Securities. In the event that an Investor so elects to reduce the number or amount of Offered Securities specified in its Notice of Acceptance, the Company may not issue, sell or exchange more than the reduced number or amount of the Offered Securities unless and until such securities have again been offered to the Investors in accordance with Section 3.1(b) hereof.

(f) Upon (i) the closing of the issuance, sale or exchange of all or less than all the Refused Securities or (ii) such other date agreed to by the Company and Investors who have subscribed for over 66.67% of the Offered Securities subscribed for by the Investors, the Investors shall acquire from the Company, and the Company shall issue to the Investors, the number or amount of Offered Securities specified in the Notices of Acceptance, as reduced pursuant to Section 3.1(e) hereof if the Investors have so elected, upon the terms and conditions specified in the Offer. The purchase by the Investors of any Offered Securities is subject in all cases to the preparation, execution and delivery by the Company and the participating Investors of a purchase agreement relating to such Offered Securities reasonably satisfactory in form and substance to the participating Investors and the Company.

(g) Any Offered Securities not acquired by the Investors or other persons in accordance with Section 3.1(d) hereof may not be issued, sold or exchanged until they are again offered to the Investors under the procedures specified in this Section 3.1.

3.2. Excluded Issuances. The rights of the Investors under this Article III shall not apply to:

(a) shares of Common Stock issued or issuable upon conversion of shares of Preferred Stock pursuant to the Company's Certificate of Incorporation;

(b) shares of Common Stock issued or issuable as a dividend or distribution on Preferred Stock;

(c) shares of Common Stock issued or issuable by reason of a dividend, stock split, split-up or other distribution on shares of Common Stock that is covered by Article Fourth, Section B.5.5 or B.5.6 of the Company's Certificate of Incorporation, as the same may be amended from time to time;

(d) up to 2,650,000 shares of Common Stock (inclusive of shares of Common Stock or options granted prior to the date of this Agreement under a plan), or options exercisable therefor (subject to appropriate adjustment for stock splits, stock dividends, reclassifications, recapitalizations and other similar events affecting such shares), plus such additional number of shares as may be approved by the Board of Directors of the Company, issued or issuable to officers, directors, consultants and employees of the Company or any subsidiary pursuant to any plan, agreement or arrangement approved by the Board of Directors of the Company;

(e) securities issued solely in connection with the acquisition (whether by merger or otherwise) by the Company or any of its subsidiaries of all or substantially all of the stock or assets of any other entity; provided, that such offering is approved by the Board of Directors of the Company; or

(f) securities issued to financial institutions or lessors in connection with commercial credit arrangements, equipment financings or similar transactions, provided, in each case, such is approved by holders of at least a majority of the then outstanding Shares voting together as a single class on an as-converted to Common Stock basis.

ARTICLE IV. AFFIRMATIVE COVENANTS

4.1. Inspection. The Company shall permit each Investor, or any authorized representative thereof, so long as (i) such Investor shall own an aggregate of at least ten percent (10%) of the Shares (including shares of the Common Stock into which such Shares shall have been converted) originally purchased by such Investor, and (ii) at least an aggregate of twenty percent (20%) of the Shares (including shares of the Common Stock into which such Shares shall have been converted) are outstanding at such time, to visit and inspect the properties of the Company, including its corporate and financial records, and to discuss its business and finances with officers of the Company, during normal business hours following reasonable notice and as often as may be reasonably requested.

4.2. Financial Statements and Other Information. The Company shall deliver to each Investor, or any authorized representative thereof, so long as (i) such Investor shall own an aggregate of at least ten percent (10%) of the Shares (including shares of the Common Stock into which such Shares shall have been converted) originally purchased by such Investor, and (ii) at least an aggregate of twenty percent (20%) of the Shares (including shares of the Common Stock into which such Shares shall have been converted) are outstanding at such time:

(a) within 150 days after the end of each fiscal year of the Company, an audited balance sheet of the Company as at the end of such year and audited statements of income and of cash flows of the Company for such year, certified by certified public accountants selected by the Company who are acceptable to the Investors holding at least a majority of the Shares then outstanding, and prepared in accordance with generally accepted accounting principles ("GAAP");

(b) within 45 days after the end of each calendar quarter, an unaudited balance sheet of the Company as at the end of such quarter, and unaudited statements of income and of cash flows of the Company for such quarter and for the current fiscal year;

(c) within 30 days after the end of each calendar month, an unaudited balance sheet of the Company as at the end of such month, and unaudited statements of income and of cash flows of the Company for such month and for the current fiscal year and the fiscal quarter to the end of such month;

(d) as soon as available, but in any event 30 days prior to the commencement of each new fiscal year, an operating plan and budget for such fiscal year;

(e) such other notices, information and data with respect to the Company and its subsidiaries as the Company delivers to the holders of its capital stock at the same time it delivers such items to such holders; and

(f) with reasonable promptness, such other information and data as such Investor may from time to time reasonably request.

4.3. Material Changes and Litigation. The Company shall promptly notify the Investors of any material adverse change in the business, prospects, assets or condition, financial or otherwise, of the Company and of any litigation or governmental proceeding or investigation brought or, to the Company's knowledge, threatened against the Company, or against the Founders, or an officer, director, key employee or principal stockholder of the Company which, if adversely determined, would have a material adverse effect on the Company.

4.4. Confidentiality of Records. Each Investor agrees, severally and not jointly, to use confidential information provided by the Company only for monitoring its investment in Company and not to disclose any such confidential information to any third party, except with the consent of the Company. The foregoing requirements of confidentiality shall not apply to information: (i) that is now or in the future becomes freely available to the public through no fault of or action by the using or disclosing party; (ii) that is in the possession of the using or disclosing party prior to the time such information was obtained from the Company or that is independently acquired by the using or disclosing party without the aid, application or use of such other information; (iii) that is obtained by the using or disclosing party in good faith without knowledge of any breach of a secrecy arrangement from a third party; (iv) that is required to be disclosed by applicable law or order of government agency or self-regulatory body; (v) that is disclosed to any partner, parent or subsidiary of such Investor in the ordinary course of business, provided that such Investor informs such person that such information is confidential and directs such person to maintain the confidentiality of such information; or (vi)

that is disclosed in connection with any bona-fide offer to purchase any shares in the Company, provided, that the proposed transferor obtains an undertaking from the proposed transferee to keep such information confidential in accordance with the provision of this Section 4.4 prior to such disclosure.

4.5. Other Investments. The Company acknowledges that the Investor may be in the business of venture capital investing and therefore, may review the business plans and related proprietary information of many enterprises, including enterprises which may have products or services which compete directly or indirectly with those of the Company. Nothing in this Agreement shall preclude or in any way restrict the Investor from investing or participating in any particular enterprise whether or not such enterprise has products or services which compete with those of the Company.

4.6. Agreements with Employees. The Company shall require each present or future employee or consultant who is an executive officer of the Company or has duties in the areas of technology, sales or marketing to enter into non-disclosure, non-competition and assignment of intellectual property agreement in such form as has been or may be approved by the Board of Directors of the Company, including a majority of the Preferred Directors (as defined in the Company's Certificate of Incorporation).

4.7. Reservation of Shares. The Company shall reserve and maintain a sufficient number of shares of Common Stock for issuance upon conversion of the Shares.

4.8. Employee Stock Options and Restricted Stock. Unless otherwise unanimously approved by the Company's Board of Directors, any restricted stock or stock options issued by the Company after the date hereof to any employee or consultant shall vest 25% on the first anniversary of the first day of such employee or consultant's employment or consultancy relationship with the Company with ratable monthly vesting over the next three years and, in the event of a Change of Control (as defined in the Company's 2010 Special Stock Incentive Plan or the Company's 2011 Stock Incentive Plan, as the case may be), (1) if, following such Change of Control, either (i) such employee or consultant is terminated without Cause (as defined in the Company's 2010 Special Stock Incentive Plan or the Company's 2011 Stock Incentive Plan, as the case may be) by the surviving entity in such Change of Control or (ii) such employee or consultant voluntarily terminates his or her employment or consulting relationship with the Company for Good Reason (as defined in the Company's 2010 Special Stock Incentive Plan or the Company's 2011 Stock Incentive Plan, as the case may be), any option held by such employee or consultant shall become fully-vested and exercisable in full and any shares of restricted stock held by such employee or consultant shall become fully-vested and no longer subject to forfeiture or repurchase by the Company and (2) if, within thirty (30) days prior to such Change of Control, such employee or consultant's employment or consultancy relationship with the Company is terminated by the Company without Cause (as defined in the Company's 2010 Special Stock Incentive Plan or the Company's 2011 Stock Incentive Plan, as the case may be) or by such employee or consultant for Good Reason (as defined in the Company's 2010 Special Stock Incentive Plan or the Company's 2011 Stock Incentive Plan, as the case may be), then, on the effective date of such Change of Control, any option held by such employee or consultant shall become fully-vested and exercisable in full and any shares of restricted stock held by such employee or consultant shall become fully-vested and no longer subject to forfeiture or repurchase by the Company.

4.9. Insurance. The Company shall use its commercially reasonable efforts to maintain Directors and Officers liability insurance and term "key person" insurance on any employee requested by the Board of Directors (including a majority of the directors designated by the holders of Preferred Stock), each in an amount and on terms and conditions satisfactory to the Board of Directors (including a majority of the directors designated by the holders of Preferred Stock) until such time as the Board of Directors (including a majority of the directors designated by the holders of Preferred Stock) determines that such insurance should be discontinued. The key person policy shall name the Company as loss payee, and neither policy shall be cancelable by the Company without prior approval by the Board of Directors (including a majority of the directors designated by the holders of Preferred Stock).

4.10. Board Matters.

(a) The Company shall reimburse the directors for all reasonable out-of-pocket travel expenses incurred (consistent with the Company's travel policy) in connection with attending meetings of the Board of Directors. At the request of a majority of the Preferred Directors (as defined in the Company's Certificate of Incorporation), the Company shall cause to be established, as soon as practicable after such request, and will maintain an audit and/or compensation committee, as applicable, each of which shall consist solely of non-management directors. Each non-employee director shall be entitled in such person's discretion to be a member of any Board committee, except with respect to any committee of the Board of Directors formed for the purpose of acting as the administrator of the Company's 2010 Special Stock Incentive Plan, and each committee of the Board of Directors, if any, shall include at least one of the Preferred Directors.

(b) Except as may otherwise be set forth in any applicable management rights letter or other written agreement with an Investor, a board observer may participate in person at the Company's Board of Directors meetings only at the explicit invitation of the Chairman of the Board of Directors, where such invitation may be granted solely at the Chairman's discretion (each a "Chairman Invited Observer"). The Company shall reimburse up to 50% of a Chairman Invited Observer's reasonable out of pocket travel expenses incurred (consistent with the Company's travel policy) in connection with attending any meeting of the Board of Directors to which he or she is invited.

4.11. Successor Indemnification. If the Company or any of its successors or assignees consolidates with or merges into any other person or entity and is not the continuing or surviving corporation or entity of such consolidation or merger, then to the extent necessary, proper provision shall be made so that the successors and assignees of the Company assume the obligations of the Company with respect to indemnification of members of the Board of Directors as in effect immediately before such transaction, whether such obligations are contained in the Company's Bylaws, its Certificate of Incorporation, or elsewhere, as the case may be.

4.12. Termination of Covenants. The covenants of the Company contained in Sections 4.1 through 4.8 shall terminate, and be of no further force or effect, upon (i) the effective date of a registration statement filed by the Company under the Securities Act, covering the Initial Public Offering, or (ii) upon a sale of the Company by merger in which the shareholders of the Company in their capacity as such no longer own a majority of the outstanding equity securities of the Company (or its successor), or (iii) for the covenants in Sections 4.1, 4.2, and 4.3 only, at such time when less than 20% of the Shares that have been issued (including shares of Common Stock into which such Shares shall have been converted) remain outstanding.

4.13. Subsidiaries. Unless approved by Stockholders holding at least a majority of the Registrable Shares, each subsidiary of the Company shall comply with the covenants set forth in Sections 4.1, 4.2, 4.3, 4.6, 4.9, 4.10, and 4.11 above to the same extent as the Company.

ARTICLE V. GENERAL

5.1. Termination. Article III of this Agreement shall terminate in its entirety upon the earlier of: (a) an Acquisition (as defined below); (b) immediately prior to the closing of an Initial Public Offering; (c) the date upon which less than 20% of the Shares remain outstanding, or (d) the redemption of all Shares. An "Acquisition" shall mean any (i) merger or consolidation which results in the voting securities of the Company outstanding immediately prior thereto representing immediately thereafter (either by remaining outstanding or by being converted into voting securities of the surviving or acquiring entity) less than a majority of the combined voting power of the voting securities of the Company or such surviving or acquiring entity outstanding immediately after such merger or consolidation, (ii) sale of all or substantially all the assets of the Company and the distribution of the net proceeds therefrom in accordance with the Company's Certificate of Incorporation or (iii) sale of shares of capital stock of the Company, in a single transaction or series of related transactions, representing more than 50% of the voting power of the voting securities of the Company.

5.2. Transfers of Rights. This Agreement, and the rights and obligations of each Investor hereunder, may be assigned by such Investor (i) to any person or entity to which such Investor transfers a number of shares of Preferred Stock equal to not less than five percent (5%) of the total number of shares of Preferred Stock held by such Investor (subject to adjustment for any stock dividend, stock split, stock split-up, combination or shares or the like) immediately following the Closing (as defined in the Purchase Agreement), (ii) if such Investor is an individual, to any family member or trust or partnership established for such family member, or (iii) if such Investor is a corporation, partnership, limited liability company or other entity, to any current or former partner (including general partner and limited partner), shareholder, member or other affiliate of such Investor, provided that, in any case, the transferee is not a competitor of the Company as determined in good faith by the Board of Directors of the Company, and provided further that a private equity fund shall not be considered a competitor of the Company for purposes of this Section 5.2. Such transferee shall be deemed an "Investor" for purposes of this Agreement, provided that the transferee provides written notice of such assignment to the Company and agrees in writing to be bound by the terms and conditions set forth herein as if he, she or it were an original Investor.

5.3. Severability. The provisions of this Agreement are severable, so that the invalidity or unenforceability of any provision of this Agreement shall not affect the validity or enforceability of any other term or provision of this Agreement, which shall remain in full force and effect.

5.4. Specific Performance. In addition to any and all other remedies that may be available at law in the event of any breach of this Agreement, each Investor shall be entitled to specific performance of the agreements and obligations of the other parties hereunder and to such other injunctive or other equitable relief as may be granted by a court of competent jurisdiction.

5.5. Governing Law.

(a) This Agreement shall be governed by and construed in accordance with the laws of the State of Delaware (without reference to the conflicts of law provisions thereof). Subject to Subsection 5.6(b), the parties (i) hereby irrevocably and unconditionally submit to the jurisdiction of the state courts of Massachusetts and to the jurisdiction of the United States District Court for the District of Massachusetts for the purpose of any suit, action or other proceeding arising out of or based upon this Agreement, (ii) agree not to commence any suit, action or other proceeding arising out of or based upon this Agreement except in the state courts of Massachusetts or the United States District Court for the District of Massachusetts, and (iii) hereby waive, and agree not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above-named courts, that its property is exempt or immune from attachment or execution, that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court.

(b) Notwithstanding the foregoing Subsection 5.6(a), in the event there is a suit, action or other proceeding of the type described in Article Eleventh of the Company's Amended and Restated Certificate of Incorporation (i) pending in the Court of Chancery in the State of Delaware or (ii) to be filed simultaneously with the Court of Chancery in the State of Delaware, in either case with respect to facts related to any suit, action or proceeding under this Agreement, then any suit, action or other proceeding under this Agreement must be brought exclusively in the Court of Chancery in the State of Delaware and the parties (x) hereby irrevocably and unconditionally submit to the jurisdiction of the Court of Chancery in the State of Delaware and (y) hereby waive, and agree not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above-named courts, that its property is exempt or immune from attachment or execution, that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court.

5.6. Notices. All notices and other communications given or made pursuant to this Agreement shall be in writing and shall be deemed effectively given upon the earlier of actual receipt or: (i) personal delivery to the party to be notified, (ii) when sent, if sent by electronic mail or facsimile during normal business hours of the recipient, and if not sent during normal

business hours, then on the recipient's next business day, (iii) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (iv) one (1) business day after deposit with a nationally recognized overnight courier, freight prepaid, specifying next business day delivery, with written verification of receipt:

(a) If to the Company, at 890 Winter Street, Suite 230, Waltham, Massachusetts 02451, Attn: Michael Gray, or at such other address or addresses as may have been furnished in writing by the Company to the Investors, with a copy to Foley Hoag LLP, 155 Seaport Boulevard, Boston, Massachusetts 02210, Attention: Robert L. Birnbaum, Esq.

(b) If to an Investor, at its address set forth on Exhibit A attached hereto, or at such other address or addresses as may have been furnished in writing by such Investor to the Company.

Notices provided in accordance with this Section 5.6 shall be deemed delivered upon personal delivery, one business day after being sent via a reputable nationwide overnight courier service, or two business days after deposit in the mail.

5.7. Complete Agreement; Amendments; Waivers.

(a) This Agreement constitutes the full and complete agreement of the parties hereto with respect to the subject matter hereof.

(b) This Agreement may be amended at any time by a written instrument signed by the Company and Stockholders holding at least a majority of the Registrable Shares. The applicability of any provisions of this Agreement in a particular instance may be waived by the party entitled to the benefit of such provision(s) as follows: in the case of the Company, by written instrument signed on behalf of the Company by a duly authorized officer; and in the case of the Stockholders, by a written instrument signed by the Stockholders holding at least a majority of the Registrable Shares. No waivers of or exceptions to any term, condition or provision of this Agreement, in any one or more instances, shall be deemed to be, or construed as, a further or continuing waiver of any such term, condition or provision. Any such amendment or waiver effected in accordance with this Section 5.7(b) shall be binding on all parties hereto, even if they did not consent to such amendment or waiver.

5.8. Construction. A reference to a Section or Exhibit shall mean a Section in or Exhibit to, this Agreement unless otherwise expressly stated. The titles and headings herein are for reference purposes only and shall not in any manner limit the construction of this Agreement which shall be considered as a whole. The words "include," "includes" and "including" when used herein shall be deemed in each case to be followed by the words "without limitation." Whenever the context may require, any pronouns used herein shall include the corresponding masculine, feminine or neuter forms, and the singular form of names and pronouns shall include the plural and vice-versa.

5.9. Counterparts; Facsimile Signatures. This Agreement may be executed in any number of counterparts, each of which shall be deemed to be an original, and all of which together shall constitute one Agreement binding on all the parties hereto. This Agreement may be executed by facsimile signatures.

5.10. Aggregation of Shares. All shares of capital stock of the Company held or acquired by affiliated entities or persons shall be aggregated together for the purpose of determining the availability of any rights under this Agreement.

[Remainder of this page intentionally left blank.]

IN WITNESS WHEREOF, this Second Amended and Restated Investors' Rights Agreement has been executed under seal as of the date first written above.

COMPANY:

ARSANIS, INC.

By: /s/ Tillman Gerngross
Name: Tillman Gerngross
Title: President

INVESTORS:

ORBIMED PRIVATE INVESTMENTS IV LP

By: OrbiMed Capital GP IV LLC
Its General Partner

By: OrbiMed Advisors LLC,
Its Managing Member

By: /s/ Carl L. Gordon
Name: Carl L. Gordon
Title: Member

INVESTORS:

POLARIS VENTURE PARTNERS V, L.P.

By: Polaris Venture Management Co. V, L.L.C.,
Its General Partner

By: /s/ William E. Bilodeau
Name: William E. Bilodeau
Title: Attorney-in-fact

POLARIS VENTURE PARTNERS ENTREPRENEURS' FUND V, L.P.

By: Polaris Venture Management Co. V, L.L.C.,
Its General Partner

By: /s/ William E. Bilodeau
Name: William E. Bilodeau
Title: Attorney-in-fact

POLARIS VENTURE PARTNERS FOUNDERS' FUND, V, L.P.

By: Polaris Venture Management Co. V, L.L.C.,
Its General Partner

By: /s/ William E. Bilodeau
Name: William E. Bilodeau
Title: Attorney-in-fact

POLARIS VENTURE PARTNERS SPECIAL FOUNDERS' FUND V, L.P.

By: Polaris Venture Management Co. V, L.L.C.,
Its General Partner

By: /s/ William E. Bilodeau
Name: William E. Bilodeau
Title: Attorney-in-fact

INVESTORS:

SV LIFE SCIENCES FUND V, L.P.

By: SV Life Sciences Fund V (GP), L.P.,
Its sole General Partner

By: SVLSF V, LLC,
Its sole General Partner

By: /s/ Denise W. Marks
Name: Denise W. Marks
Title: SVLSF V, LLC, Member

SV LIFE SCIENCES FUND V STRATEGIC PARTNERS, L.P.

By: SV Life Sciences Fund V (GP), L.P.,
Its sole General Partner

By: SVLSF V, LLC,
Its sole General Partner

By: /s/ Denise W. Marks
Name: Denise W. Marks
Title: SVLSF V, LLC, Member

INVESTORS:

NEOMED INNOVATION V L.P.

By: /s/ Peter Canham
Name: Peter Canham
Title: Alternative Director

By: /s/ Tamara Williams
Name: Tamara Williams
Title: Director

INVESTORS:

EMBL TECHNOLOGY FUND II GMBH & CO. KG

By: EMBL VENTURES VERWALTUNGS GMBH, its General Partner

By: /s/ Jan Adams
Name: Jan Adams
Title: Executive Director

By: /s/ Stefan Herr
Name: Stefan Herr
Title: Executive Director

INVESTORS:

Anna-Maria and Stephen Kellen Foundation, Inc.

By: /s/ Michael M. Kellen
Name: Michael M. Kellen
Title: President

EXHIBIT A

SCHEDULE OF INVESTORS

OrbiMed Private Investments IV, LP
601 Lexington Avenue (at 53rd Street)
54th Floor
New York, NY 10022-4629

Polaris Venture Partners V, L.P.
One Marina Park Drive, 10th Floor
Boston, MA 02210

Polaris Venture Partners Entrepreneurs' Fund V, L.P.
[Same address as above]

Polaris Venture Partners Founders' Fund V, L.P.
[Same address as above]

Polaris Venture Partners Special Founders' Fund V, L.P.
[Same address as above]

SV Life Sciences Fund V, L.P.
One Boston Place
201 Washington Street, Suite 3900
Boston, MA 02108
Attn: Denise Marks

SV Life Sciences Fund V Strategic Partners, L.P.
[Same address as above]

NeoMed Innovation V L.P.
13, Castle Street
Jersey, JE4 5UT
cc to: claudio@neomed.net

EMBL Technology Fund II GmbH & Co. KG
Boxbergring 107
D-69126 Heidelberg
Germany
Attn: Jan Adams

Anna-Maria and Stephen Kellen Foundation, Inc.
1345 Avenue of the Americas, 48th Floor
New York, NY 10105-0048
Attn. Michael M. Kellen

JOINDER AGREEMENT TO SECOND AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

The undersigned is executing and delivering this Joinder Agreement pursuant to the Second Amended and Restated Investors' Rights Agreement dated as of April 12, 2016, as amended by that certain First Amendment to the Second Amended and Restated Investors' Rights Agreement dated as of April 24, 2017 (as so amended and as the same may be amended or amended and restated hereafter, the "**Agreement**"), by and among Arsanis, Inc., a Delaware corporation (the "**Company**") and the other parties named therein.

By executing and delivering to the Company this Joinder Agreement, the undersigned hereby (a) agrees that it is a party to the Agreement as an "Investor" and "Stockholder" (each as defined in the Agreement) for all purposes thereunder; and (b) adopts the Agreement as of the date written below, with the same force and effect as if the undersigned were originally a party thereto. Any notice required or permitted by the Agreement shall be given to Investor at the address or facsimile number listed below Investor signature hereto.

Accordingly, the undersigned has executed and delivered this Joinder Agreement as of the 24 day of April, 2017.

ALEXANDRIA VENTURE INVESTMENTS, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, INC.,
a Maryland corporation, managing member

By: /s/ Aaron Jacobson
Name: Aaron Jacobson
Title: VP – Corporate Counsel

Address: 385 E. Colorado Blvd., Suite 299
Pasadena, CA 91101 Accepted and agreed:

ARSANIS, INC.

By: /s/ Rene Russo
Name: Rene Russo
Its: President and Chief Executive Officer

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Accordingly, the undersigned has executed and delivered this Joinder Agreement as of the 24 day of April, 2017.

GV 2016, L.P.
By: GV 2016 GP, L.P., its General Partner
By: GV 2016 GP, L.L.C., its General Partner

By: /s/ Jennifer L. Kercher

Name: Jennifer L. Kercher
Title: Authorized Signatory

Address: Attn: Jennifer L. Kercher
c/o GV
1600 Amphitheatre Parkway
Mountain View, CA 94043

Accepted and agreed:

ARSANIS, INC.

By: /s/ Rene Russo
Name: Rene Russo
Its: President and Chief Executive Officer

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Accordingly, the undersigned has executed and delivered this Joinder Agreement as of the 24 day of April, 2017.

N5 Investment AS

By: /s/ Pål R. Jenson
Pål Jenson, an authorized person, for and on its behalf

Address:

Parkveien 55
0256 Oslo
Norway

Accepted and agreed:

ARSANIS, INC.

By: /s/ Rene Russo
Name: Rene Russo
Its: President and Chief Executive Officer

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Accordingly, the undersigned has executed and delivered this Joinder Agreement as of the 24 day of April, 2017.

Bill & Melinda Gates Foundation

By: /s/ Jim Bromley
Name: Jim Bromley
Title: Chief Financial Officer

Address: 1432 Elliot Ave W.
Seattle, WA 98119
Attention: General Counsel

Accepted and agreed:

ARSANIS, INC.

By: /s/ Rene Russo
Name: Rene Russo
Its: President and Chief Executive Officer

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Accordingly, the undersigned has executed and delivered this Joinder Agreement as of the 24 day of April, 2017.

SV LIFE SCIENCES FUND VI, L.P.

By: SV Life Sciences Fund VI (GP), L.P.,
Its sole General Partner

By: SVLSF VI, LLC,
Its sole General Partner

By: /s/ Denise W. Marks
Name: **Denise W. Marks**
Title: **SVLSF VI, LLC, Member**

Address: One Boston Place
201 Washington Street, Suite, 3900
Boston, MA 02108
Attn: Denise Marks

Accepted and agreed:

ARSANIS, INC.

By: /s/ Rene Russo
Name: Rene Russo
Its: President and Chief Executive Officer

JOINDER AGREEMENT TO SECOND AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

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Accordingly, the undersigned has executed and delivered this Joinder Agreement as of the 24 day of April, 2017.

SV LIFE SCIENCES FUND VI STRATEGIC PARTNERS, L.P.

By: SV Life Sciences Fund VI (GP), L.P.,
Its sole General Partner

By: SVLSF VI, LLC,
Its sole General Partner

By: /s/ Denise W. Marks
Name: Denise W. Marks
Title: **SVLSF VI, LLC, Member**

Address: One Boston Place
201 Washington Street, Suite, 3900
Boston, MA 02108
Attn: Denise Marks

Accepted and agreed:

ARSANIS, INC.

By: /s/ Rene Russo
Name: Rene Russo
Its: President and Chief Executive Officer

JOINDER AGREEMENT TO SECOND AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

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Accordingly, the undersigned has executed and delivered this Joinder Agreement as of the 24 day of April, 2017.

/s/ Tillman U. Gerngross
Tillman U. Gerngross

Address: _____

Accepted and agreed:

ARSANIS, INC.

By: /s/ Rene Russo
Name: Rene Russo
Its: President and Chief Executive Officer

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Accordingly, the undersigned has executed and delivered this Joinder Agreement as of the 24 day of April, 2017.

/s/ Michael W. Bonney
Michael W. Bonney

Address: 536 Commercial Street
Boston, MA 02109

Accepted and agreed:

ARSANIS, INC.

By: /s/ Rene Russo
Name: Rene Russo
Its: President and Chief Executive Officer

Exhibit 10.2

ARSANIS, INC.

2010 Special Stock Incentive Plan

(As amended through July 30, 2013)

1. **Purpose**. The purpose of this stock incentive plan (the "Plan") is to secure for Arsanis, Inc., a Delaware corporation (the "Company"), and its shareholders the benefits arising from capital stock ownership by employees, officers and directors of, and consultants or advisors to, the Company and its parent and subsidiary corporations who are expected to contribute to the Company's future growth and success. Under the Plan recipients may be awarded (i) Options (as defined in Section 2.1) to purchase authorized but unissued shares of the Company's common stock, $.001 par value per share ("Common Stock"), and (ii) shares of the Company's Common Stock ("Restricted Stock Awards"). Except where the context otherwise requires, the term "Company" shall include any parent and all present and future subsidiaries of the Company as defined in Sections 424(e) and 424(f) of the Internal Revenue Code of 1986, as amended or replaced from time to time (the "Code"). Those provisions of the Plan which make express reference to Section 422 shall apply only to Incentive Stock Options (as that term is defined in the Plan).

2. **Types of Awards and Administration**.

   2.1. **Options**. Options granted pursuant to the Plan ("Options") shall be authorized by action of the Board of Directors of the Company (the "Board of Directors") and may be either incentive stock options ("Incentive Stock Options") meeting the requirements of Section 422 of the Code or non-statutory Options which are not intended to meet the requirements of Section 422 of the Code. All Options when granted are intended to be non-statutory Options, unless the applicable Option Agreement (as defined in Section 5.1) explicitly states that the Option is intended to be an Incentive Stock Option. If an Option is intended to be an Incentive Stock Option, and if for any reason such Option (or any portion thereof) shall not qualify as an Incentive Stock Option, then, to the extent of such nonqualification, such Option (or portion thereof) shall be regarded as a non-statutory Option appropriately granted under the Plan provided that such Option (or portion thereof) otherwise meets the Plan's requirements relating to non-statutory Options. The vesting of Options may be conditioned upon the completion of a specified period of employment with the Company and/or such other conditions or events as the Board of Directors may determine. Unless otherwise expressly provided in any Option granted under the Plan, the unvested portion of such Option ("Unvested Portion") may be exercised by the holder of such Option if such holder simultaneously enters into an agreement satisfactory to the Company in its sole discretion that subjects the shares thereby acquired to vesting under the same terms and over the same period as such Unvested Portion would have vested had it not been exercised.

   2.2. **Restricted Stock Awards**. The Board of Directors in its discretion may grant Restricted Stock Awards, entitling the recipient to acquire, for a purchase price, if any, determined by the Board of Directors, shares of Common Stock subject to such restrictions and conditions as the Board of Directors may determine at the time of grant ("Restricted Stock"), including continued employment and/or achievement of pre-established performance goals and objectives.

2.3. **Administration**. The Plan shall be administered by the Board of Directors of the Company, whose construction and interpretation of the terms and provisions of the Plan shall be final and conclusive. The Board of Directors may in its sole discretion authorize issuance of Restricted Stock and grant Options to purchase shares of Common Stock, and issuance of shares upon exercise of such Options as provided in the Plan. The Board shall have authority, subject to the express provisions of the Plan, to construe the respective Restricted Stock Agreements (as defined in Section 5.2), Option Agreements and the Plan, to prescribe, amend and rescind rules and regulations relating to the Plan, to determine the terms and provisions of the respective Restricted Stock Agreements and Option Agreements, and to make all other determinations in the judgment of the Board of Directors necessary or desirable for the administration of the Plan. The Board of Directors may correct any defect or supply any omission or reconcile any inconsistency in the Plan or in any Restricted Stock Agreement or Option Agreement in the manner and to the extent it shall deem expedient to carry the Plan into effect and it shall be the sole and final judge of such expediency. No director or person acting pursuant to authority delegated by the Board of Directors shall be liable for any action or determination under the Plan made in good faith. The Board of Directors may, to the full extent permitted by or consistent with applicable laws or regulations (including, without limitation, applicable state law), delegate any or all of its powers under the Plan to a committee (the "Committee") appointed by the Board of Directors, and if the Committee is so appointed, to the extent of such delegation, all references to the Board of Directors in the Plan shall mean and relate to such Committee.

3. **Eligibility**. Options may be granted, and Restricted Stock may be issued, to persons who are, at the time of such grant or issuance, employees, officers or directors of, or consultants or advisors to, the Company; *provided*, that the class of persons to whom Incentive Stock Options may be granted shall be limited to employees of the Company.

4. **Stock Subject to Plan**. Subject to adjustment as provided in Section 14 below, the maximum number of shares of Common Stock which may be issued under the Plan is 2,000,000 shares. If an Option granted hereunder shall expire or terminate for any reason without having been exercised in full, the unpurchased shares subject to such Option shall again be available for subsequent Option grants or Restricted Stock Awards under the Plan. If shares of Restricted Stock issued hereunder shall be forfeited to, or otherwise repurchased by, the Company pursuant to a Restricted Stock Agreement, such repurchased shares shall again be available for subsequent Option grants or Restricted Stock Awards under the Plan. If shares issued are tendered to the Company in payment of the exercise price of an Option, such tendered shares shall again be available for subsequent Option grants or Restricted Stock Awards under the Plan.

5. **Forms of Restricted Stock Agreements and Option Agreements**.

5.1. **Option Agreement**. As a condition to the grant of an Option, each recipient of an Option shall execute an option agreement ("Option Agreement") in such form not inconsistent with the Plan as may be approved by the Board of Directors. Such Option Agreements may differ among recipients.

5.2. **Restricted Stock Agreement**. As a condition to the issuance of Restricted Stock, each recipient thereof shall execute an agreement ("Restricted Stock Agreement") in such form not inconsistent with the Plan as may be approved by the Board of Directors. Such Restricted Stock Agreements may differ among recipients and need not be entitled "Restricted Stock Agreements."

5.3. **"Lock-Up" Agreement**. Upon the request of the Company or the managing underwriter(s) of any underwritten offering of the Company's securities, the holder of any Option or the purchaser of any Restricted Stock shall agree in writing that for a period of 180 days from the effective date of the registration statement for such offering filed with the Securities and Exchange Commission, plus such additional period, not to exceed 18 days, as may be necessary to enable the underwriter(s) to comply with Conduct Rule 2711(f) of the National Association of Securities Dealers, Inc., the holder or purchaser will not sell, make any short sale of , loan, grant any option for the purchase of, or otherwise dispose of any shares of Common Stock owned or controlled by him or her. It shall be a condition to any transfer of Common Stock acquired pursuant to the Plan, upon exercise of an Option granted under the Plan or otherwise, that the transferee agree to be bound by the foregoing lock-up provision.

6. **Purchase Price**.

6.1. **General**. The purchase price per share of Restricted Stock, if any, shall be determined by the Board of Directors. The purchase price per share of stock deliverable upon exercise of an Incentive Stock Option shall not be less than 100% of the fair market value of such stock at the time of grant of such Option, as determined by the Board of Directors, or less than 110% of such fair market value in the case of certain Incentive Stock Options described in Section 11.2. Non-statutory Options issued at less than fair market value shall comply with the provisions of Section 409A of the Code.

6.2. **Payment of Purchase Price**. Option Agreements may provide for the payment of the exercise price of any Options, by one of the following methods:

6.2.1. by delivery of cash or a certified or bank check or postal money order payable to the order of the Company in an amount equal to the aggregate exercise price of the Options being exercised;

6.2.2. by delivery to the Company of shares of Common Stock having a fair market value equal in amount to the aggregate exercise price of the Options being exercised;

6.2.3. a personal recourse note issued by the optionee to the Company in a principal amount equal to the aggregate exercise price of the Options being exercised; and with such other terms, including interest rate and maturity, as the Company may determine in its discretion;

6.2.4. if the class of Common Stock is registered under the Securities Exchange Act of 1934 at such time, subject to rules as may be established by the Board of Directors, by delivery to the Company of a properly executed exercise notice along with irrevocable instructions to a broker to deliver promptly to the Company cash or a check payable and acceptable to the Company in the amount of the aggregate exercise price of the Options being exercised;

6.2.5. by reducing the number of Option shares otherwise issuable to the optionee upon exercise of the Option by a number of shares of Common Stock having a fair market value equal to such aggregate exercise price of the Options being exercised; or

6.2.6. by any combination of such methods of payment.

The fair market value of any shares of Common Stock or other non-cash consideration which may be delivered upon exercise of an Option shall be determined by the Board of Directors. Restricted Stock Agreements may provide for the payment of any purchase price in any manner approved by the Board of Directors at the time of authorizing the issuance thereof.

7. **Option Period**. Each Option and all rights thereunder shall expire on such date as shall be set forth in the applicable Option Agreement, *provided that*, in the case of an Incentive Stock Option, such date shall not be later than 10 years after the date on which the Option is granted (or five years in the case of Options described in Section 11.2), and, in the case of non-statutory Options, not later than 10 years after the date on which the Option is granted, and, in either case, shall be subject to earlier termination as provided in the Plan or the related Option Agreement.

8. **Exercise of Options**. Each Option shall be exercisable either in full or in installments at such time or times and during such period as shall be set forth in the Option Agreement evidencing such Option, subject to the provisions of the Plan.

9. **Nontransferability of Options**. No Option shall be assignable or transferable by the person to whom it is granted, either voluntarily or by operation of law, except by will or the laws of descent and distribution. During the life of an optionee, an Option held by him or her shall be exercisable only by the optionee.

10. **Effect of Termination**. No Incentive Stock Option may be exercised unless, at the time of such exercise, the optionee is, and has continuously since the date of grant of his or her Incentive Stock Option been, employed by the Company, except that, unless the Option Agreement expressly provides otherwise:

10.1. the Incentive Stock Option may be exercised within the period of ninety (90) days after the date the optionee's employment with the Company terminates other than for death, disability or termination for Cause (as hereinafter defined);

10.2. if the optionee dies while in the employ of the Company, the Incentive Stock Option may be exercised by the person to whom it is transferred by will or the laws of descent and distribution within the period of one-hundred eighty (180) days after the date of death; and

10.3. if the optionee becomes disabled (within the meaning of Section 22(e)(3) of the Code or any successor provision thereto) while in the employ of the Company, the Incentive Stock Option may be exercised within the period of one-hundred eighty (180) days after the date the optionee ceases to be such an employee because of such disability;

provided, however, that in no event may any Incentive Stock Option be exercised after the expiration date of the Incentive Stock Option. For all purposes of the Plan and any Incentive Stock Option granted hereunder, "employment" shall be defined in accordance with the provisions of Section 1.421-7(h) of the Income Tax Regulations (or any successor regulations).

If an optionee's employment with the Company is terminated by the Company for Cause, each Incentive Stock Option held by such optionee shall immediately terminate and shall thereafter be of no further force and effect. The term "Cause" shall mean (a) any material breach by an optionee of any agreement to which an optionee and the Company are both parties, (b) any act (other than retirement) or omission to act by an optionee which may have a material and adverse effect on the Company's business or on an optionee's ability to perform services for the Company, including, without limitation, the commission of any crime (other than minor traffic violations), or (c) any material misconduct or material neglect of duties by an optionee in connection with the business or affairs of the Company or any parent, subsidiary or affiliate of the Company. The Board of Directors shall have sole authority and discretion to determine whether an optionee's employment has been terminated for Cause.

A non-statutory Option granted to an employee shall be subject to the foregoing provisions of this Section 10 as if it were an Incentive Stock Option, but a non-statutory Option may also be exercised so long as the optionee maintains a relationship with the Company as a director, consultant or adviser, unless the Option Agreement provides otherwise.

Whether authorized leave of absence or absence on military or government service shall constitute termination of the employment relationship between the Company and an optionee shall be determined by the Board of Directors at the time thereof.

An employment relationship between the Company and an optionee shall be deemed to exist during any period in which the optionee is employed by the Company or by any parent or subsidiary of the Company.

11. **Incentive Stock Options**. Options which are intended to be Incentive Stock Options shall be subject to the following additional terms and conditions:

11.1. **Express Designation**. All Incentive Stock Options shall, at the time of grant, be specifically designated as such in the Option Agreement covering such Incentive Stock Options.

11.2. **10% Shareholder**. If any employee to whom an Incentive Stock Option is to be granted is, at the time of the grant of such Option, the owner of stock possessing more than 10% of the total combined voting power of all classes of stock of the Company (after taking into account the attribution of stock ownership rules of Section 424(d) of the Code), then the following special provisions shall be applicable to the Incentive Stock Option granted to such individual:

11.2.1. the purchase price per share of the Common Stock subject to such Incentive Stock Option shall not be less than 110% of the fair market value of one share of Common Stock at the time of grant; and

11.2.2. the option exercise period shall not exceed five years from the date of grant.

11.3. **Dollar Limitation**. For so long as the Code shall so provide, Options granted to any employee under the Plan (and any other incentive stock option plans of the Company) which are intended to constitute Incentive Stock Options shall not constitute Incentive Stock Options to the extent that such Options, in the aggregate, become exercisable for the first time in any one calendar year for shares of Common Stock with an aggregate fair market value (determined as of the respective date or dates of grant) of more than $100,000.

12. **Additional Provisions**.

12.1. **Additional Provisions**. The Board of Directors may, in its sole discretion, include additional provisions in Restricted Stock Agreements and Option Agreements, including, without limitation, restrictions on transfer, rights of the Company to repurchase shares of Restricted Stock or shares of Common Stock acquired upon exercise of Options, commitments to pay cash bonuses, to make, arrange for or guaranty loans or to transfer other property to optionees upon exercise of Options; *provided that* such additional provisions shall not be inconsistent with any other term or condition of the Plan and such additional provisions shall not be such as to cause any Incentive Stock Option to fail to qualify as an Incentive Stock Option within the meaning of Section 422 of the Code.

12.2. **Acceleration, Extension, Etc**. The Board of Directors may, in its sole discretion, (i) accelerate the period or periods in which all Options, or any particular Option, may be exercised, (ii) extend the periods during which all Options, or any particular Option, may be exercised to the extent not inconsistent with Section 409A of the Code, or (iii) accelerate the vesting of any or all Restricted Stock Awards.

13. **Rights as a Shareholder**. The holder of an Option shall have no rights as a shareholder with respect to any shares covered by the Option (including, without limitation, any rights to vote or to receive dividends or non-cash distributions with respect to such shares) until the date of issue of a stock certificate to him or her for such shares. No adjustment shall be made for dividends or other rights for which the record date is prior to the date such stock certificate is issued.

14. **Adjustment Provisions for Mergers, Reorganizations, Recapitalizations and Other Transactions.**

14.1. **General**. If, through or as a result of any merger, consolidation, sale of all or substantially all of the assets of the Company, reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar transaction, (i) the outstanding shares of Common Stock are increased, decreased or exchanged for a different number or kind of shares or other securities of the Company or (ii) additional shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such shares of Common Stock or other securities, an appropriate and proportionate adjustment shall be made in (x) the maximum number and kind of shares reserved for issuance under the Plan, (y) the number and kind of shares or other securities subject to any then outstanding Options, and (z) the price for each share or other security subject to any then outstanding Options, so that upon exercise of such Options, in lieu of the shares of Common Stock for which such Options were then exercisable, the relevant optionee shall be entitled to receive, for the same aggregate consideration, the same total number and kind of shares or other securities, cash or property that the owner of an equal number of outstanding shares of Common Stock immediately prior to the event requiring adjustment would own as a result of the event. If any such event shall occur, appropriate adjustment shall also be made in the application of the provisions of this Section 14 and Section 15 with respect to Options and the rights of optionees after the event so that the provisions of such Sections shall be applicable after the event and be as nearly equivalent as practicable in operation after the event as they were before the event.

14.2. **No Adjustment in Certain Cases.** Except as hereinbefore expressly provided, the issue by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, for cash or property or for labor or services, either upon direct sale or upon the exercise of rights or warrants to subscribe therefor, or upon conversion of shares or obligations of the Company convertible into such shares or other securities, shall not affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares of Common Stock then subject to outstanding options.

14.3. **Board Authority to Make Adjustments**. Any adjustments under this Section 14 will be made by the Board of Directors, whose determination as to what adjustments, if any, will be made and the extent thereof will be final, binding and conclusive. No fractional shares will be issued under the Plan on account of any such adjustments.

15. **Effect of Certain Transactions.**

If the Company is a party to a merger or reorganization with one or more other corporations or other entities, whether or not the Company is the surviving or resulting entity, or if the Company consolidates with or into one or more other corporations or other entities, or if the Company is liquidated or sells or otherwise disposes of substantially all of its assets (each hereinafter referred to as a "Transaction"), in any case while any Options remain outstanding, the Board of Directors or the board of directors (or similar governing body) of any entity assuming the obligations of the Company may, in its discretion, as to some or all outstanding Options (and need not take the same action as to each such Option)

(i) provide that after the effective date of such Transaction the Options shall remain outstanding and shall be exercisable for shares of Common Stock or, if applicable, shares of such stock or other securities, cash or property as the holders of shares of Common Stock received pursuant to the terms of such Transaction;

(ii) accelerate the time for exercise of the Options, so that from and after a date prior to the effective date of such Transaction such Options shall be exercisable in full;

(iii) cancel the Options as of the effective date of the Transaction, provided that (a) notice of such cancellation shall have been given to the relevant optionee and (b) such optionee shall have the right to exercise such Options to the extent the same is then exercisable or, if the Board shall have accelerated the time for exercise of such Options, in full during the ten-day period preceding the effective date of the Transaction; or

(iv) determine that in the event of a Transaction under the terms of which holders of Common Stock of the Company receive upon consummation thereof a cash payment for each share surrendered (the "Transaction Price"), an optionee holding an Option shall be provided a cash payment equal to the difference between (a) the Transaction Price times the number of shares of Common Stock subject to such Option (to the extent then exercisable at an exercise price that is not in excess of the Transaction Price) and (b) the aggregate exercise price for all such shares of Common Stock subject to such Option, in exchange for the termination of such Option.

15.1. **Substitute Options**. The Company may grant Options in substitution for Options held by employees of another corporation who become employees of the Company, or a subsidiary of the Company, as the result of a merger or consolidation of the employing corporation with the Company or a subsidiary of the Company, or as a result of the acquisition by the Company, or one of its subsidiaries, of property or stock of the employing corporation. The Company may direct that substitute Options be granted on such terms and conditions as the Board of Directors considers appropriate in the circumstances.

15.2. **Restricted Stock.** In the event of a business combination or other transaction of the type detailed in Section 15.1, any securities, cash or other property received in exchange for shares of Restricted Stock shall continue to be governed by the provisions of any Restricted Stock Agreement pursuant to which they were issued, including any provision regarding vesting, and such securities, cash, or other property may be held in escrow on such terms as the Board of Directors may direct, to insure compliance with the terms of any such Restricted Stock Agreement.

15.3. **Acceleration of Vesting.** Unless an Option granted hereunder or an agreement relating to Restricted Stock otherwise provides, upon a Change of Control of the Company, any portion of any Option, and any Restricted Stock, that is unvested shall thereafter vest at the rate of one-twelfth (1/12) thereof at the end of each successive 30-

day period. In addition, if, on or before the first anniversary of a Change of Control of the Company, the employment or consulting relationship of the holder of any Option or the purchaser of any Restricted Stock is terminated without Cause, or if the employee resigns or the consultant terminates the consulting relationship with the Company for Good Reason, any Option held by the employee or consultant shall become fully-vested and exercisable in full and any shares of Restricted Stock held by the employee or consultant shall become fully-vested and no longer subject to forfeiture or repurchase by the Company. For the purpose of this Section 15.3:

15.3.1. "Change of Control" shall mean the Company's adoption of any plan of liquidation providing for distribution of all or substantially all of its assets; or the Company's sale of all or substantially all of its assets or issued and outstanding capital stock; or the Company's combination with one or more other corporations or business entities such that, immediately after the combination, the stockholders of the Company immediately before the combination hold, directly or indirectly, 50% or less of the voting stock of the combined companies. For clarity, the parties agree that neither (i) the sale of shares of stock by the Company in exchange for cash in a venture capital or other similar equity financing nor (ii) the conversion of the Company into a limited liability company (or similar restructuring) shall constitute a Change in Control.

15.3.2. "Cause" means occurrence of any one or more of the following with respect to a person:

15.3.2.1. the person has been convicted of, or has plead guilty or nolo contendere to, any felony or a crime involving moral turpitude;

15.3.2.2. the person has committed any fraud, embezzlement or knowing misappropriation of funds against the Company or intentional act of dishonesty materially detrimental to the Company;

15.3.2.3. the person has continued to fail or refuse to perform the reasonable and lawful duties assigned to him or her by the Company's Board of Directors in good faith in a timely manner after written notice thereof from the Company which generally outlines the steps to be taken by the person in order to cure the breach, which breach continues for a period of thirty (30) days after written notice from the Company describing the breach and proposed cure methods in reasonable detail;

15.3.2.4. the person has engaged in misconduct which would cause the Company to violate any state or federal law relating to sexual harassment or race, age, sex or other prohibited discrimination, or any intentional violation of any written policy of the Company adopted in respect to any such law; or

15.3.2.5. the person has engaged in conduct which the person knows or reasonably should have known causes the Company to violate applicable law; and

15.3.3. "Good Reason" means, with respect to a person, termination of his or her employment or consultancy relationship with the Company because of

15.3.3.1. without the person's consent, the relocation by the Company of the person's principal place of employment or performance of consultancy services, as applicable, by more than 50 miles from his or her then-current place of employment or performance of consultancy services for the Company,

15.3.3.2. without the person's consent, a material adverse change by the Company in the person's duties, authority or responsibilities which causes the person's position with the Company to become of less responsibility or authority than the person's then-current position, provided that such change is not in connection with a termination of the person's employment or consultancy relationship with the Company,

15.3.3.3. without the person's consent, the assignment to the person of duties not commensurate or consistent with the person's then-current position or consulting agreement, or

15.3.3.4. without the person's consent and solely to the extent that the person is then employed by the Company, a reduction in the person's base salary, target bonus or other benefits (other than a reduction in benefits commensurate with reductions for all executive officers).

15.4. **Drag Along Right.** Any holder of Common Stock purchased upon exercise of an Option or pursuant to a Restricted Stock Agreement (such stock referred to collectively as "Shares," and each holder, a "Holder of Shares") that is not otherwise a party to that certain Amended and Restated Stockholders' Agreement dated as of July 30, 2013 by and among the Company and the other parties thereto, as the same may be amended from time to time (the "Stockholders' Agreement")) shall be subject to Section 2 of the Stockholders' Agreement for so long as such Stockholders' Agreement remains in effect and such Section 2 of the Stockholders Agreement is hereby incorporated by reference and made a part of the Plan.

16. **No Special Employment Rights**. Nothing contained in the Plan or in any Option Agreement or Restricted Stock Agreement shall confer upon any optionee or recipient of a Restricted Stock Award any right with respect to the continuation of his or her employment by the Company or interfere in any way with the right of the Company at any time to terminate such employment or to increase or decrease his or her compensation.

17. **Other Employee Benefits**. The amount of any compensation deemed to be received by an employee as a result of the issuance of shares of Restricted Stock or the grant or exercise of an Option or the sale of shares received in connection with a Restricted Stock Award or any such exercise will not constitute compensation with respect to which any other employee benefits of such employee are determined, including, without limitation, benefits under any bonus, pension, profit-sharing, life insurance or salary continuation plan, except as otherwise specifically provided in such other plan or as otherwise specifically determined by the Board of Directors.

18. Amendment and Termination of the Plan.

18.1. The Board of Directors may at any time, and from time to time, modify or amend the Plan in any respect or terminate the Plan. If shareholder approval is not obtained within twelve months after any amendment increasing the number of shares authorized under the Plan or changing the class of persons eligible to receive Incentive Stock Options under the Plan, no Options granted pursuant to such amendments shall be deemed to be Incentive Stock Options and no Incentive Stock Options shall be issued pursuant to such amendments thereafter.

18.2. The termination or any modification or amendment of the Plan shall not, without the consent of an optionee, affect his or her rights under an Option previously granted to him or her. With the consent of the recipient of Restricted Stock or optionee affected, the Board of Directors may amend outstanding Restricted Stock Agreements or Option Agreements in a manner not inconsistent with the Plan. The Board of Directors shall have the right to amend or modify the terms and provisions of the Plan and of any outstanding Incentive Stock Options to the extent necessary to qualify any or all such Options for such favorable federal income tax treatment (including deferral of taxation upon exercise) as may be afforded incentive stock options under Section 422 of the Code.

19. **Withholding**. The Company shall have the right to deduct from payments of any kind otherwise due to the optionee or recipient of Restricted Stock any federal, state or local taxes of any kind required by law to be withheld with respect to issuance of any shares of Restricted Stock or shares issued upon exercise of Options. In addition, prior to delivery of any Common Stock pursuant to the terms of this Plan, the Company has the right to require that the optionee or recipient of Restricted Stock remit to the Company an amount sufficient to satisfy any tax withholding obligation.

Subject to the prior approval of the Company, which may be withheld by the Company in its sole discretion, the obligor may elect to satisfy such withholding obligations, in whole or in part, (i) by causing the Company to withhold shares of Common Stock otherwise issuable or (ii) by delivering to the Company a sufficient number of shares of Common Stock of the Company. The shares so withheld or delivered shall have a fair market value equal to such withholding obligation. The fair market value of the shares used to satisfy such withholding obligation shall be determined by the Board of Directors as of the date that the amount of tax to be withheld is to be determined.

20. **Stockholders' Agreement**. Each recipient of Restricted Stock or Common Stock issued upon the exercise of Options shall execute and deliver an adoption agreement to the Stockholders' Agreement in order that such recipient shall become a party to the Stockholders' Agreement as a "Restricted Stockholder" in accordance with Section 9.1(b) thereof.

21. **Effective Date and Duration of the Plan**.

21.1. **Effective Date**. The Plan shall become effective when adopted by the Board of Directors. If shareholder approval of the Plan is not obtained within twelve months after the date of the Board's adoption of the Plan, no Options previously granted under the Plan shall be deemed to be Incentive Stock Options and no Incentive Stock Options shall be granted thereafter. Amendments to the Plan not requiring shareholder approval shall become effective when adopted by the Board of Directors. Subject to this limitation, Options may be granted under the Plan at any time after the effective date and before the date fixed for termination of the Plan.

21.2. **Termination**. Unless sooner terminated in accordance with Section 18 or by the Board of Directors, the Plan shall terminate upon the close of business on the day next preceding the tenth anniversary of the date of its adoption by the Board of Directors.

22. **Provision for Foreign Participants**. The Board of Directors may, without amending the Plan, modify the terms of Option Agreements or Restricted Stock Agreements to differ from those specified in the Plan with respect to participants who are foreign nationals or employed outside the United States to recognize differences in laws, rules, regulations or customs of such foreign jurisdictions with respect to tax, securities, currency, employee benefit or other matters.

23. **Requirements of Law**. The Company shall not be required to sell or issue any shares under any Option or Restricted Stock Award if the issuance of such shares shall constitute a violation by the optionee, by the Restricted Stock Award recipient, or by the Company of any provision of any law or regulation of any governmental authority. In addition, in connection with the Act, the Company shall not be required to issue any shares upon exercise of any Option unless the Company has received evidence satisfactory to it to the effect that the holder of such Option will not transfer such shares except pursuant to a registration statement in effect under the Act or unless an opinion of counsel satisfactory to the Company has been received by the Company to the effect that such registration is not required in connection with any such transfer. Any determination in this connection by the Board of Directors shall be final, binding and conclusive. In the event the shares issuable on exercise of an Option are not registered under the Act or under the securities laws of each relevant state or other jurisdiction, the Company may imprint on the certificate(s) appropriate legends that counsel for the Company considers necessary or advisable to comply with the Act or any such state or other securities law. The Company may register, but in no event shall be obligated to register, any securities covered by the Plan pursuant to the Act; and in the event any shares are so registered the Company may remove any legend on certificates representing such shares. The Company shall not be obligated to take any affirmative action in order to cause the exercise of an Option, the grant of any Restricted Stock Award or the issuance of shares pursuant thereto to comply with any law or regulation of any governmental authority.

24. **Conversion of Incentive Stock Options into Non-Qualified Options; Termination**. The Board of Directors, with the consent of any optionee, may in its discretion take such actions as may be necessary to convert such optionee's Incentive Stock Options (or any installments or portions of installments thereof) that have not been exercised on the date of conversion

into non-statutory Options at any time prior to the expiration of such Incentive Stock Options, regardless of whether the optionee is an employee of the Company or a parent or subsidiary of the Company at the time of such conversion. At the time of such conversion, the Board of Directors (with the consent of the optionee) may impose such conditions on the exercise of the resulting non-statutory Options as the Board of Directors in its discretion may determine, provided that such conditions shall not be inconsistent with this Plan. Nothing in this Plan shall be deemed to give any optionee the right to have such optionee's Incentive Stock Options converted into non-statutory Options, and no such conversion shall occur until and unless the Board of Directors takes appropriate action. The Board of Directors, with the consent of the optionee, may also terminate any portion of any Incentive Stock Option that has not been exercised at the time of such termination.

25. **Non-Exclusivity of this Plan; Non-Uniform Determinations**. Neither the adoption of this Plan by the Board of Directors nor the approval of this Plan by the stockholders of the Company shall be construed as creating any limitations on the power of the Board of Directors to adopt such other incentive arrangements as it may deem desirable, including, without limitation, the granting of stock options otherwise than under this Plan, and such arrangements may be either applicable generally or only in specific cases.

The determinations of the Board of Directors under this Plan need not be uniform and may be made by it selectively among persons who receive or are eligible to receive Options or Restricted Stock Awards under this Plan (whether or not such persons are similarly situated). Without limiting the generality of the foregoing, the Board of Directors shall be entitled, among other things, to make non-uniform and selective determinations, and to enter into non-uniform and selective Option Agreements and Restricted Stock Agreements, as to (a) the persons to receive Options or Restricted Stock Awards under this Plan, (b) the terms and provisions of Options or Restricted Stock Awards, (c) the exercise by the Board of Directors of its discretion in respect of the exercise of Options pursuant to the terms of this Plan, and (d) the treatment of leaves of absence pursuant to Section 10 hereof.

26. **Governing Law**. This Plan and each Option and Restricted Stock Award shall be governed by the laws of the State of Delaware, without regard to its principles of conflicts of law.

Exhibit 10.3

Effective Date:

NON-STATUTORY STOCK OPTION

Granted by Arsanis, Inc.

Under the 2010 Special Stock Incentive Plan

For valuable consideration, the receipt of which is hereby acknowledged, Arsanis, Inc., a Delaware corporation (hereinafter together with its subsidiaries, where the context permits, referred to as the "Company"), hereby grants to the Holder named in Schedule A attached hereto the following Non-Statutory Stock Option (the "Option"):

Section 1. **Grant of Option**. Subject to the terms and conditions hereinafter set forth, the Holder is hereby given the right and option to purchase from the Company shares of the Company's Common Stock, $.001 par value per share (the "Common Stock"). Schedule A attached hereto and hereby incorporated herein sets forth, with respect to the Option, (i) its expiration date, (ii) its exercise price per share, (iii) the maximum number of shares that the Holder may purchase upon exercise hereof, and (iv) the vesting schedule. It also sets forth applicable conditions that are incorporated herein. The Option shall terminate in all respects, and all rights and options to purchase shares hereunder shall terminate, ten years from the Effective Date set forth above. The right to purchase shares hereunder shall be cumulative.

Section 2. **Exercise of Option**. The Option may be exercised only to the extent it has vested in accordance with Schedule A attached hereto. Purchase of any shares hereunder shall be made by delivery to the Company of a written notice of exercise specifying the number of shares with respect to which the Option is to be exercised and the address to which the certificate representing such shares is to be mailed, accompanied by:

(i) cash or a certified or bank check or postal money order payable to the order of the Company for an amount equal to the aggregate exercise price of the part of the Option being exercised;

(ii) with the consent of the Company, shares of Common Stock of the Company having a fair market value equal to the aggregate exercise price of the part of the Option being exercised;

(iii) with the consent of the Company, a personal recourse note issued by the Holder to the Company in a principal amount equal to such aggregate exercise price of the part of the Option being exercised and with such other terms, including interest rate and maturity, as the Company may determine in its discretion;

(iv) with the consent of the Company, if the class of Common Stock is registered under the Securities Exchange Act of 1934 at that time, subject to rules as may be established by the Board of Directors of the Company (the "Board"), a properly executed exercise notice along with irrevocable instructions to a broker to deliver promptly to the Company cash or a check payable and acceptable to the Company for the aggregate exercise price of the part of the Option being exercised;

(v) with the consent of the Company, instructions to reduce the number of shares otherwise issuable to the Holder upon the exercise of the Option by a number of shares of Common Stock having a fair market equal to the aggregate exercise price of the part of the Option being exercised; or

(vi) with the consent of the Company, any combination of (i), (ii), (iii), (iv) and/or (v).

For the purpose of the foregoing, the fair market value of the shares of Common Stock which may be delivered to the Company upon exercise of the Option shall be determined in accordance with procedures adopted by Board.

Section 3. **Conditions and Limitations**. As a condition precedent to any exercise of the Option, the Holder (or if any other individual or individuals are exercising the Option, such individual or individuals) shall deliver to the Company an investment letter in form and substance satisfactory to the Company and its counsel which shall contain among other things a statement in writing to the following effects (to the extent then applicable): (i) that the Option is then being exercised for the account of the Holder and only with a view to investment in, and not for, in connection with or with a view to the disposition of, the shares with respect to which the Option is then being exercised; (ii) that the Holder acknowledges that the rights of first refusal and repurchase set forth in Section 9 hereof apply to such shares; (iii) that the Holder has been advised that Rule 144 of the Securities and Exchange Commission (the "Commission"), which permits the resale, subject to various terms and conditions, of small amounts of "restricted securities" (as therein defined) after they have been held for a prescribed period of time, may not now apply to the Company because the Company is not now required to file, and does not file, current reports under the Securities Exchange Act of 1934 (the "Exchange Act"), nor is there publicly available information concerning the Company substantially equivalent to that which would be available if the Company were required to file such reports; (iv) that the Holder understands that there is no assurance that the Company will ever become a reporting company under the Exchange Act and that the Company has no obligation to the Holder to do so; (v) that the Holder and Holder's representatives have fully investigated the Company and the business and financial conditions concerning it and have knowledge of the Company's then current corporate activities and financial condition; and (vi) that the Holder believes that the nature and amount of the shares being purchased are consistent with Holder's investment objectives, abilities and resources. The restrictions imposed by this Section and any investment representation made pursuant to this Section shall be inoperative upon the registration with the Commission under the Securities Act of 1933, as amended (the "Securities Act"), of shares subject to the Option or acquired through the exercise of the Option.

Upon the request of the Company or the managing underwriter(s), the Holder shall, in connection with any public offering of securities of the Company, agree in writing that for a period of 180 days from the effective date of the registration statement for such offering filed with the Securities and Exchange Commission, plus such additional period, not to exceed 18 days, as may be necessary to enable the underwriter(s) to comply with Conduct Rule 2711(f) of the National Association of Securities Dealers, Inc., the Holder will not sell, make any short sale of, loan, grant any option for the purchase of, or otherwise dispose of any shares of the Company's common stock owned or controlled by him. It shall be a condition to any transfer of the Shares prior to an initial public offering of the Company's common stock that the transferee agree to be bound by the foregoing lock-up provision.

Section 4. **Delivery of Shares**. Within a reasonable time following the receipt by the Company of the written notice and payment of the Option price for the shares to be purchased thereunder and, if applicable, the investment letter referred to in Section 3, the Company will deliver or cause to be delivered to the Holder (or if any other individual or individuals are exercising the Option, to such individual or individuals) at the address specified pursuant to Section 2 hereof a certificate or certificates for the number of shares with respect to which the Option is then being exercised, registered in the name of the Holder (or the name or names of the individual or individuals exercising the Option, either alone or jointly with another person or persons with rights of survivorship, as the individual or individuals exercising the Option shall prescribe in writing to the Company); provided, however, that such delivery shall be deemed effected for all purposes when a stock transfer agent shall have deposited such certificate or certificates in the United States mail, addressed to the Holder (or such individual or individuals) at the address so specified; and provided further that if any law, regulation or order of the Commission or other body having jurisdiction in the premises shall require the Company or the Holder (or the individual or individuals exercising the Option) to take any action in connection with the sale of the shares then being purchased, then, subject to the other provisions of this Section 4, the date on which such sale shall be deemed to have occurred and the date for the delivery of the certificates for such shares shall be extended for the period necessary to take and complete such action, it being understood that the Company shall have no obligation to take and complete any such action.

Section 5. **Adjustments Upon Changes in Capitalization**. The existence of the Option shall not affect in any way the right or power of the Company or its stockholders to make or authorize any or all adjustments, recapitalizations, reorganizations or other changes in the Company's capital structure or its business, or any merger or consolidation of the Company, or any issue of bonds, debentures, preferred or prior preference stock ahead of or affecting the Common Stock or the rights thereof, or the dissolution or liquidation of the Company, or any sale or transfer of all or any part of its assets or business, or any other corporate act or proceeding, whether of a similar character or otherwise.

If, through or as a result of any merger, consolidation, sale of all or substantially all of the assets of the Company, reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar transaction, (i) the outstanding shares of Common Stock are increased, decreased or exchanged for a different number or kind of shares or other securities of the Company, or (ii) additional shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such shares of Common Stock or other securities, an appropriate and proportionate adjustment shall be made in (x) the number and kind of shares or other securities subject to the Option and (y) the price for each share or other security subject to the Option, so that upon exercise of the Option, in lieu of the shares of Common Stock for which the Option was then exercisable, the Holder shall be entitled to receive, for the same aggregate cash consideration, the same total number and kind of shares or other securities, cash or property that the owner of an equal number of outstanding shares of Common Stock immediately prior to the event requiring adjustment would own as a result of the event. If any such event shall occur, appropriate adjustment shall also be made in the application

of the provisions of this Section 5 and Section 6 with respect to the Option and the rights of the Holder after the event so that the provisions of such Sections shall be applicable after the event and be as nearly equivalent as practicable in operation after the event as they were before the event.

Any adjustments under this Section 5 will be made by the Board, whose determination as to what adjustments, if any, will be made and the extent thereof will be final, binding and conclusive. No fractional shares will be issued under the Option on account of any such adjustments.

Except as hereinbefore expressly provided, the issue by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, for cash or property, or for labor or services, either upon direct sale or upon the exercise of rights or warrants to subscribe therefor, or upon conversion of shares of obligations of the Company convertible into such shares or other securities, shall not affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares of Common Stock then subject to the Option.

Section 6. **Effect of Certain Transactions**. If the Company is a party to a merger or reorganization with one or more other corporations or other entities, whether or not the Company is the surviving or resulting entity, or if the Company consolidates with or into one or more other corporations or other entities, or if the Company is liquidated or sells or otherwise disposes of substantially all of its assets (each hereinafter referred to as a "Transaction"), in any case while this Option remains outstanding, the Board or the board of directors of any entity assuming the obligations of the Company may, in its discretion,

(i) provide that after the effective date of such Transaction the Option shall remain outstanding and shall be exercisable for shares of Common Stock or, if applicable, shares of such stock or other securities, cash or property as the holders of shares of Common Stock received pursuant to the terms of such Transaction;

(ii) accelerate the time for exercise of the Option, so that from and after a date prior to the effective date of such Transaction the Option shall be exercisable in full;

(iii) cancel the Option as of the effective date of the Transaction, provided that (a) notice of such cancellation shall have been given to the Holder and (b) the Holder shall have the right to exercise the Option to the extent the same is then exercisable or, if the Board shall have accelerated the time for exercise of the Option, in full during the ten-day period preceding the effective date of the Transaction; or

(iv) determine that in the event of a Transaction under the terms of which holders of Common Stock of the Company receive upon consummation thereof a cash payment for each share surrendered (the "Transaction Price"), the Holder shall be provided a cash payment equal to the difference between (a) the Transaction Price times the number of shares of Common Stock subject to the Option (to the extent then exercisable at an exercise price that is not in excess of the Transaction Price) and (b) the aggregate exercise price for all such shares of Common Stock subject to the Option, in exchange for the termination of the Option.

Section 7. **Rights of Holder**. No person shall, by virtue of the granting of the Option to the Holder, be deemed to be a holder of any shares purchasable under the Option or to be entitled to the rights or privileges of a holder of such shares unless and until the Option has been exercised with respect to such shares and they have been issued pursuant to that exercise of the Option.

The granting of the Option shall not impose upon the Company any obligations to employ or to continue to employ the Holder or, if applicable, to continue the Holder as a director of, or consultant to, the Company; and the right of the Company to terminate the employment or other service of the Holder shall not be diminished or affected by reason of the fact that the Option has been granted to the Holder.

Nothing herein contained shall impose any obligation upon the Holder to exercise the Option.

Section 8. **Transfer and Termination**. The Option is not transferable by the Holder otherwise than by will or the laws of descent and distribution.

The Option is exercisable, during the Holder's lifetime, only by him, and by him only while he is providing services to the Company, whether as an employee, director or consultant, except that in the event that the Holder's services with the Company terminate for any reason other than death, disability or termination for Cause, the Holder shall have the right to exercise the Option within a period of ninety (90) days after said termination (but not later than the expiration date of the Option) with respect to the shares which were purchasable by him by exercise of the Option at the time of such termination of services. The Holder shall be deemed to be providing services for the Company, for purposes of this Option, during any period in which the Holder is providing services as an employee, director or consultant for the Company or any subsidiary of the Company.

In the event of the permanent and total disability or the death of the Holder prior to termination of the Holder's services for the Company or a parent or subsidiary of the Company and before the date of expiration of the Option, the Holder, or in the event of death, his executors, administrators, heirs or legatees, as the case may be, shall have the right to exercise the Option at any time within one-hundred eighty (180) days after said disability or death (but not after the termination date of the Option) with respect to the shares which were purchasable by the Holder at the date of his disability or death. The Holder shall be considered permanently and totally disabled if the Holder is disabled within the meaning of Section 22(e)(3) of the Internal Revenue Code of 1986, as amended, or any successor provision.

If the Holder's services for the Company are terminated by the Company for Cause, the Option shall immediately terminate and shall thereafter be of no further force and effect. The term "Cause" shall mean (a) any material breach by the Holder of any agreement to which the Holder and the Company are both parties, (b) any act (other than retirement) or omission to act by the Holder which may have a material and adverse effect on the Company's business or on the Holder's ability to perform services for the Company, including, without limitation, the commission of any crime (other than minor traffic violations), or (c) any material misconduct or material neglect of duties by the Holder in connection with the business or affairs of the

Company or any parent, subsidiary or affiliate of the Company. The Board shall have sole authority and discretion to determine whether the Holder's services have been terminated for Cause.

Section 9. **Right of First Refusal**. Prior to the effective date of a registration statement under the Securities Act covering any shares of the Company's Common Stock and until such time as the Company shall have effected a public offering of its Common Stock, in the event that, at any time when the Holder (which term for purposes of this Section 9 shall mean the Holder and his executors, administrators and any other person to whom this may be transferred by will or the laws of descent and distribution) is permitted to do so, the Holder desires to sell, assign or otherwise transfer any of the shares issued upon the exercise of the Option, the Holder shall first offer such shares to the Company by giving written notice of the Holder's desire so to sell, assign or transfer such shares. The notice shall state the number of shares offered, the name of the person or persons to whom it is proposed to sell, assign or transfer such shares and the price and other terms at which such shares are intended to be sold, assigned or transferred. Such notice shall constitute an offer to the Company for the Company to purchase the number of shares set forth in the notice at a price per share equal to the price stated therein. The Company may accept the offer as to all, but not less than all, such shares by notifying the Holder in writing within 30 days after receipt of such notice of its acceptance of the offer. If the offer is accepted, the Company shall have 60 days within which to purchase the offered shares at a price per share as aforesaid. If within the applicable time periods the Holder does not receive notice of the Company's intention to purchase the offered shares, or if payment in full of the purchase price is not made by the Company, the offer shall be deemed to have been rejected and the Holder may transfer title to such shares within 90 days from the date of the Holder's written notice to the Company of the Holder's intention to sell, but such transfer shall be made only to the proposed transferee and at the proposed price and terms stated in such notice and after compliance with any other provisions of the Option applicable to the transfer of such shares. Shares that are so transferred to such transferee shall remain subject to the rights of the Company set forth in this Section 9. No sale, assignment, pledge or transfer of any of the shares covered by the Option shall be effective or given effect on the books of the Company unless all of the applicable provisions of this Section 9 have been duly complied with, and the Company may inscribe on the face of any certificate representing any of such shares a legend referring to the provisions of this Section. If any transfer of shares is made or attempted in violation of the foregoing restrictions, or if shares are not offered to the Company as required hereby, the Company shall have the right to purchase such shares from the owner thereof or his transferee at any time before or after the transfer, as herein provided. In addition to any other legal or equitable remedies which it may have, the Company may enforce its rights by actions for specific performance (to the extent permitted by law) and may refuse to recognize any transferee as one of its stockholders for any purpose, including, without limitation, for purposes of dividend and voting rights, until all applicable provisions hereof have been complied with.

For purposes of the Right of First Refusal pursuant to this Section 9, the term "shares" shall include, without limitation, all new, substituted or additional securities or other property issued to the Holder by reason of his ownership of Common Stock pursuant to the exercise of the Option, in connection with any stock dividend, liquidating dividend, stock split or other change in the character or amount of any of the outstanding securities of the Company, or any consolidation, merger or sale of all or substantially all of the assets of the Company.

Any certificate representing shares of stock subject to the provisions of this Section 9 may have endorsed thereon one or more legends, in addition to any other legends deemed appropriate by the Company, substantially as follows:

> "Any disposition of any interest in the securities represented by this certificate is subject to restrictions, and the securities represented by this certificate are subject to certain options, contained in a certain agreement between the record holder hereof and the Company, a copy of which will be mailed to any holder of this certificate without charge upon receipt by the Company of a written request therefor."

The restrictions imposed by this Section 9 shall terminate in all respects upon the effective date of a registration statement under the Securities Act covering the Company's Common Stock.

Section 10. **Notice**. Any notice to be given to the Company hereunder shall be deemed sufficient if addressed to the Company and delivered to the office of the Company, Arsanis, Inc., 7 Lucent Drive, Lebanon, NH 03766, attention of the president, or such other address as the Company may hereafter designate.

Any notice to be given to the Holder hereunder shall be deemed sufficient if addressed to and delivered in person to the Holder at his address furnished to the Company or when deposited in the mail, postage prepaid, addressed to the Holder at such address.

Section 11. **Withholding of Taxes**. The Holder agrees that the Company may withhold from amounts due to the Holder from the Company, the appropriate amount of federal, state and local withholding taxes attributable to the Holder's exercise of this Option.

At the Holder's election, with the consent of the Company, the amount required to be withheld may be satisfied, in whole or in part, by (i) authorizing the Company to withhold from shares of Common Stock to be issued pursuant to the exercise of this Option a number of shares with an aggregate fair market value equal to the withholding amount due with respect to such exercise or (ii) transferring to the Company a number of shares of Common Stock with an aggregate fair market value equal to the withholding amount so due.

The Holder further agrees that, if the Company does not withhold an amount due to the Holder from the Company sufficient to satisfy the Company's withholding obligation, the Holder will reimburse the Company, on demand, in cash for the amount underwithheld.

Section 12. **Government and Other Regulations; Governing Law**. The Option is subject to all laws, regulations and orders of any governmental authority which may be applicable thereto and, notwithstanding any of the provisions hereof, the Holder agrees that he will not exercise the Option granted hereby nor will the Company be obligated to issue any shares of stock hereunder if the exercise thereof or the issuance of such shares, as the case may be, would constitute a violation by the Holder or the Company of any such law, regulation or order or any provision thereof. Without limiting the generality of the foregoing, the Company shall not be obligated to issue any such shares if in the Company's sole judgment to do so would cause the Company or such issue not to be in compliance with the requirements of the Securities

Act. The Company shall not be obligated to take any affirmative action in order to cause the exercise of the Option or the issuance of shares pursuant hereto to comply with any such law, regulation, order or provision.

The Option is and shall be subject in every respect to the provisions of the Company's 2010 Special Stock Incentive Plan, as amended from time to time, which is incorporated herein by reference and made a part hereof. The Holder hereby accepts the Option subject to all the terms and provisions of the Plan and agrees that (a) in the event of any conflict between the terms hereof and those of the Plan, the latter shall prevail, and (b) all decisions under and interpretations of the Plan by the Board or the Committee (as defined in the Plan) shall be final, binding and conclusive upon the Holder and his heirs, legal representatives, successors and permitted assigns.

The Option shall be governed by and construed in accordance with the laws of the State of Delaware.

Section 13. **Effective Date**. The Option shall be effective on the Effective Date set forth on page 1 hereof.

IN WITNESS WHEREOF, the parties have executed the Option as of the Effective Date.

Arsanis, Inc.

By: _____
Name
Title

Acknowledged and accepted:

_____
Holder

SCHEDULE A

Arsanis, Inc.

Non-Statutory Stock Option Granted Under the
2010 Special Stock Incentive Plan

1. Name of Holder:
2. Date of Grant:
3. "Vesting Start Date":
4. Maximum Number of Shares for which the Option is Exercisable ("Total Shares"):
5. Exercise (purchase) Price per Share ("Option Price"):
6. Expiration Date of Option:
7. Vesting Schedule:
8. All shares purchased upon exercise of the Option are subject to the rights of the Company to repurchase such shares as set forth in Section 9 of the Option, to the agreement to lock up set forth in Section 3 of the Option and to the other terms of the Option and the Plan.

* * *

Exhibit 10.4

ARSANIS, INC.

2011 Stock Incentive Plan

(As amended through July 20, 2016)

1. **Purpose**. The purpose of this stock incentive plan (the "Plan") is to secure for Arsanis, Inc., a Delaware corporation (the "Company"), and its stockholders the benefits arising from capital stock ownership by employees, officers and directors of, and consultants or advisors to, the Company and its parent and subsidiary corporations who are expected to contribute to the Company's future growth and success. Under the Plan recipients may be awarded (i) Options (as defined in Section 2.1) to purchase authorized but unissued shares of the Company's common stock, $.001 par value per share ("Common Stock"), and (ii) shares of the Company's Common Stock ("Restricted Stock Awards"). Except where the context otherwise requires, the term "Company" shall include any parent and all present and future subsidiaries of the Company as defined in Sections 424(e) and 424(f) of the Internal Revenue Code of 1986, as amended or replaced from time to time (the "Code"). Those provisions of the Plan which make express reference to Section 422 shall apply only to Incentive Stock Options (as that term is defined in the Plan).

2. **Types of Awards and Administration**.

2.1 **Options**. Options granted pursuant to the Plan ("Options") shall be authorized by action of the Board of Directors of the Company (the "Board of Directors") and may be either incentive stock options ("Incentive Stock Options") meeting the requirements of Section 422 of the Code or non-statutory Options which are not intended to meet the requirements of Section 422 of the Code. All Options when granted are intended to be non-statutory Options, unless the applicable Option Agreement (as defined in Section 5.1) explicitly states that the Option is intended to be an Incentive Stock Option. If an Option is intended to be an Incentive Stock Option, and if for any reason such Option (or any portion thereof) shall not qualify as an Incentive Stock Option, then, to the extent of such nonqualification, such Option (or portion thereof) shall be regarded as a non-statutory Option appropriately granted under the Plan provided that such Option (or portion thereof) otherwise meets the Plan's requirements relating to non-statutory Options. The vesting of Options may be conditioned upon the completion of a specified period of employment with the Company and/or such other conditions or events as the Board of Directors may determine. Unless otherwise expressly provided in any Option granted under the Plan, the unvested portion of such Option ("Unvested Portion") may be exercised by the holder of such Option if such holder simultaneously enters into an agreement satisfactory to the Company in its sole discretion that subjects the shares thereby acquired to vesting under the same terms and over the same period as such Unvested Portion would have vested had it not been exercised.

2.2 **Restricted Stock Awards**. The Board of Directors in its discretion may grant Restricted Stock Awards, entitling the recipient to acquire, for a purchase price, if any, determined by the Board of Directors, shares of Common Stock subject to such restrictions and conditions as the Board of Directors may determine at the time of grant ("Restricted Stock"), including continued employment and/or achievement of pre-established performance goals and objectives.

2.3 **Administration**. The Plan shall be administered by the Board of Directors of the Company, whose construction and interpretation of the terms and provisions of the Plan shall be final and conclusive. The Board of Directors may in its sole discretion authorize issuance of Restricted Stock and grant Options to purchase shares of Common Stock, and issuance of shares upon exercise of such Options as provided in the Plan. The Board shall have authority, subject to the express provisions of the Plan, to construe the respective Restricted Stock Agreements (as defined in Section 5.2), Option Agreements and the Plan, to prescribe, amend and rescind rules and regulations relating to the Plan, to determine the terms and provisions of the respective Restricted Stock Agreements and Option Agreements, and to make all other determinations in the judgment of the Board of Directors necessary or desirable for the administration of the Plan. The Board of Directors may correct any defect or supply any omission or reconcile any inconsistency in the Plan or in any Restricted Stock Agreement or Option Agreement in the manner and to the extent it shall deem expedient to carry the Plan into effect and it shall be the sole and final judge of such expediency. No director or person acting pursuant to authority delegated by the Board of Directors shall be liable for any action or determination under the Plan made in good faith. The Board of Directors may, to the full extent permitted by or consistent with applicable laws or regulations (including, without limitation, applicable state law), delegate any or all of its powers under the Plan to a committee (the "Committee") appointed by the Board of Directors, and if the Committee is so appointed, to the extent of such delegation, all references to the Board of Directors in the Plan shall mean and relate to such Committee.

3. **Eligibility**. Options may be granted, and Restricted Stock may be issued, to persons who are, at the time of such grant or issuance, employees, officers or directors of, or consultants or advisors to, the Company; *provided*, that the class of persons to whom Incentive Stock Options may be granted shall be limited to employees of the Company.

4. **Stock Subject to Plan**. Subject to adjustment as provided in Section 14 below, the maximum number of shares of Common Stock which may be issued under the Plan is 1,750,000 shares. If an Option granted hereunder shall expire or terminate for any reason without having been exercised in full, the unpurchased shares subject to such Option shall again be available for subsequent Option grants or Restricted Stock Awards under the Plan. If shares of Restricted Stock issued hereunder shall be forfeited to, or otherwise repurchased by, the Company pursuant to a Restricted Stock Agreement, such repurchased shares shall again be available for subsequent Option grants or Restricted Stock Awards under the Plan. If shares issued are tendered to the Company in payment of the exercise price of an Option, such tendered shares shall again be available for subsequent Option grants or Restricted Stock Awards under the Plan.

5. **Forms of Restricted Stock Agreements and Option Agreements**.

5.1 **Option Agreement**. As a condition to the grant of an Option, each recipient of an Option shall execute an option agreement ("Option Agreement") in such form not inconsistent with the Plan as may be approved by the Board of Directors. Such Option Agreements may differ among recipients.

5.2 **Restricted Stock Agreement**. As a condition to the issuance of Restricted Stock, each recipient thereof shall execute an agreement ("Restricted Stock Agreement") in such form not inconsistent with the Plan as may be approved by the Board of Directors. Such Restricted Stock Agreements may differ among recipients and need not be entitled "Restricted Stock Agreements."

5.3 **"Lock-Up" Agreement**. Upon the request of the Company or the managing underwriter(s) of any underwritten offering of the Company's securities, the holder of any Option or the purchaser of any Restricted Stock shall agree in writing that for a period of 180 days from the effective date of the registration statement for such offering filed with the Securities and Exchange Commission, plus such additional period, not to exceed 18 days, as may be necessary to enable the underwriter(s) to comply with Conduct Rule 2711(f) of the National Association of Securities Dealers, Inc., the holder or purchaser will not sell, make any short sale of , loan, grant any option for the purchase of, or otherwise dispose of any shares of Common Stock owned or controlled by him or her. It shall be a condition to any transfer of Common Stock acquired pursuant to the Plan, upon exercise of an Option granted under the Plan or otherwise, that the transferee agree to be bound by the foregoing lock-up provision.

6. **Purchase Price**.

6.1 **General**. The purchase price per share of Restricted Stock, if any, shall be determined by the Board of Directors. The purchase price per share of stock deliverable upon exercise of an Incentive Stock Option shall not be less than 100% of the fair market value of such stock at the time of grant of such Option, as determined by the Board of Directors, or less than 110% of such fair market value in the case of certain Incentive Stock Options described in Section 11.2. Non-statutory Options issued at less than fair market value shall comply with the provisions of Section 409A of the Code.

6.2 **Payment of Purchase Price**. Option Agreements may provide for the payment of the exercise price of any Options, by one of the following methods:

(i) by delivery of cash or a certified or bank check or postal money order payable to the order of the Company in an amount equal to the aggregate exercise price of the Options being exercised;

(ii) by delivery to the Company of shares of Common Stock having a fair market value equal in amount to the aggregate exercise price of the Options being exercised;

(iii) a personal recourse note issued by the optionee to the Company in a principal amount equal to the aggregate exercise price of the Options being exercised; and with such other terms, including interest rate and maturity, as the Company may determine in its discretion;

(iv) if the class of Common Stock is registered under the Securities Exchange Act of 1934 at such time, subject to rules as may be established by the Board of Directors, by delivery to the Company of a properly executed exercise notice along with irrevocable instructions to a broker to deliver promptly to the Company cash or a check payable and acceptable to the Company in the amount of the aggregate exercise price of the Options being exercised;

(v) by reducing the number of Option shares otherwise issuable to the optionee upon exercise of the Option by a number of shares of Common Stock having a fair market value equal to such aggregate exercise price of the Options being exercised; or

(vi) by any combination of such methods of payment.

The fair market value of any shares of Common Stock or other non-cash consideration which may be delivered upon exercise of an Option shall be determined by the Board of Directors. Restricted Stock Agreements may provide for the payment of any purchase price in any manner approved by the Board of Directors at the time of authorizing the issuance thereof.

7. **Option Period**. Each Option and all rights thereunder shall expire on such date as shall be set forth in the applicable Option Agreement, *provided that*, in the case of an Incentive Stock Option, such date shall not be later than 10 years after the date on which the Option is granted (or five years in the case of Options described in Section 11.2), and, in the case of non-statutory Options, not later than 10 years after the date on which the Option is granted, and, in either case, shall be subject to earlier termination as provided in the Plan or the related Option Agreement.

8. **Exercise of Options**. Each Option shall be exercisable either in full or in installments at such time or times and during such period as shall be set forth in the Option Agreement evidencing such Option, subject to the provisions of the Plan.

9. **Nontransferability of Options**. No Option shall be assignable or transferable by the person to whom it is granted, either voluntarily or by operation of law, except by will or the laws of descent and distribution. During the life of an optionee, an Option held by him or her shall be exercisable only by the optionee.

10. **Effect of Termination**. No Incentive Stock Option may be exercised unless, at the time of such exercise, the optionee is, and has continuously since the date of grant of his or her Incentive Stock Option been, employed by the Company, except that, unless the Option Agreement expressly provides otherwise:

10.1 the Incentive Stock Option may be exercised within the period of ninety (90) days after the date the optionee's employment with the Company terminates other than for death, disability or termination for Cause (as hereinafter defined);

10.2 if the optionee dies while in the employ of the Company, the Incentive Stock Option may be exercised by the person to whom it is transferred by will or the laws of descent and distribution within the period of one-hundred eighty (180) days after the date of death; and

10.3 if the optionee becomes disabled (within the meaning of Section 22(e)(3) of the Code or any successor provision thereto) while in the employ of the Company, the Incentive Stock Option may be exercised within the period of one-hundred eighty (180) days after the date the optionee ceases to be such an employee because of such disability;

provided, however, that in no event may any Incentive Stock Option be exercised after the expiration date of the Incentive Stock Option. For all purposes of the Plan and any Incentive Stock Option granted hereunder, "employment" shall be defined in accordance with the provisions of Section 1.421-7(h) of the Income Tax Regulations (or any successor regulations).

If an optionee's employment with the Company is terminated by the Company for Cause, each Incentive Stock Option held by such optionee shall immediately terminate and shall thereafter be of no further force and effect. The term "Cause" shall mean (a) any material breach by an optionee of any agreement to which an optionee and the Company are both parties, (b) any act (other than retirement) or omission to act by an optionee which may have a material and adverse effect on the Company's business or on an optionee's ability to perform services for the Company, including, without limitation, the commission of any crime (other than minor traffic violations), or (c) any material misconduct or material neglect of duties by an optionee in connection with the business or affairs of the Company or any parent, subsidiary or affiliate of the Company. The Board of Directors shall have sole authority and discretion to determine whether an optionee's employment has been terminated for Cause.

A non-statutory Option granted to an employee shall be subject to the foregoing provisions of this Section 10 as if it were an Incentive Stock Option, but a non-statutory Option may also be exercised so long as the optionee maintains a relationship with the Company as a director, consultant or adviser, unless the Option Agreement provides otherwise.

Whether authorized leave of absence or absence on military or government service shall constitute termination of the employment relationship between the Company and an optionee shall be determined by the Board of Directors at the time thereof.

An employment relationship between the Company and an optionee shall be deemed to exist during any period in which the optionee is employed by the Company or by any parent or subsidiary of the Company.

11. **Incentive Stock Options**. Options which are intended to be Incentive Stock Options shall be subject to the following additional terms and conditions:

11.1 **Express Designation**. All Incentive Stock Options shall, at the time of grant, be specifically designated as such in the Option Agreement covering such Incentive Stock Options.

11.2 **10% Stockholder**. If any employee to whom an Incentive Stock Option is to be granted is, at the time of the grant of such Option, the owner of stock possessing more than 10% of the total combined voting power of all classes of stock of the Company (after taking into account the attribution of stock ownership rules of Section 424(d) of the Code), then the following special provisions shall be applicable to the Incentive Stock Option granted to such individual:

11.2.1 the purchase price per share of the Common Stock subject to such Incentive Stock Option shall not be less than 110% of the fair market value of one share of Common Stock at the time of grant; and

11.2.2 the option exercise period shall not exceed five years from the date of grant.

11.3 **Dollar Limitation**. For so long as the Code shall so provide, Options granted to any employee under the Plan (and any other incentive stock option plans of the Company) which are intended to constitute Incentive Stock Options shall not constitute Incentive Stock Options to the extent that such Options, in the aggregate, become exercisable for the first time in any one calendar year for shares of Common Stock with an aggregate fair market value (determined as of the respective date or dates of grant) of more than $100,000.

12. **Additional Provisions**.

12.1 **Additional Provisions**. The Board of Directors may, in its sole discretion, include additional provisions in Restricted Stock Agreements and Option Agreements, including, without limitation, restrictions on transfer, rights of the Company to repurchase shares of Restricted Stock or shares of Common Stock acquired upon exercise of Options, commitments to pay cash bonuses, to make, arrange for or guaranty loans or to transfer other property to optionees upon exercise of Options; *provided that* such additional provisions shall not be inconsistent with any other term or condition of the Plan and such additional provisions shall not be such as to cause any Incentive Stock Option to fail to qualify as an Incentive Stock Option within the meaning of Section 422 of the Code.

12.2 **Acceleration, Extension, Etc**. The Board of Directors may, in its sole discretion, (i) accelerate the period or periods in which all Options, or any particular Option, may be exercised, (ii) extend the periods during which all Options, or any particular Option, may be exercised to the extent not inconsistent with Section 409A of the Code, or (iii) accelerate the vesting of any or all Restricted Stock Awards.

13. **Rights as a Stockholder**. The holder of an Option shall have no rights as a stockholder with respect to any shares covered by the Option (including, without limitation, any rights to vote or to receive dividends or non-cash distributions with respect to such shares) until the date of issue of a stock certificate to him or her for such shares. No adjustment shall be made for dividends or other rights for which the record date is prior to the date such stock certificate is issued.

14. **Adjustment Provisions for Mergers, Reorganizations, Recapitalizations and Other Transactions.**

14.1 **General**. If, through or as a result of any merger, consolidation, sale of all or substantially all of the assets of the Company, reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar transaction, (i) the outstanding shares of Common Stock are increased, decreased or exchanged for a different number or kind of shares or other securities of the Company or (ii) additional shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such

shares of Common Stock or other securities, an appropriate and proportionate adjustment shall be made in (x) the maximum number and kind of shares reserved for issuance under the Plan, (y) the number and kind of shares or other securities subject to any then outstanding Options, and (z) the price for each share or other security subject to any then outstanding Options, so that upon exercise of such Options, in lieu of the shares of Common Stock for which such Options were then exercisable, the relevant optionee shall be entitled to receive, for the same aggregate consideration, the same total number and kind of shares or other securities, cash or property that the owner of an equal number of outstanding shares of Common Stock immediately prior to the event requiring adjustment would own as a result of the event. If any such event shall occur, appropriate adjustment shall also be made in the application of the provisions of this Section 14 and Section 15 with respect to Options and the rights of optionees after the event so that the provisions of such Sections shall be applicable after the event and be as nearly equivalent as practicable in operation after the event as they were before the event.

14.2 **No Adjustment in Certain Cases.** Except as hereinbefore expressly provided, the issue by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, for cash or property or for labor or services, either upon direct sale or upon the exercise of rights or warrants to subscribe therefor, or upon conversion of shares or obligations of the Company convertible into such shares or other securities, shall not affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares of Common Stock then subject to outstanding options.

14.3 **Board Authority to Make Adjustments**. Any adjustments under this Section 14 will be made by the Board of Directors, whose determination as to what adjustments, if any, will be made and the extent thereof will be final, binding and conclusive. No fractional shares will be issued under the Plan on account of any such adjustments.

15. **Effect of Certain Transactions.**

If the Company is a party to a merger or reorganization with one or more other corporations or other entities, whether or not the Company is the surviving or resulting entity, or if the Company consolidates with or into one or more other corporations or other entities, or if the Company is liquidated or sells or otherwise disposes of substantially all of its assets (each hereinafter referred to as a "Transaction"), in any case while any Options remain outstanding, the Board of Directors or the board of directors (or similar governing body) of any entity assuming the obligations of the Company may, in its discretion, as to some or all outstanding Options (and need not take the same action as to each such Option)

(i) provide that after the effective date of such Transaction the Options shall remain outstanding and shall be exercisable for shares of Common Stock or, if applicable, shares of such stock or other securities, cash or property as the holders of shares of Common Stock received pursuant to the terms of such Transaction;

(ii) accelerate the time for exercise of the Options, so that from and after a date prior to the effective date of such Transaction such Options shall be exercisable in full;

(iii) cancel the Options as of the effective date of the Transaction, provided that (a) notice of such cancellation shall have been given to the relevant optionee and (b) such optionee shall have the right to exercise such Options to the extent the same is then exercisable or, if the Board shall have accelerated the time for exercise of such Options, in full during the ten-day period preceding the effective date of the Transaction; or

(iv) determine that in the event of a Transaction under the terms of which holders of Common Stock of the Company receive upon consummation thereof a cash payment for each share surrendered (the "Transaction Price"), an optionee holding an Option shall be provided a cash payment equal to the difference between (a) the Transaction Price times the number of shares of Common Stock subject to such Option (to the extent then exercisable at an exercise price that is not in excess of the Transaction Price) and (b) the aggregate exercise price for all such shares of Common Stock subject to such Option, in exchange for the termination of such Option.

15.1 **Substitute Options**. The Company may grant Options in substitution for Options held by employees of another corporation who become employees of the Company, or a subsidiary of the Company, as the result of a merger or consolidation of the employing corporation with the Company or a subsidiary of the Company, or as a result of the acquisition by the Company, or one of its subsidiaries, of property or stock of the employing corporation. The Company may direct that substitute Options be granted on such terms and conditions as the Board of Directors considers appropriate in the circumstances.

15.2 **Restricted Stock.** In the event of a business combination or other transaction of the type detailed in Section 15.1, any securities, cash or other property received in exchange for shares of Restricted Stock shall continue to be governed by the provisions of any Restricted Stock Agreement pursuant to which they were issued, including any provision regarding vesting, and such securities, cash, or other property may be held in escrow on such terms as the Board of Directors may direct, to insure compliance with the terms of any such Restricted Stock Agreement.

15.3 **Acceleration of Vesting.** Unless an Option granted hereunder or an agreement relating to Restricted Stock otherwise provides, upon a Change of Control of the Company, any portion of any Option, and any Restricted Stock, that is unvested shall thereafter vest at the rate of one-twelfth (1/12) thereof at the end of each successive 30-day period. In addition, if, on or before the first anniversary of a Change of Control of the Company, the employment or consulting relationship of the holder of any Option or the purchaser of any Restricted Stock is terminated without Cause, or if the employee resigns or the consultant terminates the consulting relationship with the Company for Good Reason, any Option held by the employee or consultant shall become fully-vested and exercisable in full and any shares of Restricted Stock held by the employee or consultant shall become fully-vested and no longer subject to forfeiture or repurchase by the Company. For the purpose of this Section 15.3:

15.3.1 "Change of Control" shall mean the Company's adoption of any plan of liquidation providing for distribution of all or substantially all of its assets; or the Company's sale of all or substantially all of its assets or issued and outstanding capital stock; or the Company's combination with one or more other corporations or business entities such that,

immediately after the combination, the stockholders of the Company immediately before the combination hold, directly or indirectly, 50% or less of the voting stock of the combined companies. For clarity, the parties agree that neither (i) the sale of shares of stock by the Company in exchange for cash in a venture capital or other similar equity financing nor (ii) the conversion of the Company into a limited liability company (or similar restructuring) shall constitute a Change in Control.

15.3.2 "Cause" means occurrence of any one or more of the following with respect to a person: (i) the person has been convicted of, or has plead guilty or nolo contendere to, any felony or a crime involving moral turpitude; (ii) the person has committed any fraud, embezzlement or knowing misappropriation of funds against the Company or intentional act of dishonesty materially detrimental to the Company; (iii) the person has continued to fail or refuse to perform the reasonable and lawful duties assigned to him or her by the Company's Board of Directors in good faith in a timely manner after written notice thereof from the Company which generally outlines the steps to be taken by the person in order to cure the breach, which breach continues for a period of thirty (30) days after written notice from the Company describing the breach and proposed cure methods in reasonable detail; (iv) the person has engaged in misconduct which would cause the Company to violate any state or federal law relating to sexual harassment or race, age, sex or other prohibited discrimination, or any intentional violation of any written policy of the Company adopted in respect to any such law; or (v) the person has engaged in conduct which the person knows or reasonably should have known causes the Company to violate applicable law.

15.3.3 "Good Reason" means, with respect to a person, termination of his or her employment or consultancy relationship with the Company because of (i) without the person's consent, the relocation by the Company of the person's principal place of employment or performance of consultancy services, as applicable, by more than 50 miles from his or her then-current place of employment or performance of consultancy services for the Company, (ii) without the person's consent, a material adverse change by the Company in the person's duties, authority or responsibilities which causes the person's position with the Company to become of less responsibility or authority than the person's then-current position, provided that such change is not in connection with a termination of the person's employment or consultancy relationship with the Company, (iii) without the person's consent, the assignment to the person of duties not commensurate or consistent with the person's then-current position or consulting agreement, or (iv) without the person's consent and solely to the extent that the person is then-employed by the Company, a reduction in the person's base salary, target bonus or other benefits (other than a reduction in benefits commensurate with reductions for all executive officers).

15.4 **Drag Along Right.** Any holder of Common Stock purchased upon exercise of an Option or pursuant to a Restricted Stock Agreement (such stock referred to collectively as "Shares," and each holder, a "Holder of Shares") that is not otherwise a party to that certain Amended and Restated Stockholders' Agreement dated as of July 30, 2013 by and among the Company and the other parties thereto, as the same may be amended from time to time (the "Stockholders' Agreement")) shall be subject to Section 2 of the Stockholders' Agreement for so long as such Stockholders' Agreement remains in effect and such Section 2 of the Stockholders Agreement is hereby incorporated by reference and made a part of the Plan.

16. **No Special Employment Rights**. Nothing contained in the Plan or in any Option Agreement or Restricted Stock Agreement shall confer upon any optionee or recipient of a Restricted Stock Award any right with respect to the continuation of his or her employment by the Company or interfere in any way with the right of the Company at any time to terminate such employment or to increase or decrease his or her compensation.

17. **Other Employee Benefits**. The amount of any compensation deemed to be received by an employee as a result of the issuance of shares of Restricted Stock or the grant or exercise of an Option or the sale of shares received in connection with a Restricted Stock Award or any such exercise will not constitute compensation with respect to which any other employee benefits of such employee are determined, including, without limitation, benefits under any bonus, pension, profit-sharing, life insurance or salary continuation plan, except as otherwise specifically provided in such other plan or as otherwise specifically determined by the Board of Directors.

18. **Amendment and Termination of the Plan**.

18.1 The Board of Directors may at any time, and from time to time, modify or amend the Plan in any respect or terminate the Plan. If stockholder approval is not obtained within twelve months after any amendment increasing the number of shares authorized under the Plan or changing the class of persons eligible to receive Incentive Stock Options under the Plan, no Options granted pursuant to such amendments shall be deemed to be Incentive Stock Options and no Incentive Stock Options shall be issued pursuant to such amendments thereafter.

18.2 The termination or any modification or amendment of the Plan shall not, without the consent of an optionee, affect his or her rights under an Option previously granted to him or her. With the consent of the recipient of Restricted Stock or optionee affected, the Board of Directors may amend outstanding Restricted Stock Agreements or Option Agreements in a manner not inconsistent with the Plan. The Board of Directors shall have the right to amend or modify the terms and provisions of the Plan and of any outstanding Incentive Stock Options to the extent necessary to qualify any or all such Options for such favorable federal income tax treatment (including deferral of taxation upon exercise) as may be afforded incentive stock options under Section 422 of the Code.

19. **Withholding**. The Company shall have the right to deduct from payments of any kind otherwise due to the optionee or recipient of Restricted Stock any federal, state or local taxes of any kind required by law to be withheld with respect to issuance of any shares of Restricted Stock or shares issued upon exercise of Options. In addition, prior to delivery of any Common Stock pursuant to the terms of this Plan, the Company has the right to require that the optionee or recipient of Restricted Stock remit to the Company an amount sufficient to satisfy any tax withholding obligation.

Subject to the prior approval of the Company, which may be withheld by the Company in its sole discretion, the obligor may elect to satisfy such withholding obligations, in whole or in part, (i) by causing the Company to withhold shares of Common Stock otherwise issuable or (ii)

by delivering to the Company a sufficient number of shares of Common Stock of the Company. The shares so withheld or delivered shall have a fair market value equal to such withholding obligation. The fair market value of the shares used to satisfy such withholding obligation shall be determined by the Board of Directors as of the date that the amount of tax to be withheld is to be determined.

20. **Stockholders' Agreement**. Each recipient of Restricted Stock or Common Stock issued upon the exercise of Options shall execute and deliver an adoption agreement to the Stockholders' Agreement in order that such recipient shall become a party to the Stockholders' Agreement as a "Restricted Stockholder" in accordance with Section 9.1(b) thereof.

21. **Effective Date and Duration of the Plan**.

21.1 **Effective Date**. The Plan shall become effective when adopted by the Board of Directors. If stockholder approval of the Plan is not obtained within twelve months after the date of the Board's adoption of the Plan, no Options previously granted under the Plan shall be deemed to be Incentive Stock Options and no Incentive Stock Options shall be granted thereafter. Amendments to the Plan not requiring stockholder approval shall become effective when adopted by the Board of Directors. Subject to this limitation, Options may be granted under the Plan at any time after the effective date and before the date fixed for termination of the Plan.

21.2 **Termination**. Unless sooner terminated in accordance with Section 18 or by the Board of Directors, the Plan shall terminate upon the close of business on the day next preceding the tenth anniversary of the date of its adoption by the Board of Directors.

22. **Provision for Foreign Participants**. The Board of Directors may, without amending the Plan, modify the terms of Option Agreements or Restricted Stock Agreements to differ from those specified in the Plan with respect to participants who are foreign nationals or employed outside the United States to recognize differences in laws, rules, regulations or customs of such foreign jurisdictions with respect to tax, securities, currency, employee benefit or other matters.

23. **Requirements of Law**. The Company shall not be required to sell or issue any shares under any Option or Restricted Stock Award if the issuance of such shares shall constitute a violation by the optionee, by the Restricted Stock Award recipient, or by the Company of any provision of any law or regulation of any governmental authority. In addition, in connection with the Act, the Company shall not be required to issue any shares upon exercise of any Option unless the Company has received evidence satisfactory to it to the effect that the holder of such Option will not transfer such shares except pursuant to a registration statement in effect under the Act or unless an opinion of counsel satisfactory to the Company has been received by the Company to the effect that such registration is not required in connection with any such transfer. Any determination in this connection by the Board of Directors shall be final, binding and conclusive. In the event the shares issuable on exercise of an Option are not registered under the Act or under the securities laws of each relevant state or other jurisdiction, the Company may imprint on the certificate(s) appropriate legends that counsel for the Company considers necessary or advisable to comply with the Act or any such state or other securities law. The

Company may register, but in no event shall be obligated to register, any securities covered by the Plan pursuant to the Act; and in the event any shares are so registered the Company may remove any legend on certificates representing such shares. The Company shall not be obligated to take any affirmative action in order to cause the exercise of an Option, the grant of any Restricted Stock Award or the issuance of shares pursuant thereto to comply with any law or regulation of any governmental authority.

24. **Conversion of Incentive Stock Options into Non-Qualified Options; Termination**. The Board of Directors, with the consent of any optionee, may in its discretion take such actions as may be necessary to convert such optionee's Incentive Stock Options (or any installments or portions of installments thereof) that have not been exercised on the date of conversion into non-statutory Options at any time prior to the expiration of such Incentive Stock Options, regardless of whether the optionee is an employee of the Company or a parent or subsidiary of the Company at the time of such conversion. At the time of such conversion, the Board of Directors (with the consent of the optionee) may impose such conditions on the exercise of the resulting non-statutory Options as the Board of Directors in its discretion may determine, provided that such conditions shall not be inconsistent with this Plan. Nothing in this Plan shall be deemed to give any optionee the right to have such optionee's Incentive Stock Options converted into non-statutory Options, and no such conversion shall occur until and unless the Board of Directors takes appropriate action. The Board of Directors, with the consent of the optionee, may also terminate any portion of any Incentive Stock Option that has not been exercised at the time of such termination.

25. **Non-Exclusivity of this Plan; Non-Uniform Determinations**. Neither the adoption of this Plan by the Board of Directors nor the approval of this Plan by the stockholders of the Company shall be construed as creating any limitations on the power of the Board of Directors to adopt such other incentive arrangements as it may deem desirable, including, without limitation, the granting of stock options otherwise than under this Plan, and such arrangements may be either applicable generally or only in specific cases.

The determinations of the Board of Directors under this Plan need not be uniform and may be made by it selectively among persons who receive or are eligible to receive Options or Restricted Stock Awards under this Plan (whether or not such persons are similarly situated). Without limiting the generality of the foregoing, the Board of Directors shall be entitled, among other things, to make non-uniform and selective determinations, and to enter into non-uniform and selective Option Agreements and Restricted Stock Agreements, as to (a) the persons to receive Options or Restricted Stock Awards under this Plan, (b) the terms and provisions of Options or Restricted Stock Awards, (c) the exercise by the Board of Directors of its discretion in respect of the exercise of Options pursuant to the terms of this Plan, and (d) the treatment of leaves of absence pursuant to Section 10 hereof.

26. **Governing Law**. This Plan and each Option and Restricted Stock Award shall be governed by the laws of the State of Delaware, without regard to its principles of conflicts of law.

Exhibit 10.5

Effective Date:

INCENTIVE STOCK OPTION

Granted by Arsanis, Inc.

Under the 2011 Stock Incentive Plan

For valuable consideration, the receipt of which is hereby acknowledged, Arsanis, Inc., a Delaware corporation (hereinafter together with its subsidiaries, where the context permits, referred to as the "Company"), hereby grants to the Holder named in Schedule A attached hereto the following Incentive Stock Option (the "Option"):

Section 1. **Grant of Option.** Subject to the terms and conditions hereinafter set forth, the Holder is hereby given the right and option to purchase from the Company shares of the Company's Common Stock, $.001 par value per share (the "Common Stock"). Schedule A attached hereto and hereby incorporated herein sets forth, with respect to the Option, (i) its expiration date, (ii) its exercise price per share, (iii) the maximum number of shares that the Holder may purchase upon exercise hereof, and (iv) the vesting schedule. It also sets forth applicable conditions that are incorporated herein. The Option shall terminate in all respects, and all rights and options to purchase shares hereunder shall terminate, ten years from the Effective Date set forth above. The right to purchase shares hereunder shall be cumulative.

Section 2. **Exercise of Option.** The Option may be exercised only to the extent it has vested in accordance with Schedule A attached hereto. Purchase of any shares hereunder shall be made by delivery to the Company of a written notice of exercise specifying the number of shares with respect to which the Option is to be exercised and the address to which the certificate representing such shares is to be mailed, accompanied by:

(i) cash or a certified or bank check or postal money order payable to the order of the Company for an amount equal to the aggregate exercise price of the part of the Option being exercised;

(ii) with the consent of the Company, shares of Common Stock of the Company having a fair market value equal to the aggregate exercise price of the part of the Option being exercised;

(iii) with the consent of the Company, a personal recourse note issued by the Holder to the Company in a principal amount equal to such aggregate exercise price of the part of the Option being exercised and with such other terms, including interest rate and maturity, as the Company may determine in its discretion;

(iv) with the consent of the Company, if the class of Common Stock is registered under the Securities Exchange Act of 1934 at that time, subject to rules as may be established by the Board of Directors of the Company (the "Board"), a properly executed exercise notice along with irrevocable instructions to a broker to deliver promptly to the Company cash or a check payable and acceptable to the Company for the aggregate exercise price of the part of the Option being exercised;

(v) with the consent of the Company, instructions to reduce the number of shares otherwise issuable to the Holder upon the exercise of the Option by a number of shares of Common Stock having a fair market equal to the aggregate exercise price of the part of the Option being exercised; or

(vi) with the consent of the Company, any combination of (i), (ii), (iii), (iv) and/or (v).

For the purpose of the foregoing, the fair market value of the shares of Common Stock which may be delivered to the Company upon exercise of the Option shall be determined in accordance with procedures adopted by Board.

Section 3. **Conditions and Limitations.** As a condition precedent to any exercise of the Option, the Holder (or if any other individual or individuals are exercising the Option, such individual or individuals) shall deliver to the Company an investment letter in form and substance satisfactory to the Company and its counsel which shall contain among other things a statement in writing to the following effects (to the extent then applicable): (i) that the Option is then being exercised for the account of the Holder and only with a view to investment in, and not for, in connection with or with a view to the disposition of, the shares with respect to which the Option is then being exercised; (ii) that the Holder acknowledges that the rights of first refusal and repurchase set forth in Section 9 hereof apply to such shares; (iii) that the Holder has been advised that Rule 144 of the Securities and Exchange Commission (the "Commission"), which permits the resale, subject to various terms and conditions, of small amounts of "restricted securities" (as therein defined) after they have been held for a prescribed period of time, may not now apply to the Company because the Company is not now required to file, and does not file, current reports under the Securities Exchange Act of 1934 (the "Exchange Act"), nor is there publicly available information concerning the Company substantially equivalent to that which would be available if the Company were required to file such reports; (iv) that the Holder understands that there is no assurance that the Company will ever become a reporting company under the Exchange Act and that the Company has no obligation to the Holder to do so; (v) that the Holder and Holder's representatives have fully investigated the Company and the business and financial conditions concerning it and have knowledge of the Company's then current corporate activities and financial condition; and (vi) that the Holder believes that the nature and amount of the shares being purchased are consistent with Holder's investment objectives, abilities and resources. The restrictions imposed by this Section and any investment representation made pursuant to this Section shall be inoperative upon the registration with the Commission under the Securities Act of 1933, as amended (the "Securities Act"), of shares subject to the Option or acquired through the exercise of the Option.

Upon the request of the Company or the managing underwriter(s), the Holder shall, in connection with any public offering of securities of the Company, agree in writing that for a period of 180 days from the effective date of the registration statement for such offering filed with the Securities and Exchange Commission, plus such additional period, not to exceed 18 days, as may be necessary to enable the underwriter(s) to comply with Conduct Rule 2711(f) of the National Association of Securities Dealers, Inc., the Holder will not sell, make any short sale of, loan, grant any option for the purchase of, or otherwise dispose of any shares of the Company's common stock owned or controlled by him. It shall be a condition to any transfer of the Shares prior to an initial public offering of the Company's common stock that the transferee agree to be bound by the foregoing lock-up provision.

Section 4. **Delivery of Shares.** Within a reasonable time following the receipt by the Company of the written notice and payment of the Option price for the shares to be purchased thereunder and, if applicable, the investment letter referred to in Section 3, the Company will deliver or cause to be delivered to the Holder (or if any other individual or individuals are exercising the Option, to such individual or individuals) at the address specified pursuant to Section 2 hereof a certificate or certificates for the number of shares with respect to which the Option is then being exercised, registered in the name of the Holder (or the name or names of the individual or individuals exercising the Option, either alone or

jointly with another person or persons with rights of survivorship, as the individual or individuals exercising the Option shall prescribe in writing to the Company); provided, however, that such delivery shall be deemed effected for all purposes when a stock transfer agent shall have deposited such certificate or certificates in the United States mail, addressed to the Holder (or such individual or individuals) at the address so specified; and provided further that if any law, regulation or order of the Commission or other body having jurisdiction in the premises shall require the Company or the Holder (or the individual or individuals exercising the Option) to take any action in connection with the sale of the shares then being purchased, then, subject to the other provisions of this Section 4, the date on which such sale shall be deemed to have occurred and the date for the delivery of the certificates for such shares shall be extended for the period necessary to take and complete such action, it being understood that the Company shall have no obligation to take and complete any such action.

Section 5. **Adjustments Upon Changes in Capitalization.** The existence of the Option shall not affect in any way the right or power of the Company or its stockholders to make or authorize any or all adjustments, recapitalizations, reorganizations or other changes in the Company's capital structure or its business, or any merger or consolidation of the Company, or any issue of bonds, debentures, preferred or prior preference stock ahead of or affecting the Common Stock or the rights thereof, or the dissolution or liquidation of the Company, or any sale or transfer of all or any part of its assets or business, or any other corporate act or proceeding, whether of a similar character or otherwise.

If, through or as a result of any merger, consolidation, sale of all or substantially all of the assets of the Company, reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar transaction, (i) the outstanding shares of Common Stock are increased, decreased or exchanged for a different number or kind of shares or other securities of the Company, or (ii) additional shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such shares of Common Stock or other securities, an appropriate and proportionate adjustment shall be made in (x) the number and kind of shares or other securities subject to the Option and (y) the price for each share or other security subject to the Option, so that upon exercise of the Option, in lieu of the shares of Common Stock for which the Option was then exercisable, the Holder shall be entitled to receive, for the same aggregate cash consideration, the same total number and kind of shares or other securities, cash or property that the owner of an equal number of outstanding shares of Common Stock immediately prior to the event requiring adjustment would own as a result of the event. If any such event shall occur, appropriate adjustment shall also be made in the application of the provisions of this Section 5 and Section 6 with respect to the Option and the rights of the Holder after the event so that the provisions of such Sections shall be applicable after the event and be as nearly equivalent as practicable in operation after the event as they were before the event.

Any adjustments under this Section 5 will be made by the Board, whose determination as to what adjustments, if any, will be made and the extent thereof will be final, binding and conclusive. No fractional shares will be issued under the Option on account of any such adjustments.

Except as hereinbefore expressly provided, the issue by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, for cash or property, or for labor or services, either upon direct sale or upon the exercise of rights or warrants to subscribe therefor, or upon conversion of shares of obligations of the Company convertible into such shares or other securities, shall not affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares of Common Stock then subject to the Option.

Section 6. **Effect of Certain Transactions.** If the Company is a party to a merger or reorganization with one or more other corporations or other entities, whether or not the Company is the surviving or resulting entity, or if the Company consolidates with or into one or more other corporations

or other entities, or if the Company is liquidated or sells or otherwise disposes of substantially all of its assets (each hereinafter referred to as a "Transaction"), in any case while this Option remains outstanding, the Board or the board of directors of any entity assuming the obligations of the Company may, in its discretion,

(i) provide that after the effective date of such Transaction the Option shall remain outstanding and shall be exercisable for shares of Common Stock or, if applicable, shares of such stock or other securities, cash or property as the holders of shares of Common Stock received pursuant to the terms of such Transaction;

(ii) accelerate the time for exercise of the Option, so that from and after a date prior to the effective date of such Transaction the Option shall be exercisable in full;

(iii) cancel the Option as of the effective date of the Transaction, provided that (a) notice of such cancellation shall have been given to the Holder and (b) the Holder shall have the right to exercise the Option to the extent the same is then exercisable or, if the Board shall have accelerated the time for exercise of the Option, in full during the ten-day period preceding the effective date of the Transaction; or

(iv) determine that in the event of a Transaction under the terms of which holders of Common Stock of the Company receive upon consummation thereof a cash payment for each share surrendered (the "Transaction Price"), the Holder shall be provided a cash payment equal to the difference between (a) the Transaction Price times the number of shares of Common Stock subject to the Option (to the extent then exercisable at an exercise price that is not in excess of the Transaction Price) and (b) the aggregate exercise price for all such shares of Common Stock subject to the Option, in exchange for the termination of the Option.

Section 7. **Rights of Holder.** No person shall, by virtue of the granting of the Option to the Holder, be deemed to be a holder of any shares purchasable under the Option or to be entitled to the rights or privileges of a holder of such shares unless and until the Option has been exercised with respect to such shares and they have been issued pursuant to that exercise of the Option.

The granting of the Option shall not impose upon the Company any obligations to employ or to continue to employ the Holder; and the right of the Company to terminate the employment of the Holder shall not be diminished or affected by reason of the fact that the Option has been granted to the Holder.

Nothing herein contained shall impose any obligation upon the Holder to exercise the Option.

Although the Option is intended to qualify as an incentive stock option under the Internal Revenue Code of 1986, as amended (the "Code"), the Company makes no representation as to the tax treatment to the Holder upon receipt or exercise of the Option or sale or other disposition of the shares covered by the Option. In addition, the Holder understands that for so long as the Code so provides, the Option shall not constitute an incentive stock option to the extent that the Option and any other incentive stock option of the Company held by the Holder, in the aggregate, become exercisable for the first time in any one calendar year for shares of Common Stock with an aggregate fair market value determined as of the respective date or dates of grant of the Option(s) of more than $100,000. The Option shall not qualify as an incentive stock option with respect only to the number of shares which first become exercisable in a calendar year which exceeds such limit, and shall automatically be treated as a non-statutory stock option with respect to such excess shares. To the extent that the Option is in part an incentive stock option and in part a non-statutory stock option, as contemplated above, the Holder, upon exercise hereof, shall be deemed first to exercise the Option to the extent that it is an incentive stock option, unless the Holder specifies otherwise in the Holder's notice of exercise.

Section 8. **Transfer and Termination.** The Option is not transferable by the Holder otherwise than by will or the laws of descent and distribution.

The Option is exercisable, during the Holder's lifetime, only by him, and by him only while he is an employee of the Company, except that in the event that the Holder's employment with the Company terminates for any reason other than death, disability or termination for Cause, the Holder shall have the right to exercise the Option within a period of ninety (90) days after said termination (but not later than the expiration date of the Option) with respect to the shares which were purchasable by him by exercise of the Option at the time of such termination of employment. An employment relationship between the Company and the Holder shall be deemed to exist, for purposes of the Option, during any period in which the Holder is employed in any capacity by the Company or any subsidiary of the Company.

In the event of the permanent and total disability or the death of the Holder prior to termination of the Holder's employment with the Company or a parent or subsidiary of the Company and before the date of expiration of the Option, the Holder, or in the event of death, his executors, administrators, heirs or legatees, as the case may be, shall have the right to exercise the Option at any time within one-hundred eighty (180) days after said disability or death (but not after the termination date of the Option) with respect to the shares which were purchasable by the Holder at the date of his disability or death. The Holder shall be considered permanently and totally disabled if the Holder is disabled within the meaning of Section 22(e)(3) of the Code or any successor provision.

If the Holder's employment with the Company is terminated by the Company for Cause, the Option shall immediately terminate and shall thereafter be of no further force and effect. The term "Cause" shall mean (a) any material breach by the Holder of any agreement to which the Holder and the Company are both parties, (b) any act (other than retirement) or omission to act by the Holder which may have a material and adverse effect on the Company's business or on the Holder's ability to perform services for the Company, including, without limitation, the commission of any crime (other than minor traffic violations), or (c) any material misconduct or material neglect of duties by the Holder in connection with the business or affairs of the Company or any parent, subsidiary or affiliate of the Company. The Board shall have sole authority and discretion to determine whether the Holder's employment has been terminated for Cause.

Section 9. **Right of First Refusal.** Prior to the effective date of a registration statement under the Securities Act covering any shares of the Company's Common Stock and until such time as the Company shall have effected a public offering of its Common Stock, in the event that, at any time when the Holder (which term for purposes of this Section 9 shall mean the Holder and his executors, administrators and any other person to whom this may be transferred by will or the laws of descent and distribution) is permitted to do so, the Holder desires to sell, assign or otherwise transfer any of the shares issued upon the exercise of the Option, the Holder shall first offer such shares to the Company by giving written notice of the Holder's desire so to sell, assign or transfer such shares. The notice shall state the number of shares offered, the name of the person or persons to whom it is proposed to sell, assign or transfer such shares and the price and other terms at which such shares are intended to be sold, assigned or transferred. Such notice shall constitute an offer to the Company for the Company to purchase the number of shares set forth in the notice at a price per share equal to the price stated therein. The Company may accept the offer as to all, but not less than all, such shares by notifying the Holder in writing within 30 days after receipt of such notice of its acceptance of the offer. If the offer is accepted, the Company shall have 60 days within which to purchase the offered shares at a price per share as aforesaid. If within the applicable time periods the Holder does not receive notice of the Company's

intention to purchase the offered shares, or if payment in full of the purchase price is not made by the Company, the offer shall be deemed to have been rejected and the Holder may transfer title to such shares within 90 days from the date of the Holder's written notice to the Company of the Holder's intention to sell, but such transfer shall be made only to the proposed transferee and at the proposed price and terms stated in such notice and after compliance with any other provisions of the Option applicable to the transfer of such shares. Shares that are so transferred to such transferee shall remain subject to the rights of the Company set forth in this Section 9. No sale, assignment, pledge or transfer of any of the shares covered by the Option shall be effective or given effect on the books of the Company unless all of the applicable provisions of this Section 9 have been duly complied with, and the Company may inscribe on the face of any certificate representing any of such shares a legend referring to the provisions of this Section. If any transfer of shares is made or attempted in violation of the foregoing restrictions, or if shares are not offered to the Company as required hereby, the Company shall have the right to purchase such shares from the owner thereof or his transferee at any time before or after the transfer, as herein provided. In addition to any other legal or equitable remedies which it may have, the Company may enforce its rights by actions for specific performance (to the extent permitted by law) and may refuse to recognize any transferee as one of its stockholders for any purpose, including, without limitation, for purposes of dividend and voting rights, until all applicable provisions hereof have been complied with.

For purposes of the Right of First Refusal pursuant to this Section 9, the term "shares" shall include, without limitation, all new, substituted or additional securities or other property issued to the Holder by reason of his ownership of Common Stock pursuant to the exercise of the Option, in connection with any stock dividend, liquidating dividend, stock split or other change in the character or amount of any of the outstanding securities of the Company, or any consolidation, merger or sale of all or substantially all of the assets of the Company.

Any certificate representing shares of stock subject to the provisions of this Section 9 may have endorsed thereon one or more legends, in addition to any other legends deemed appropriate by the Company, substantially as follows:

> "Any disposition of any interest in the securities represented by this certificate is subject to restrictions, and the securities represented by this certificate are subject to certain options, contained in a certain agreement between the record holder hereof and the Company, a copy of which will be mailed to any holder of this certificate without charge upon receipt by the Company of a written request therefor."

The restrictions imposed by this Section 9 shall be in addition to, and not in lieu of, any restrictions set forth in the Stockholders' Agreement (as defined below) and shall terminate in all respects upon the effective date of a registration statement under the Securities Act covering the Company's Common Stock.

Section 10. **Stockholders' Agreement**. Notwithstanding anything to the contrary contained herein, the Holder understands and hereby agrees that, as a condition to the issuance of shares to the Holder hereunder upon exercise of this Option, the Holder shall become a party to that certain Second Amended and Restated Stockholders' Agreement among the Company and the other parties thereto, dated as of April 12, 2016, as the same may be amended or amended and restated from time to time (the "Stockholders' Agreement") by executing and delivering an adoption agreement thereto, and that the Holder shall thereby be bound by, and subject to, all the terms and provisions of the Stockholders' Agreement as a "Restricted Stockholder".

Section 11. **Notice**. Any notice to be given to the Company hereunder shall be deemed sufficient if addressed to the Company and delivered to the office of the Company, Arsanis, Inc., 890 Winter Street, Suite 230, Waltham, MA 02451, attention of the president, or such other address as the Company may hereafter designate.

Any notice to be given to the Holder hereunder shall be deemed sufficient if addressed to and delivered in person to the Holder at his address furnished to the Company or when deposited in the mail, postage prepaid, addressed to the Holder at such address.

Section 12. **Notification of Disqualifying Disposition.** The Holder agrees to notify the Company in writing immediately after making a Disqualifying Disposition of any shares of Common Stock received pursuant to the exercise of the Option. The Holder also agrees to provide the Company with any information that the Company shall request concerning any such Disqualifying Disposition.

A "Disqualifying Disposition" shall have the meaning specified in Sections 421(b) and 424(c) of the Code, or any successor provision; as of the date of grant of the Option a Disqualifying Disposition is any disposition (including any sale) of such shares before the later of (a) the second anniversary of the date of grant of the Option and (b) the first anniversary of the date on which the Holder acquired such shares by exercising the Option, *provided* that such holding period requirements terminate upon the death of the Holder.

The Holder acknowledges that he or she will forfeit the favorable income tax treatment otherwise available with respect to the exercise of the Option if he or she makes a Disqualifying Disposition of shares received upon exercise of the Option.

Section 13. **Government and Other Regulations; Governing Law.** The Option is subject to all laws, regulations and orders of any governmental authority which may be applicable thereto and, notwithstanding any of the provisions hereof, the Holder agrees that he will not exercise the Option granted hereby nor will the Company be obligated to issue any shares of stock hereunder if the exercise thereof or the issuance of such shares, as the case may be, would constitute a violation by the Holder or the Company of any such law, regulation or order or any provision thereof. Without limiting the generality of the foregoing, the Company shall not be obligated to issue any such shares if in the Company's sole judgment to do so would cause the Company or such issue not to be in compliance with the requirements of the Securities Act. The Company shall not be obligated to take any affirmative action in order to cause the exercise of the Option or the issuance of shares pursuant hereto to comply with any such law, regulation, order or provision.

The Option is and shall be subject in every respect to the provisions of the Company's 2011 Stock Incentive Plan, as amended from time to time, which is incorporated herein by reference and made a part hereof. The Holder hereby accepts the Option subject to all the terms and provisions of the Plan and agrees that (a) in the event of any conflict between the terms hereof and those of the Plan, the latter shall prevail, and (b) all decisions under and interpretations of the Plan by the Board or the Committee (as defined in the Plan) shall be final, binding and conclusive upon the Holder and his heirs, legal representatives, successors and permitted assigns.

The Option shall be governed by and construed in accordance with the laws of the State of Delaware.

Section 14. **Effective Date.** The Option shall be effective on the Effective Date set forth on page 1 hereof.

IN WITNESS WHEREOF, the parties have executed the Option as of the Effective Date.

Arsanis, Inc.

By: _____

Acknowledged and accepted:

_____

Holder

SCHEDULE A

Arsanis, Inc.

Incentive Stock Option Granted Under the
2011 Stock Incentive Plan

1. Name of Holder:
2. Date of Grant:
3. "Vesting Start Date":
4. Maximum Number of Shares for
which the Option is Exercisable ("Total Shares"):
5. Exercise (purchase) Price per Share ("Option Price"):
6. Expiration Date of Option:
7. Vesting Schedule:
8. All shares purchased upon exercise of the Option are subject to the rights of the Company to repurchase such shares as set forth in Section 9 of the Option, to the agreement to lock up set forth in Section 3 of the Option and to the other terms of the Option and the Plan.

Exhibit 10.6

Effective Date:

NON-STATUTORY STOCK OPTION

Granted by Arsanis, Inc.

Under the 2011 Stock Incentive Plan

For valuable consideration, the receipt of which is hereby acknowledged, Arsanis, Inc., a Delaware corporation (hereinafter together with its subsidiaries, where the context permits, referred to as the "Company"), hereby grants to the Holder named in Schedule A attached hereto the following Non-Statutory Stock Option (the "Option"):

Section 1. **Grant of Option.** Subject to the terms and conditions hereinafter set forth, the Holder is hereby given the right and option to purchase from the Company shares of the Company's Common Stock, $.001 par value per share (the "Common Stock"). Schedule A attached hereto and hereby incorporated herein sets forth, with respect to the Option, (i) its expiration date, (ii) its exercise price per share, (iii) the maximum number of shares that the Holder may purchase upon exercise hereof, and (iv) the vesting schedule. It also sets forth applicable conditions that are incorporated herein. The Option shall terminate in all respects, and all rights and options to purchase shares hereunder shall terminate, ten years from the Effective Date set forth above. The right to purchase shares hereunder shall be cumulative.

Section 2. **Exercise of Option**. The Option may be exercised only to the extent it has vested in accordance with Schedule A attached hereto. Purchase of any shares hereunder shall be made by delivery to the Company of a written notice of exercise specifying the number of shares with respect to which the Option is to be exercised and the address to which the certificate representing such shares is to be mailed, accompanied by:

(i) cash or a certified or bank check or postal money order payable to the order of the Company for an amount equal to the aggregate exercise price of the part of the Option being exercised;

(ii) with the consent of the Company, shares of Common Stock of the Company having a fair market value equal to the aggregate exercise price of the part of the Option being exercised;

(iii) with the consent of the Company, a personal recourse note issued by the Holder to the Company in a principal amount equal to such aggregate exercise price of the part of the Option being exercised and with such other terms, including interest rate and maturity, as the Company may determine in its discretion;

(iv) with the consent of the Company, if the class of Common Stock is registered under the Securities Exchange Act of 1934 at that time, subject to rules as may be established by the Board of Directors of the Company (the "Board"), a properly executed exercise notice along with irrevocable instructions to a broker to deliver promptly to the Company cash or a check payable and acceptable to the Company for the aggregate exercise price of the part of the Option being exercised;

(v) with the consent of the Company, instructions to reduce the number of shares otherwise issuable to the Holder upon the exercise of the Option by a number of shares of Common Stock having a fair market equal to the aggregate exercise price of the part of the Option being exercised; or

(vi) with the consent of the Company, any combination of (i), (ii), (iii), (iv) and/or (v).

For the purpose of the foregoing, the fair market value of the shares of Common Stock which may be delivered to the Company upon exercise of the Option shall be determined in accordance with procedures adopted by Board.

Section 3. **Conditions and Limitations.** As a condition precedent to any exercise of the Option, the Holder (or if any other individual or individuals are exercising the Option, such individual or individuals) shall deliver to the Company an investment letter in form and substance satisfactory to the Company and its counsel which shall contain among other things a statement in writing to the following effects (to the extent then applicable): (i) that the Option is then being exercised for the account of the Holder and only with a view to investment in, and not for, in connection with or with a view to the disposition of, the shares with respect to which the Option is then being exercised; (ii) that the Holder acknowledges that the rights of first refusal and repurchase set forth in Section 9 hereof apply to such shares; (iii) that the Holder has been advised that Rule 144 of the Securities and Exchange Commission (the "Commission"), which permits the resale, subject to various terms and conditions, of small amounts of "restricted securities" (as therein defined) after they have been held for a prescribed period of time, may not now apply to the Company because the Company is not now required to file, and does not file, current reports under the Securities Exchange Act of 1934 (the "Exchange Act"), nor is there publicly available information concerning the Company substantially equivalent to that which would be available if the Company were required to file such reports; (iv) that the Holder understands that there is no assurance that the Company will ever become a reporting company under the Exchange Act and that the Company has no obligation to the Holder to do so; (v) that the Holder and Holder's representatives have fully investigated the Company and the business and financial conditions concerning it and have knowledge of the Company's then current corporate activities and financial condition; and (vi) that the Holder believes that the nature and amount of the shares being purchased are consistent with Holder's investment objectives, abilities and resources. The restrictions imposed by this Section and any investment representation made pursuant to this Section shall be inoperative upon the registration with the Commission under the Securities Act of 1933, as amended (the "Securities Act"), of shares subject to the Option or acquired through the exercise of the Option.

Upon the request of the Company or the managing underwriter(s), the Holder shall, in connection with any public offering of securities of the Company, agree in writing that for a period of 180 days from the effective date of the registration statement for such offering filed with the Securities and Exchange Commission, plus such additional period, not to exceed 18 days, as may be necessary to enable the underwriter(s) to comply with Conduct Rule 2711(f) of

the National Association of Securities Dealers, Inc., the Holder will not sell, make any short sale of, loan, grant any option for the purchase of, or otherwise dispose of any shares of the Company's common stock owned or controlled by him. It shall be a condition to any transfer of the Shares prior to an initial public offering of the Company's common stock that the transferee agree to be bound by the foregoing lock-up provision.

Section 4. **Delivery of Shares.** Within a reasonable time following the receipt by the Company of the written notice and payment of the Option price for the shares to be purchased thereunder and, if applicable, the investment letter referred to in Section 3, the Company will deliver or cause to be delivered to the Holder (or if any other individual or individuals are exercising the Option, to such individual or individuals) at the address specified pursuant to Section 2 hereof a certificate or certificates for the number of shares with respect to which the Option is then being exercised, registered in the name of the Holder (or the name or names of the individual or individuals exercising the Option, either alone or jointly with another person or persons with rights of survivorship, as the individual or individuals exercising the Option shall prescribe in writing to the Company); provided, however, that such delivery shall be deemed effected for all purposes when a stock transfer agent shall have deposited such certificate or certificates in the United States mail, addressed to the Holder (or such individual or individuals) at the address so specified; and provided further that if any law, regulation or order of the Commission or other body having jurisdiction in the premises shall require the Company or the Holder (or the individual or individuals exercising the Option) to take any action in connection with the sale of the shares then being purchased, then, subject to the other provisions of this Section 4, the date on which such sale shall be deemed to have occurred and the date for the delivery of the certificates for such shares shall be extended for the period necessary to take and complete such action, it being understood that the Company shall have no obligation to take and complete any such action.

Section 5. **Adjustments Upon Changes in Capitalization.** The existence of the Option shall not affect in any way the right or power of the Company or its stockholders to make or authorize any or all adjustments, recapitalizations, reorganizations or other changes in the Company's capital structure or its business, or any merger or consolidation of the Company, or any issue of bonds, debentures, preferred or prior preference stock ahead of or affecting the Common Stock or the rights thereof, or the dissolution or liquidation of the Company, or any sale or transfer of all or any part of its assets or business, or any other corporate act or proceeding, whether of a similar character or otherwise.

If, through or as a result of any merger, consolidation, sale of all or substantially all of the assets of the Company, reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar transaction, (i) the outstanding shares of Common Stock are increased, decreased or exchanged for a different number or kind of shares or other securities of the Company, or (ii) additional shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such shares of Common Stock or other securities, an appropriate and proportionate adjustment shall be made in (x) the number and kind of shares or other securities subject to the Option and (y) the price for each share or other security subject to the Option, so that upon exercise of the Option, in lieu of the shares of Common Stock for which the Option was then exercisable, the Holder shall be entitled to receive, for the same aggregate cash consideration, the same total number and kind of shares or

other securities, cash or property that the owner of an equal number of outstanding shares of Common Stock immediately prior to the event requiring adjustment would own as a result of the event. If any such event shall occur, appropriate adjustment shall also be made in the application of the provisions of this Section 5 and Section 6 with respect to the Option and the rights of the Holder after the event so that the provisions of such Sections shall be applicable after the event and be as nearly equivalent as practicable in operation after the event as they were before the event.

Any adjustments under this Section 5 will be made by the Board, whose determination as to what adjustments, if any, will be made and the extent thereof will be final, binding and conclusive. No fractional shares will be issued under the Option on account of any such adjustments.

Except as hereinbefore expressly provided, the issue by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, for cash or property, or for labor or services, either upon direct sale or upon the exercise of rights or warrants to subscribe therefor, or upon conversion of shares of obligations of the Company convertible into such shares or other securities, shall not affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares of Common Stock then subject to the Option.

Section 6. **Effect of Certain Transactions.** If the Company is a party to a merger or reorganization with one or more other corporations or other entities, whether or not the Company is the surviving or resulting entity, or if the Company consolidates with or into one or more other corporations or other entities, or if the Company is liquidated or sells or otherwise disposes of substantially all of its assets (each hereinafter referred to as a "Transaction"), in any case while this Option remains outstanding, the Board or the board of directors of any entity assuming the obligations of the Company may, in its discretion,

(i) provide that after the effective date of such Transaction the Option shall remain outstanding and shall be exercisable for shares of Common Stock or, if applicable, shares of such stock or other securities, cash or property as the holders of shares of Common Stock received pursuant to the terms of such Transaction;

(ii) accelerate the time for exercise of the Option, so that from and after a date prior to the effective date of such Transaction the Option shall be exercisable in full;

(iii) cancel the Option as of the effective date of the Transaction, provided that (a) notice of such cancellation shall have been given to the Holder and (b) the Holder shall have the right to exercise the Option to the extent the same is then exercisable or, if the Board shall have accelerated the time for exercise of the Option, in full during the ten-day period preceding the effective date of the Transaction; or

(iv) determine that in the event of a Transaction under the terms of which holders of Common Stock of the Company receive upon consummation thereof a cash payment for each share surrendered (the "Transaction Price"), the Holder shall be provided a cash payment equal to the difference between (a) the Transaction Price times the number of shares of Common Stock subject to the Option (to the extent then exercisable at an

exercise price that is not in excess of the Transaction Price) and (b) the aggregate exercise price for all such shares of Common Stock subject to the Option, in exchange for the termination of the Option.

Section 7. **Rights of Holder.** No person shall, by virtue of the granting of the Option to the Holder, be deemed to be a holder of any shares purchasable under the Option or to be entitled to the rights or privileges of a holder of such shares unless and until the Option has been exercised with respect to such shares and they have been issued pursuant to that exercise of the Option.

The granting of the Option shall not impose upon the Company any obligations to employ or to continue to employ the Holder or, if applicable, to continue the Holder as a director of, or consultant to, the Company; and the right of the Company to terminate the employment or other service of the Holder shall not be diminished or affected by reason of the fact that the Option has been granted to the Holder.

Nothing herein contained shall impose any obligation upon the Holder to exercise the Option.

Section 8. **Transfer and Termination.** The Option is not transferable by the Holder otherwise than by will or the laws of descent and distribution.

The Option is exercisable, during the Holder's lifetime, only by him, and by him only while he is providing services to the Company, whether as an employee, director or consultant, except that in the event that the Holder's services with the Company terminate for any reason other than death, disability or termination for Cause, the Holder shall have the right to exercise the Option within a period of ninety (90) days after said termination (but not later than the expiration date of the Option) with respect to the shares which were purchasable by him by exercise of the Option at the time of such termination of services. The Holder shall be deemed to be providing services for the Company, for purposes of this Option, during any period in which the Holder is providing services as an employee, director or consultant for the Company or any subsidiary of the Company.

In the event of the permanent and total disability or the death of the Holder prior to termination of the Holder's services for the Company or a parent or subsidiary of the Company and before the date of expiration of the Option, the Holder, or in the event of death, his executors, administrators, heirs or legatees, as the case may be, shall have the right to exercise the Option at any time within one-hundred eighty (180) days after said disability or death (but not after the termination date of the Option) with respect to the shares which were purchasable by the Holder at the date of his disability or death. The Holder shall be considered permanently and totally disabled if the Holder is disabled within the meaning of Section 22(e)(3) of the Internal Revenue Code of 1986, as amended, or any successor provision.

If the Holder's services for the Company are terminated by the Company for Cause, the Option shall immediately terminate and shall thereafter be of no further force and effect. The term "Cause" shall mean (a) any material breach by the Holder of any agreement to which the Holder and the Company are both parties, (b) any act (other than retirement) or omission to act

by the Holder which may have a material and adverse effect on the Company's business or on the Holder's ability to perform services for the Company, including, without limitation, the commission of any crime (other than minor traffic violations), or (c) any material misconduct or material neglect of duties by the Holder in connection with the business or affairs of the Company or any parent, subsidiary or affiliate of the Company. The Board shall have sole authority and discretion to determine whether the Holder's services have been terminated for Cause.

Section 9. **Right of First Refusal.** Prior to the effective date of a registration statement under the Securities Act covering any shares of the Company's Common Stock and until such time as the Company shall have effected a public offering of its Common Stock, in the event that, at any time when the Holder (which term for purposes of this Section 9 shall mean the Holder and his executors, administrators and any other person to whom this may be transferred by will or the laws of descent and distribution) is permitted to do so, the Holder desires to sell, assign or otherwise transfer any of the shares issued upon the exercise of the Option, the Holder shall first offer such shares to the Company by giving written notice of the Holder's desire so to sell, assign or transfer such shares. The notice shall state the number of shares offered, the name of the person or persons to whom it is proposed to sell, assign or transfer such shares and the price and other terms at which such shares are intended to be sold, assigned or transferred. Such notice shall constitute an offer to the Company for the Company to purchase the number of shares set forth in the notice at a price per share equal to the price stated therein. The Company may accept the offer as to all, but not less than all, such shares by notifying the Holder in writing within 30 days after receipt of such notice of its acceptance of the offer. If the offer is accepted, the Company shall have 60 days within which to purchase the offered shares at a price per share as aforesaid. If within the applicable time periods the Holder does not receive notice of the Company's intention to purchase the offered shares, or if payment in full of the purchase price is not made by the Company, the offer shall be deemed to have been rejected and the Holder may transfer title to such shares within 90 days from the date of the Holder's written notice to the Company of the Holder's intention to sell, but such transfer shall be made only to the proposed transferee and at the proposed price and terms stated in such notice and after compliance with any other provisions of the Option applicable to the transfer of such shares. Shares that are so transferred to such transferee shall remain subject to the rights of the Company set forth in this Section 9. No sale, assignment, pledge or transfer of any of the shares covered by the Option shall be effective or given effect on the books of the Company unless all of the applicable provisions of this Section 9 have been duly complied with, and the Company may inscribe on the face of any certificate representing any of such shares a legend referring to the provisions of this Section. If any transfer of shares is made or attempted in violation of the foregoing restrictions, or if shares are not offered to the Company as required hereby, the Company shall have the right to purchase such shares from the owner thereof or his transferee at any time before or after the transfer, as herein provided. In addition to any other legal or equitable remedies which it may have, the Company may enforce its rights by actions for specific performance (to the extent permitted by law) and may refuse to recognize any transferee as one of its stockholders for any purpose, including, without limitation, for purposes of dividend and voting rights, until all applicable provisions hereof have been complied with.

For purposes of the Right of First Refusal pursuant to this Section 9, the term "shares" shall include, without limitation, all new, substituted or additional securities or other property

issued to the Holder by reason of his ownership of Common Stock pursuant to the exercise of the Option, in connection with any stock dividend, liquidating dividend, stock split or other change in the character or amount of any of the outstanding securities of the Company, or any consolidation, merger or sale of all or substantially all of the assets of the Company.

Any certificate representing shares of stock subject to the provisions of this Section 9 may have endorsed thereon one or more legends, in addition to any other legends deemed appropriate by the Company, substantially as follows:

> "Any disposition of any interest in the securities represented by this certificate is subject to restrictions, and the securities represented by this certificate are subject to certain options, contained in a certain agreement between the record holder hereof and the Company, a copy of which will be mailed to any holder of this certificate without charge upon receipt by the Company of a written request therefor."

The restrictions imposed by this Section 9 shall be in addition to, and not in lieu of, any restrictions set forth in the Stockholders' Agreement (as defined below) and shall terminate in all respects upon the effective date of a registration statement under the Securities Act covering the Company's Common Stock.

Section 10. **Stockholders' Agreement**. Notwithstanding anything to the contrary contained herein, the Holder understands and hereby agrees that, as a condition to the issuance of shares to the Holder hereunder upon exercise of this Option, the Holder shall become a party to that certain Second Amended and Restated Stockholders' Agreement among the Company and the other parties thereto, dated as of April 12, 2016, as the same may be amended or amended and restated from time to time (the "Stockholders' Agreement") by executing and delivering an adoption agreement thereto, and that the Holder shall thereby be bound by, and subject to, all the terms and provisions of the Stockholders' Agreement as a "Restricted Stockholder".

Section 11. **Notice**. Any notice to be given to the Company hereunder shall be deemed sufficient if addressed to the Company and delivered to the office of the Company, Arsanis, Inc., 890 Winter Street, Suite 230, Waltham, MA 02451, attention of the president, or such other address as the Company may hereafter designate.

Any notice to be given to the Holder hereunder shall be deemed sufficient if addressed to and delivered in person to the Holder at his address furnished to the Company or when deposited in the mail, postage prepaid, addressed to the Holder at such address.

Section 12. **Withholding of Taxes.** The Holder agrees that the Company may withhold from amounts due to the Holder from the Company, the appropriate amount of federal, state and local withholding taxes attributable to the Holder's exercise of this Option.

At the Holder's election, with the consent of the Company, the amount required to be withheld may be satisfied, in whole or in part, by (i) authorizing the Company to withhold from shares of Common Stock to be issued pursuant to the exercise of this Option a number of shares with an aggregate fair market value equal to the withholding amount due with respect to such exercise or (ii) transferring to the Company a number of shares of Common Stock with an aggregate fair market value equal to the withholding amount so due.

The Holder further agrees that, if the Company does not withhold an amount due to the Holder from the Company sufficient to satisfy the Company's withholding obligation, the Holder will reimburse the Company, on demand, in cash for the amount underwithheld.

Section 13. **Government and Other Regulations; Governing Law.** The Option is subject to all laws, regulations and orders of any governmental authority which may be applicable thereto and, notwithstanding any of the provisions hereof, the Holder agrees that he will not exercise the Option granted hereby nor will the Company be obligated to issue any shares of stock hereunder if the exercise thereof or the issuance of such shares, as the case may be, would constitute a violation by the Holder or the Company of any such law, regulation or order or any provision thereof. Without limiting the generality of the foregoing, the Company shall not be obligated to issue any such shares if in the Company's sole judgment to do so would cause the Company or such issue not to be in compliance with the requirements of the Securities Act. The Company shall not be obligated to take any affirmative action in order to cause the exercise of the Option or the issuance of shares pursuant hereto to comply with any such law, regulation, order or provision.

The Option is and shall be subject in every respect to the provisions of the Company's 2011 Stock Incentive Plan, as amended from time to time (the "Plan"), which is incorporated herein by reference and made a part hereof. The Holder hereby accepts the Option subject to all the terms and provisions of the Plan and agrees that (a) in the event of any conflict between the terms hereof and those of the Plan, the latter shall prevail, and (b) all decisions under and interpretations of the Plan by the Board or the Committee (as defined in the Plan) shall be final, binding and conclusive upon the Holder and his heirs, legal representatives, successors and permitted assigns.

The Option shall be governed by and construed in accordance with the laws of the State of Delaware.

Section 14. **Effective Date**. The Option shall be effective on the Effective Date set forth on page 1 hereof.

[Signature page follows.]

IN WITNESS WHEREOF, the parties have executed the Option as of the Effective Date.

Arsanis, Inc.

By: _____

Acknowledged and accepted:

_____

Holder

SCHEDULE A

Arsanis, Inc.

Non-Statutory Stock Option Granted Under the
2011 Stock Incentive Plan

1. Name of Holder:
2. Date of Grant:
3. "Vesting Start Date":
4. Maximum Number of Shares for
which the Option is Exercisable ("Total Shares"):
5. Exercise (purchase) Price per Share ("Option Price"):
6. Expiration Date of Option:
7. Vesting Schedule:
8. All shares purchased upon exercise of the Option are subject to the rights of the Company to repurchase such shares as set forth in Section 9 of the Option, to the agreement to lock up set forth in Section 3 of the Option and to the other terms of the Option and the Plan.

CONFIDENTIAL OFFER LETTER FOR
RENÉ RUSSO

July 12, 2015

Dear René,

We are very pleased to offer you a position with Arsanis, Inc. ("Arsanis" or "Company") as Chief Development Officer. You will be involved with the development and execution of our pre-clinical, clinical, regulatory, and commercialization research and strategies as well as our financing, team building, and business development activities. You will also play an integral role in establishing and expanding Arsanis' U.S. presence in Boston, in addition to other responsibilities not inconsistent with your positon that may be reasonably assigned to you from time to time. You will report directly to the President of Arsanis, Eszter Nagy.

Start Date: Your start date will be June 1, 2015 or a date mutually agreed upon by you and Arsanis.

Time Commitment: For the period beginning on the Start Date and ending on September 8, 2015 (the "Part-Time Period") the total weekly time commitment shall not exceed twenty-five percent (25%) of standard full-time employment, on average, over any given month.

Following the Part-Time Period, the time commitment for this position will expand to be a full-time professional commitment.

Base Salary: Your full-time salary will be equivalent to $380,000.00 annually (the "Full Time Base Salary"), which will be paid bi-weekly, and which shall be subject to deductions for taxes and other withholdings as required by law or the standard and lawful policies of the Company.
All forms of cash compensation herein other than severance, including without limitation your Base Salary and Bonus Potential, shall be adjusted proportionately in accordance with your mutually-agreed-upon time allocation over each such applicable payment period. During the Part-Time Period, for example, you will receive 25% of your full-time Base Salary and any applicable subsequent Bonus Potential calculation shall use as its basis this adjusted Base Salary for the applicable payment periods within the Part-Time Period.

During the Part-Time Period, should your total time commitment materially exceed or fall below the expected and mutually-agreed-upon time commitment, Arsanis will work with you in good faith to determine the magnitude of such deviance and any temporary overpayments or underpayments will be promptly applied to future payments to reflect the work actually performed.

Bonus Potential: At the sole discretion of the Company you will be eligible to earn an annual bonus of up to 35% of your Base Salary, which will be dependent upon the completion of milestones and performance evaluations established by the Board and President at the outset of your employment and annually thereafter, overall Company performance, and other external conditions. Any bonus due you hereunder will be paid no later than March 15th of the year following the calendar year to which the bonus relates, subject to your continuous employment through the date the bonus is earned. The foregoing shall be construed and applied so that any bonus payable to you hereunder qualifies as a "short-term deferral" under Section 409A of the Internal Revenue Code of 1986, as amended ("Section 409A").

Company shares and options: At the sole discretion of the Arsanis Board of Directors, Arsanis expects to grant or sell to you approximately 3.5% of the fully diluted and outstanding company ownership Arsanis in the form of Common Shares. The calculation of this percentage ownership interest shall be made following any increases to the Company's 2011 Stock Incentive Plan that the Board of Directors deems necessary or desirable at the July 2015 meeting of the Board of Directors, and shall assume that all shares reserved for issuance in relation to incentive plans for the Company's employees, customers, consultants, and directors have been issued and are fully outstanding. Such ownership interest shall be issued as Options (the "Shares") with a strike price equal to the then-current fair market value per Share in accordance with equity compensation requirements and pursuant to the determination by the Arsanis Board of Directors of such fair market value at its sole discretion, such fair market value having most recently been determined by the Board of Directors to be equal to $2.36 per Common Share. The most recent Preferred Share issuance was completed at a price of $7.24/share, and the post-money valuation with respect to the Series B-2 financing is approximately $55 million.

The purchase and sale of the Shares shall be governed by an Option Purchase Agreement which shall contain, among other things, vesting provisions consistent with this offer letter, a right of accelerated vesting on the occurrence of a change of control of the Company and a right of the Company to cancel or repurchase unvested Shares or Options under certain circumstances. Twenty-five percent (25%) of such Shares shall vest on the first anniversary of the Start Date or, if earlier, the first anniversary of your first date of employment for Company, and the remainder of the Shares shall vest in 36 equal monthly installments thereafter.

The Board of Directors will review your compensation annually and may adjust it upwards in its sole discretion. At sole discretion of the Arsanis Board of Directors and as part of such annual review, you will be eligible to receive additional equity-based incentive compensation, any such additional Shares to be granted in accordance with the above procedures and to be subject to similar vesting or repurchase provisions and other restrictions. It is the expectation of both parties that you will receive such additional equity grants and, in any event, no later than following the final vesting date of your initial equity grant.

Vacation and Other Time Off: You will receive as vacation, sick leave, and flex time, on an annualized basis, paid time off in the form of:

- up to ten (10) "holidays" in the form of paid time off, such days to be allocated primarily to those official federal and/or public holidays observed in the U.S. and/or Austria, as mutually agreed upon between you and Arsanis; and
- up to twenty five (25) days of vacation in the form of paid time off, such days to be allocated at your sole discretion; and
- sick leave in the form of paid time off, as required, subject to Company approval.

In addition, Arsanis believes in a flexible schedule policy that encourages employees to work hard but allows flexibility around when work is done.

Location: You will be primarily located in the Boston area, and will play an integral role in establishing Arsanis' U.S. presence and team in Boston. You will be asked to travel occasionally to the Company's offices in Vienna, Austria, as mutually agreed upon between you and Company.

Benefits: Arsanis will arrange to provide health, dental, vision, life, and disability insurance as required by you and your family. In the event that you provide for your own healthcare and other ancillary insurance services and benefits, Arsanis shall provide an additional stipend as a part of your Base Salary and paid pro rata at such times as your Base Salary is paid, to defray substantially all of such reasonable costs.

While Arsanis does not have a policy of matching employee contributions at this time, Arsanis will also arrange for your participation in a leading 401(k) savings and retirement program.

Travel Reimbursement: Arsanis will reimburse you for all reasonable out-of-pocket expenses incurred in the course of your employment, subject in certain circumstances to approval.

Termination of Employment. Your employment under this Agreement shall continue until terminated pursuant to this Section.

(a). **Termination for Cause.** The Company may terminate your employment for Cause, as defined below, upon notice to you setting forth in reasonable detail the nature of the Cause. The following, as determined by the Board in its reasonable judgment, shall constitute "Cause" for termination:

(i). the commission of, or indictment or conviction for, any felony or any other crime involving dishonesty to the material detriment of the Company;

(ii). participation in any fraud, deliberate and substantial misconduct, breach of duty of loyalty or breach of fiduciary duty against the Company;

(iii). intentional and substantial damage to any property of the Company;

(iv). unsatisfactory performance of your duties hereunder (not attributable to sickness, disability or death) after reasonable written notice and opportunity to cure; or

(v). your breach of any material provision of this Agreement, the Invention, Non-Competition, and Non-Disclosure Agreement, or any other agreement to which you and the Company are both parties.

Termination of your employment by the Company for Cause will result in no severance pay or benefits.

(b). **Termination without Cause.** The Company may terminate your employment at any time other than for Cause upon written notice to you.

(c). **Termination for Good Reason.** You may terminate your employment hereunder for Good Reason, as defined below, by providing written notice to the Company of the condition giving rise to the Good Reason, specifying in detail the basis for such claim of Good Reason, no later than 30 days following the occurrence of the condition, by giving the Company 30 days to remedy the condition and by terminating employment for Good Reason within 30 days thereafter if the Company fails to remedy the condition. The following, if occurring without your consent, shall constitute "Good Reason" for termination by you:

(i). a material and adverse diminution of your duties and responsibilities with the Company, provided that such change is not in connection with a termination of your employment relationship with the Company;

(ii). A material diminution of your base compensation provided that such change is not in connection with a termination of your employment relationship with the Company;

(iii). relocation of your principal place of employment outside a 30 mile radius from Boston, Massachusetts; or

(iv). a material breach by the Company of this Agreement.

(d). **Termination without Good Reason.** You may terminate your employment with the Company other than for Good Reason at any time subject to your provision of advanced written notice to the Company within a sixty (60) day agreed-upon prior notice period (the "Applicable Notice Period").

(e). **Termination Due to Death or Disability.** This Agreement shall automatically terminate in the event of your death during employment. The Company may terminate your employment, upon notice to you, in the event you become disabled during employment through any illness, accident, injury or condition of either a physical or psychological nature and, as a result, are unable to continue to perform substantially all of your duties and responsibilities under this Agreement (notwithstanding the provision of any reasonable accommodation) for 180 days (whether or not consecutive) during any period of 365 consecutive calendar days. If any question shall arise as to whether you are disabled to the extent that you are unable to perform substantially all of your duties and responsibilities for the Company, you shall, at the Company's request and expense, submit to a medical examination by a mutually acceptable physician who is Board certified in the area of practice involved in the disability and such determination shall, for the purposes of this Agreement, be conclusive of the issue. If such a question arises and you fail to submit to the requested medical examination, the Company's determination of the issue shall be binding on you.

Severance and other Matters Related to Termination.

(a) Termination by the Company without Cause or by you for Good Reason. Subject to (b) and (f) below and **Section 409A**, in the event that your employment is terminated by the Company without Cause pursuant to (b) or by you for Good Reason pursuant to (c), in addition to the Accrued Compensation (as defined below), which shall be paid at the time provided in (d) below, you shall be entitled to the severance payments and benefits specified below:

(i). the Company shall continue to pay you your Full Time Base Salary, at the rate then in effect without pro ration during any period of part-time employment, in accordance with the Company's standard payroll policy as then in effect, for a period following the date on which your employment with the Company terminates, such period being determined as follows (the "Applicable Severance Period"):

(1) three (3) months with regard to terminations that are initiated within (6) months of the Start Date;

(2) six (6) months with regard to terminations that are initiated after six (6) months but before twelve (12) months following the Start Date;

(3) nine (9) months with regard to terminations that are initiated on or after the twelve (12) month anniversary of the Start Date;

(ii). subject to your timely election to continue participation in the Company's group health and dental plans under COBRA or Massachusetts law, and only for so long as you are eligible for such coverage through COBRA or Massachusetts law, the Company shall pay you, on a monthly and taxable basis, an amount equal to the full monthly premium cost of such participation until the conclusion of the Applicable Severance Period, or, if earlier, until the date you become eligible to enroll in such plans of any new employer.

(b) Termination by the Company without Cause or by you for Good Reason in connection with a Change of Control. Subject to **Section 409A**, in the event that your employment is terminated by the Company without Cause pursuant to (b) or by you for Good Reason, in either case, within 12 months following a Change of Control, in addition to the Accrued Compensation (as defined below), which shall be paid at the time specified in (d) below, in lieu of any payments and benefits provided in (a) above, you shall be entitled to the severance payments and benefits specified below. In the event that you are terminated within three (3) months prior to a Chance of Control, the Arsanis Board of Directors will promptly review the causes and circumstances surrounding your termination in good faith and, to the extent that such termination is determined at its sole discretion to have been specifically related to such Change of Control and without Cause, you shall receive additional severance payments and benefits pursuant to this section (b).

(i). the Company shall continue to pay you your Full Time Base Salary, at the rate then in effect, for the Applicable Severance Period in addition to the subsequent three (3) month period (together, the "Change of Control Applicable Severance Period"), in accordance with the Company's standard payroll policy as then in effect;

(ii). subject to your timely election to continue participation in the Company's group health and dental plans under COBRA, and only for so long as you are eligible for such coverage through COBRA (or Massachusetts laws), the Company shall pay you, on a monthly and taxable basis, an amount equal to the full monthly premium cost of such participation until the conclusion of the Change of Control Applicable Severance Period, or, if earlier, until the date you become eligible to enroll in such plans of any new employer; and

(iii). all outstanding and unvested stock options and other equity awards then held by you will become fully vested and exercisable and, with respect to any stock options then held by you, shall remain exercisable for the period of time set forth in the applicable grant agreement.

(c). **Termination by the Company due to your Disability or due to your Death.** Subject to **Section 409A**, in the event your employment with the Company is terminated by the Company due to your disability or is terminated due to your death, in addition to the Accrued Compensation (as defined below), which shall be paid at the time specified in (d), the Company shall pay you at the same time as the Accrued Compensation is paid a pro-rata annual bonus for the year in which such termination of employment occurs, calculated by multiplying your target annual bonus for such year by a fraction, the numerator of which is the number of days you were employed during such year and the denominator of which is 365 (the "Pro-Rata Bonus").

(d). **Any Other Termination.** In the event your employment with the Company terminates for any reason other than by the Company without Cause pursuant to (b) or by you for Good Reason or by the Company due to your disability or due to your death, the Company shall pay you on the first payroll date that follows the date of the termination of your employment the Accrued Compensation. For purposes of this Agreement, "Accrued Compensation" means any base salary earned but not paid through the date of the termination of employment and an amount equal to the value of any vacation time accrued but unused as of such date.

(e). **Parachute Payments.**

(i). In the event of the consummation of a change in ownership or control within the meaning of Section 280G (a "280G Change in Control") of the Company following the time that the Company has stock readily tradeable on an established securities market (within the meaning of Section 280G and the regulations thereunder), if all or a portion of the payments and benefits under this Agreement, together with any other payments and benefits provided to you by the Company or its Affiliates (including, without limitation, any accelerated vesting of stock options and other equity awards) (the "Total Payments"), would constitute an "excess parachute payment" within the meaning of Section 280G (the aggregate of such payments (or portions thereof) being hereinafter referred to as the "Excess Parachute Payments"), you will be entitled to receive (A) an amount limited so that no portion thereof shall fail to be tax deductible under Section 280G (the "Limited Amount"), or (B) if the amount otherwise payable hereunder or otherwise (without regard to clause (A)) reduced by all taxes applicable thereto (including, for the avoidance of doubt, the excise tax levied under Section 4999 of the Code (the "Excise Tax")) would be greater than the Limited Amount reduced by all taxes applicable thereto, the amount otherwise payable hereunder or otherwise.

(ii). The determination as to whether the Total Payments include Excess Parachute Payments and, if so, the amount of such Excess Parachute Payments, the amount of any Excise Tax with respect thereto, and the amount of any reduction in Total Payments shall be made at the Company's expense by the independent public accounting firm most recently serving as the Company's outside auditors or such other accounting or benefits consulting group or firm as the Company may designate (the "Accountants"). In the event that any payments under this Agreement or otherwise are required to be reduced as described in (e)(i), the adjustment will be made, first, by reducing the amount of base salary payable pursuant to (a)(i) or (b)(i), as applicable; second, if additional reductions are necessary, by reducing the payment of the amounts due to you pursuant to (a)(ii) or (b)(ii), as applicable; and third, if additional reductions are still necessary, by eliminating the accelerated vesting of stock option awards and other equity awards, if any, starting with those awards for which the amount required to be taken into account under Section 280G is the greatest.

(iii). In the event that there has been an underpayment or overpayment under this Agreement or otherwise as determined by the Accountants, the amount of such underpayment or overpayment shall forthwith be paid to you or refunded to the Company, as the case may be, with interest at the applicable federal rate provided for in Section 7872(f)(2) of the Code.

(f). **Release.** Any obligation of the Company to provide you severance payments or other benefits (including accelerated vesting of stock options and other equity awards) or any Pro-Rata Bonus (for the avoidance of doubt, other than Accrued Compensation), is conditioned on your (or your legal representative, if applicable, in the case of a termination due to your disability) signing a release of claims in the form provided by the Company (the "Release") following the termination of your employment within a period of time not to exceed 45 days from the date of such termination of employment, and on your (or your legal representative, if applicable) not revoking the Release within the revocation period provided therein following your (or your legal representative's, if applicable) execution of the Release, which release shall not apply to (i) claims for indemnification in your capacity as an officer or director of the Company under the Company's Certificate of Incorporation, Bylaws or written agreement, if any, providing for director or officer indemnification, (ii) rights to receive insurance payments under any policy maintained by the Company, (iii) vested rights as an equity holder or option holder and (iv)to receive retirement benefits that are accrued and fully vested at the time of your termination. Except as otherwise provided in **Section 409A**, any payments to be made in the form of salary continuation pursuant to the terms of this Agreement shall be payable in accordance with the normal payroll practices of the Company, with the first such payment (which shall be retroactive to the day immediately following the date of your termination of employment) due and payable as soon as administratively practicable following the date the Release becomes effective, but not later than the date that is 60 days following the date your employment terminates. Notwithstanding the foregoing, if the date your employment terminates occurs in one taxable year and the date that is 60 days following such termination date occurs in a second taxable year, to the extent required by Section 409A, such first payment shall not be made prior to the first day of the second taxable year. For the avoidance of doubt, if you (or your legal representative, if applicable) do not execute an Release within the period specified in this (f), or if you (or your legal representative, if applicable) revoke the executed Release within the time period permitted by law, you will not be entitled to any payments or benefits (including the accelerated vesting of stock options or other equity awards) or any Pro-Rata Bonus set forth herein (other than the Accrued Compensation), any stock options and other equity awards that vested on account of such termination as provided for in this Agreement shall be cancelled with no consideration due to you, and the Company will not have any further obligations to you under this Agreement or otherwise. You agree to provide the Company prompt notice of your eligibility to participate in the health and, if applicable, dental, plan of any employer. You further agree to repay any overpayment of health and, if applicable, dental, benefit premiums made by the Company hereunder. Notwithstanding anything to the contrary herein, in the event that the Company's payment of the amounts described in (a)(ii) or (b)(ii), as applicable, would subject the Company to any tax or penalty under the Patient

Protection and Affordable Care Act (as amended from time to time, the "ACA") or Section 105(h) of the Internal Revenue Code of 1986, as amended ("Section 105(h)"), or applicable regulations or guidance issued under the ACA or Section 105(h), you and the Company agree to work together in good faith to restructure such benefit.

(g). **Survival, Conditions to Severance.** Provisions of this Agreement shall survive any termination if so provided in this Agreement or if necessary or desirable to accomplish the purposes of other surviving provisions of the Agreement and the Invention, Non-Competition and Non-Disclosure Agreement. The obligation of the Company to make severance payments to you or on your behalf is expressly conditioned upon (i) your full performance, and continued performance during any applicable severance periods, of your material obligations under this Agreement, the Invention, Non-Competition and Non-Disclosure Agreement, and any subsequent agreement between you and the Company relating to, without limitation, confidentiality, non-competition, proprietary information or the like, and (ii) your (or your legal representative's, if applicable, in the case of a termination due to your disability) execution and non-revocation of the Release as set forth above.

Definitions. For purposes of this Agreement, the following definitions apply:

(a). "Change of Control" means the first to occur of any of the following: (i) a merger or consolidation in which (A) the Company is a constituent party, or (B) a subsidiary of the Company is a constituent party and the Company issues shares of its capital stock pursuant to such merger or consolidation, except in the case of either clause (A) or (B) any such merger or consolidation involving the Company or a subsidiary of the Company in which the beneficial owners of the shares of capital stock of the Company outstanding immediately prior to such merger or consolidation continue beneficially to own, immediately following such merger or consolidation, at least a majority by voting power of the capital stock of (x) the surviving or resulting corporation or (y) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation; (ii) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Company or a Company subsidiary of all or substantially all the assets of the Company and the Company subsidiaries taken as a whole (except in connection with a merger or consolidation not constituting a Change of Control under clause (i) or where such sale, lease, transfer, exclusive license or other disposition is to a wholly owned Company subsidiary); or (iii) the sale or transfer, in a single transaction or series of related transactions, by the stockholders of the Company of more than 50% by voting power of the then-outstanding capital stock of the Company to any Person or entity or group of affiliated Persons or entities.

(b). "Code" means the Internal Revenue Code of 1986, as amended.

(c). "Person" means an individual, a corporation, an association, a partnership, an estate, a trust and any other entity or organization, other than the Company.

(d). "Section 280G" means Section 280G of the Code, together with the regulations thereunder.

Section 409A.

(a). You and the Company agree that this Agreement shall be interpreted to comply with or be exempt from Section 409A, and the regulations and guidance promulgated thereunder to the extent applicable, and all provisions of this Agreement shall be construed in a manner consistent with the requirements for avoiding taxes or penalties under Section 409A.

(b). A termination of employment shall not be deemed to have occurred for purposes of any provision of this Agreement providing for the payment of any amounts or benefits considered "nonqualified deferred compensation" under Section 409A upon or following a termination of employment unless such termination is also a "separation from service" within the meaning of Section 409A (after giving effect to the presumptions contained therein) and, for purposes of any such provision of this Agreement, references to a "termination", "termination of employment" or like terms shall mean "separation from service". If you are deemed on the date of termination to be a "specified employee" within the meaning of that term under Section 409A(a)(2)(B), then with regard to any payment or the provision of any benefit that is considered nonqualified deferred compensation under Section 409A payable on account of a "separation from service", such payment or benefit shall be made or provided at the date which is the earlier of (a) the expiration of the six-month period measured from the date of such "separation from service", and (b) the date of your death (the "Delay Period"). Upon the expiration of the Delay Period, all payments and benefits delayed pursuant to this Section 11(b) (whether they would have otherwise been payable in a single sum or in installments in the absence of such delay) shall be paid or reimbursed on the first business day following the expiration of the Delay Period to you in a lump sum, and any remaining payments and benefits due under this Agreement shall be paid or provided in accordance with the normal payment dates specified for them herein.

(c). With regard to any provision herein that provides for payment or reimbursement of costs and expenses or in-kind benefits, except as permitted by Section 409A, (a) the right to payment, reimbursement or in-kind benefits shall not be subject to liquidation or exchange for another benefit; (b) the amount of expenses eligible for payment or reimbursement, or in-kind benefits, provided during any taxable year shall not affect the expenses eligible for payment or reimbursement, or in-kind benefits, to be provided in any other taxable year; and (c) such payments shall be made on or before the last day of your taxable year following the taxable year in which the expense occurred.

(d). For purposes of Section 409A, your right to receive any installment payments pursuant to this Agreement shall be treated as a right to receive a series of separate and distinct payments.

(e). In no event shall the Company have any liability relating to the failure or alleged failure of any payment or benefit under this Agreement to comply with, or be exempt from, the requirements of Section 409A.

At-Will Status: As is true for all Company employees, your employment with Arsanis will be "at will" meaning that either you or Company may terminate your employment at any time for any reason, with or without cause and with or without prior notice, subject the provisions of this Agreement.

Required Documentation: As a condition of employment, we will require you to successfully undergo a background screening and sign an Invention, Non-Competition, and Non-Disclosure Agreement, a form of which has been provided. You will also be required to acknowledge in writing that you have read the Company employee handbook, and have agreed to follow its rules and regulations. To comply with government-mandated confirmation of employment eligibility, we will require proof of your employment eligibility in the form of completed I-9 documentation and the provision of related identification documents.

If you would like to accept this offer please sign and return by the end of the day on July ____, 2015.

We look forward to welcoming you as part of the Arsanis team.

Sincerely,

By: /s/ Eszter Nagy
Eszter Nagy
Co-Founder, President

AGREED TO:

/s/ René Russo

12 – Jul -2015
Date

CONFIDENTIAL OFFER LETTER FOR
MICHAEL GRAY

January 15, 2016

Dear Mike,

We are very pleased to offer you a position with Arsanis, Inc. ("Arsanis" or "Company") as Chief Financial Officer and Chief Business Officer. As outlined in the position description, you will be responsible for overseeing several critical functions for Arsanis, including finance, corporate development and business development, corporate strategy, human resources, corporate communications and investor relations. You will report directly to the Company's President and Executive Chair of the Board of Directors.

This offer contains the following terms:

1. Start Date: Your start date will be February 1, 2016 or a date mutually agreed upon by you and the Company (the "Start Date").

2. Time Commitment: The time commitment for this position will be a full-time professional commitment. You will be expected to work a minimum of 40 hours per week. You may be required to work more than 40 hours per week as needed. As a non-exempt employee, you are not eligible for overtime pay.

3. Base Salary: Your full-time salary will be $350,000.00 annually (the "Full Time Base Salary"), which will be paid bi-monthly, and which shall be subject to deductions for taxes and other withholdings as required by law or the standard and lawful policies of the Company.

4. Sign-On Bonus: After the Start Date, you will be eligible for a one-time sign-on bonus of $100,000.00 (the "Sign-On Bonus"), which will be paid in full in your first paycheck, and which shall be subject to deductions for taxes and other withholdings as required by law or the standard and lawful policies of the Company. However, the Company's payment of the Sign-On Bonus to you is conditioned on your remaining employed with the Company for a period of one (1) year, beginning on the Start Date. If your employment is terminated on or before February 1, 2017, either by you or the Company, for any reason other than by the Company without Cause (as that term is defined in Section 11(a) below) or by you for Good Reason (as that term is defined in Section 11(c) below), you agree to repay the Company the full amount of the Sign-On Bonus, less taxes and other withholdings deducted from the Sign-On Bonus, within ten (10) days of your termination date.

5. Bonus Potential: At the sole discretion of the Company, you will be eligible to earn an annual bonus of up to 35% of your Base Salary, which will be dependent upon (i) the completion of milestones and performance evaluations established by the Board and President at the outset of your employment and annually thereafter and (ii) overall Company performance and prospects. Any bonus paid to you hereunder will be paid no later than March 15lh of the year

following the calendar year to which the bonus relates, subject to your continuous employment through the end of the calendar year to which such bonus relates. The foregoing shall be construed and applied so that any bonus payable to you hereunder qualifies as a "short-term deferral" under Section 409A of the Internal Revenue Code of 1986, as amended ("Section 409A").

6. Company Shares and Options: At the sole discretion of the Arsanis Board of Directors, Arsanis expects to grant you an option to purchase up to 112,500 Common Shares (approximately 1.5% of the current fully diluted company ownership of Arsanis) (the "Option") promptly following the Start Date. Such Option will be issued with a strike price equal to the current fair market value per Share in accordance with equity compensation requirements and pursuant to the determination by the Arsanis Board of Directors of such fair market value at its sole discretion in accordance with Section 409A, such fair market value having most recently been determined by the Board of Directors to be equal to $2.36 per Common Share. The most recent preferred share issuance by the Company was completed at a price of $7.24/share, and the post-money valuation with respect to such issuance is approximately $55 million.

The purchase and sale of the Shares shall be governed by a Stock Option Agreement which shall contain, among other things, vesting provisions consistent with this offer letter, a right of accelerated vesting on the occurrence of a change of control of the Company and a right of the Company to cancel unvested Options under certain circumstances. Twenty-five percent (25%) of such Shares shall vest on the first anniversary of the Start Date or, if earlier, the first anniversary of your first date of employment for Company, and the remainder of the Shares shall vest in 36 equal monthly installments thereafter.

Your supervisor will review your compensation annually and may adjust it in his or her sole discretion. At the sole discretion of the Arsanis Board of Directors, as part of such annual review, you may be eligible to receive additional equity-based incentive compensation, any such additional Shares to be granted in accordance with the above procedures and to be subject to similar vesting or repurchase provisions and other restrictions.

7. Vacation and Other Time Off: You will receive as vacation, sick leave, and flex time, on an annualized basis, paid time off in the form of:

- up to eleven (11) "holidays" per calendar year in the form of paid time off, such days to be allocated primarily to those official federal and/or public holidays observed in the U.S. and/or Austria, as mutually agreed upon between you and Arsanis;
- up to twenty five (25) days of vacation per calendar year in the form of paid time off (accruing at a rate of 2 1/2 days per month), such days to be allocated at your sole discretion and shall be subject to the Company's vacation policy; and
- sick leave in the form of paid time off, as required, subject to the Company's sick leave policy.

In addition, Arsanis believes in a flexible schedule policy that encourages employees to work hard but allows flexibility around when work is done.

8. Location: You will be primarily located in the Boston area office located at 890 Winter Street, Suite 230, Waltham, MA 02451, and will play an integral role in establishing Arsanis' U.S. presence and team in the Boston area. You will be asked to travel occasionally to the Company's offices in Vienna, Austria, as mutually agreed upon between you and Company.

9. Benefits: Arsanis will arrange to provide health, dental, vision, life, and disability insurance as required by you and your family.

While Arsanis does not have a policy of matching employee contributions at this time, Arsanis will also arrange for your participation in a nationally recognized 401(k) savings and retirement program no later than April 1, 2016.

10. Travel Reimbursement: Arsanis will reimburse you for all reasonable out-of-pocket expenses incurred in the course of your employment, subject in certain circumstances to approval.

11. Termination of Employment: You or Company may terminate your employment at any time for any reason, with or without cause, subject to the following provisions:

a. Termination for Cause: The Company may terminate your employment for Cause, as defined below, upon written notice to you setting forth in reasonable detail the nature of the Cause. The following, as determined by the Board in its reasonable judgment, shall constitute "Cause" for termination:

i. the commission of, or indictment or conviction for, any felony or any other crime involving dishonesty to the material detriment of the Company:

ii. participation in any fraud, deliberate and substantial misconduct, breach of duty of loyalty or breach of fiduciary duty against the Company;

iii. intentional and substantial damage to any property of the Company;

iv. unsatisfactory performance of your duties hereunder (not attributable to sickness, disability or death) after reasonable written notice no later than thirty (30) days following the occurrence of the condition and a 30-day opportunity to cure; or

v. your breach of any material provision of this offer letter, your Invention, Non-Competition, and Non-Disclosure Agreement, or any other agreement to which you and the Company are both parties after reasonable written notice no later than thirty (30) days following the occurrence of the condition and a 30-day opportunity to cure, provided, however, that such opportunity to cure shall only apply to any breach susceptible to cure and that any breach by you of your obligations of confidentiality or non-competition under the Invention, Non-Competition, and Non-Disclosure Agreement shall be deemed not susceptible to cure.

Termination of your employment by the Company for Cause will result in no severance pay or benefits.

b. Termination without Cause: The Company may terminate your employment at any time other than for Cause upon written notice to you.

c. Termination for Good Reason: You may terminate your employment hereunder for Good Reason, as defined below, by providing written notice to the Company of the condition giving rise to the Good Reason, specifying in reasonable detail the basis for such claim of Good Reason, no later than thirty (30) days following the occurrence of the condition, by giving the Company thirty (30) days to remedy the condition and by terminating employment for Good Reason within thirty (30) days thereafter if the Company fails to remedy the condition.

The following, if occurring without your consent, shall constitute "Good Reason" for termination by you:

i. a material and adverse diminution of your duties and responsibilities with the Company, provided that such change is not in connection with a termination of your employment relationship with the Company;

ii. a material diminution of your then Full-Time Base Salary provided that such change is not in connection with a termination of your employment relationship with the Company;

iii. relocation of your principal place of employment outside a thirty (30) mile radius from Boston, Massachusetts; or

iv. a material breach by the Company of this offer letter.

d. Termination without Good Reason: You may terminate your employment with the Company other than for Good Reason at any time subject to your provision of thirty (30) days' advance written notice to the Company (the "Applicable Notice Period").

e. Termination Due to Death or Disability: Your employment shall automatically terminate in the event of your death during employment. The Company may terminate your employment, upon notice to you, in the event you become disabled during employment through any illness, accident, injury or condition of either a physical or psychological nature and, as a result, are unable to continue to perform substantially all of your duties and responsibilities (notwithstanding the provision of any reasonable accommodation) for 180 days (whether or not consecutive) during any period of 365 consecutive calendar days. If any question shall arise as to whether you are disabled to the extent that you are unable to perform substantially all of your duties and responsibilities for the Company, you shall, at the Company's request and expense,

submit to a medical examination by a mutually acceptable physician in the Boston area who is Board certified in the area of practice involved in the disability and such determination shall, for the purposes of this offer letter, be conclusive of the issue. If such a question arises and you fail to submit to the requested medical examination, the Company's determination of the issue shall be binding on you.

12. Severance and other Matters Related to Termination:

(a) Termination by the Company without Cause or by You for Good Reason: Subject to Sections 12(b) and 12(f) below and **Section 409A**, in the event that your employment is terminated by the Company without Cause pursuant to Section 11(b) of this offer letter or by you for Good Reason pursuant to Section 11(c) of this offer letter, in addition to the Accrued Compensation (as defined below), the Company shall provide you with the severance payments and benefits specified below:

i. the Company shall continue to pay you your Full Time Base Salary, at the rate then in effect and in accordance with the Company's standard payroll policy as then in effect, for a period following the date on which your employment with the Company terminates, such period being determined as follows (the "Applicable Severance Period"):

(1) one (1) month with regard to terminations that are initiated within six (6) months of the Start Date;

(2) two (2) months with regard to terminations that are initiated after six (6) months but before twelve (12) months following the Start Date;

(3) three (3) months with regard to terminations that are initiated on or after the twelve (12) month anniversary of the Start Date; and

ii. subject to your timely election to continue participation in the Company's group health and dental plans under COBRA or Massachusetts law, and only for so long as you are eligible for such coverage through COBRA or Massachusetts law, the Company shall pay you, on a monthly and taxable basis, an amount equal to the full monthly premium cost of such participation until the conclusion of the Applicable Severance Period, or, if earlier, until the date you become eligible to enroll in such plans of any new employer.

(b) Termination by the Company without Cause or by You for Good Reason in Connection with a Change of Control; Subject to **Section 409A**, in the event that your employment is terminated by the Company without Cause pursuant to Section 11(b) of this offer letter or by you for Good Reason pursuant to 11(c) of this offer letter, in either case, within twelve (12) months following a Change of Control (as defined below), in addition to the Accrued Compensation (as defined below), in lieu of any payments and benefits provided in Section 12(a) above, the Company shall provide you the severance payments and benefits specified below:

i. the Company shall continue to pay you your Full Time Base Salary, at the rate then in effect, for the Applicable Severance Period plus an additional one (1) month period (together, the "Change of Control Applicable Severance Period"), in accordance with the Company's standard payroll policy as then in effect;

ii. subject to your timely election to continue participation in the Company's group health and dental plans under COBRA, and only for so long as you are eligible for such coverage through COBRA (or Massachusetts laws), the Company shall pay you, on a monthly and taxable basis, an amount equal to the full monthly premium cost of such participation until the conclusion of the Change of Control Applicable Severance Period, or, if earlier, until the date you become eligible to enroll in such plans of any new employer; and

iii. all outstanding and unvested stock options and other equity awards then held by you shall become fully vested and exercisable and, with respect to any stock options then held by you, those options shall remain exercisable for the period of time set forth in the applicable grant agreement.

In the event that your employment terminates within three (3) months prior to a Change of Control, the Arsanis Board of Directors will promptly review the causes and circumstances surrounding your termination and, to the extent that such termination is determined at its sole discretion to have been specifically related to such Change of Control and without Cause or for Good Reason, you shall receive additional severance payments and benefits pursuant to this Section 12(b).

c. Termination by the Company Due to Your Disability or Death: Subject to **Section 409A**, in the event your employment with the Company is terminated by the Company due to your disability or is terminated due to your death pursuant to Section 11(e) of this offer letter, in addition to the Accrued Compensation (as defined below), the Company shall pay you at the same time as the Accrued Compensation is paid a pro rata annual bonus for the year in which such termination of employment occurs, calculated by multiplying your target annual bonus for such year by a fraction, the numerator of which is the number of days you were employed during such year and the denominator of which is 365 (the "Pro-Rata Bonus").

d. Any Other Termination: In the event your employment with the Company terminates for any reason other than by the Company without Cause pursuant to Section 11(b) of this offer letter, by you for Good Reason pursuant to Section 11(c) of this offer letter, or by the Company due to your disability or death pursuant to Section 11(e) of this offer letter, the Company shall pay you the Accrued Compensation. For purposes of this offer letter, "Accrued Compensation" means any base salary earned but not paid through the date of the termination of employment and an amount equal to the value of any vacation time accrued but unused as of such date.

e. Parachute Payments:

i. In the event of the consummation of a change in ownership or control within the meaning of Section 280G (a "280G Change in Control") of the Company following the time that the Company has stock readily tradeable on an established securities market (within the meaning of Section 280G and the regulations thereunder), if all or a portion of the payments and benefits under this offer letter, together with any other payments and benefits provided to you by the Company or its Affiliates (including, without limitation, any accelerated vesting of stock options and other equity awards) (the "Total Payments"), would constitute an "excess parachute payment" within the meaning of Section 280G (the aggregate of such payments (or portions thereof) being hereinafter referred to as the "Excess Parachute Payments"), you will be entitled to receive (A) an amount limited so that no portion thereof shall fail to be tax deductible under Section 280G (the "Limited Amount"), or (B) if the amount otherwise payable hereunder or otherwise (without regard to clause (A)) reduced by all taxes applicable thereto (including, for the avoidance of doubt, the excise tax levied under Section 4999 of the Code (the "Excise Tax")) would be greater than the Limited Amount reduced by all taxes applicable thereto, the amount otherwise payable hereunder or otherwise.

ii. The determination as to whether the Total Payments include Excess Parachute Payments and, if so, the amount of such Excess Parachute Payments, the amount of any Excise Tax with respect thereto, and the amount of any reduction in Total Payments shall be made at the Company's expense by the independent public accounting firm most recently serving as the Company's outside auditors or such other accounting or benefits consulting group or firm as the Company may designate (the "Accountants"). In the event that any payments under this offer letter or otherwise are required to be reduced as described in Section 12(e)(i) of this offer letter, the adjustment will be made, first, by reducing the amount of base salary payable pursuant to Section 12(a)(i) or 12(b)(i), as applicable; second, if additional reductions are necessary, by reducing the payment of the amounts due to you pursuant to Section 12(a)(ii) or 12(b)(ii), as applicable; and third, if additional reductions are still necessary, by eliminating the accelerated vesting of stock option awards and other equity awards, if any, starting with those awards for which the amount required to be taken into account under Section 280G is the greatest.

iii. In the event that there has been an underpayment or overpayment under this offer letter or otherwise as determined by the Accountants, the amount of such underpayment or overpayment shall forthwith be paid to you or refunded to the Company, as the case may be, with interest at the applicable federal rate provided for in Section 7872(f)(2) of the Code.

f. Release: Any obligation of the Company to provide you severance payments or other benefits (including accelerated vesting of stock options and other equity awards) or any Pro-Rata Bonus (for the avoidance of doubt, other than Accrued Compensation), is conditioned on your (or your legal representative, if applicable, in the case of a termination due to your

disability) signing a release of claims in the form provided by the Company (the "Release") following the termination of your employment within a period of time not to exceed forty-five (45) days from the date of such termination of employment, and on your (or your legal representative, if applicable) not revoking the Release within the revocation period provided therein following your (or your legal representative's, if applicable) execution of the Release, which release shall not apply to (i) claims for indemnification in your capacity as an officer or director of the Company under the Company's Certificate of Incorporation, Bylaws, insurance or other written agreements, if any, providing for director or officer indemnification, (ii) rights to receive insurance payments under any policy maintained by the Company, (iii) vested rights as an equity holder or option holder, (iv) rights to receive retirement and other benefits that are accrued and fully vested at the time of your termination, and (v) any other claims that cannot be released as a matter of law. Except as otherwise provided in **Section 409A**, any payments to be made in the form of salary continuation pursuant to the terms of this offer letter shall be payable in accordance with the normal payroll practices of the Company, with the first such payment (which shall be retroactive to the day immediately following the date of your termination of employment) due and payable as soon as administratively practicable following the date the Release becomes effective, but not later than the date that is sixty (60) days following the date your employment terminates. Notwithstanding the foregoing, if the date your employment terminates occurs in one taxable year and the date that is sixty (60) days following such termination date occurs in a second taxable year, to the extent required by Section 409A, such first payment shall not be made prior to the first day of the second taxable year. For the avoidance of doubt, if you (or your legal representative, if applicable) do not execute a Release within the period specified in this Section 12(f), or if you (or your legal representative, if applicable) revoke the executed Release within the time period permitted by law, you will not be entitled to any payments or benefits (including the accelerated vesting of stock options or other equity awards) or any Pro-Rata Bonus set forth herein (other than the Accrued Compensation), any stock options and other equity awards that vested on account of such termination as provided for in this offer letter shall be cancelled with no consideration due to you, and the Company will not have any further obligations to you under this offer letter or otherwise. You agree to provide the Company prompt notice of your eligibility to participate in the health and, if applicable, dental, plan of any subsequent employer. You further agree to repay any overpayment of health and, if applicable, dental, benefit premiums made by the Company hereunder. Notwithstanding anything to the contrary herein, in the event that the Company's payment of the amounts described in Section 12(a)(ii) or (b)(ii), as applicable, would subject the Company to any tax or penalty under the Patient Protection and Affordable Care Act (as amended from time to time, the "ACA") or Section 105(h) of the Internal Revenue Code of 1986, as amended ("Section 105(h)"), or applicable regulations or guidance issued under the ACA or Section 105(h), you and the Company agree to work together in good faith to restructure such benefit.

g. Survival, Conditions to Severance: Provisions of this offer letter shall survive any termination if so provided in this offer letter or if necessary or desirable to accomplish the purposes of other surviving provisions of the offer letter and the Invention, Non-Competition and Non-Disclosure Agreement. The obligation of the Company to make severance payments to you or on your behalf is expressly conditioned upon (i) your full performance, and continued

performance during any applicable severance periods, of your material obligations under this offer letter, the Invention, Non-Competition and Non-Disclosure Agreement, and any subsequent agreement between you and the Company relating to, without limitation, confidentiality, non-competition, proprietary information or the like, and (ii) your (or your legal representative's, if applicable, in the case of a termination due to your disability) execution and non-revocation of the Release as set forth above.

13. Definitions: For purposes of this offer letter, the following definitions apply:

a. "Change of Control" means the first to occur of any of the following: (i) a merger or consolidation in which (A) the Company is a constituent party, or (B) a subsidiary of the Company is a constituent party and the Company issues shares of its capital stock pursuant to such merger or consolidation, except in the case of either clause (A) or (B) any such merger or consolidation involving the Company or a subsidiary of the Company in which the beneficial owners of the shares of capital stock of the Company outstanding immediately prior to such merger or consolidation continue beneficially to own, immediately following such merger or consolidation, at least a majority by voting power of the capital stock of (x) the surviving or resulting corporation or (y) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation; (ii) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Company or a Company subsidiary of all or substantially all the assets of the Company and the Company subsidiaries taken as a whole (except in connection with a merger or consolidation not constituting a Change of Control under clause (i) or where such sale, lease, transfer, exclusive license or other disposition is to a wholly owned Company subsidiary); or (iii) the sale or transfer, in a single transaction or series of related transactions, by the stockholders of the Company of more than 50% by voting power of the then-outstanding capital stock of the Company to any Person or entity or group of affiliated Persons or entities.

b. "Code" means the Internal Revenue Code of 1986, as amended.

c. "Person" means an individual, a corporation, an association, a partnership, an estate, a trust and any other entity or organization, other than the Company.

d. "Section 280G" means Section 280G of the Code, together with the regulations thereunder.

14. Section 409A.

a. You and the Company agree that this offer letter shall be interpreted to comply with or be exempt from Section 409A, and the regulations and guidance promulgated thereunder to the extent applicable, and all provisions of this offer letter shall be construed in a manner consistent with the requirements for avoiding taxes or penalties under Section 409A.

b. A termination of employment shall not be deemed to have occurred for purposes of any provision of this offer letter providing for the payment of any amounts or benefits considered "nonqualified deferred compensation" under Section 409A upon or following a termination of employment unless such termination is also a "separation from service" within the meaning of Section 409A (after giving effect to the presumptions contained therein) and, for purposes of any such provision of this offer letter, references to a "termination," "termination of employment" or like terms shall mean "separation from service." If you are deemed on the date of termination to be a "specified employee" within the meaning of that term under Section 409A(a)(2)(B), then with regard to any payment or the provision of any benefit that is considered nonqualified deferred compensation under Section 409A payable on account of a "separation from service," such payment or benefit shall be made or provided at the date which is the earlier of (a) the expiration of the six-month period measured from the date of such "separation from service", and (b) the date of your death (the "Delay Period"). Upon the expiration of the Delay Period, all payments and benefits delayed pursuant to this Section 14(b) (whether they would have otherwise been payable in a single sum or in installments in the absence of such delay) shall be paid or reimbursed on the first business day following the expiration of the Delay Period to you in a lump sum, and any remaining payments and benefits due under this offer letter shall be paid or provided in accordance with the normal payment dates specified for them herein.

c. With regard to any provision herein that provides for payment or reimbursement of costs and expenses or in-kind benefits, except as permitted by Section 409A, (a) the right to payment, reimbursement or in-kind benefits shall not be subject to liquidation or exchange for another benefit; (b) the amount of expenses eligible for payment or reimbursement, or in-kind benefits, provided during any taxable year shall not affect the expenses eligible for payment or reimbursement, or in-kind benefits, to be provided in any other taxable year; and (c) such payments shall be made on or before the last day of your taxable year following the taxable year in which the expense occurred.

d. For purposes of Section 409A, your right to receive any installment payments pursuant to this offer letter shall be treated as a right to receive a series of separate and distinct payments.

e. In no event shall the Company have any liability relating to the failure or alleged failure of any payment or benefit under this offer letter to comply with, or be exempt from, the requirements of Section 409A.

15. At-Will Status: As is true for all Company employees, your employment with Arsanis will be "at-will." This means that your employment is for no specified period of time, and may be terminated at any time by either you or the Company, with or without cause, subject the provisions of this offer letter. This letter is not meant to be a contract of employment for any specific duration.

16. Conditions/Required Documentation: This offer of employment is conditioned on the completion of a satisfactory background check. Further, as a condition of employment, the Company will require you to sign an Invention, Non-Competition, and Non-Disclosure

Agreement, a form of which has been provided. You will also be required to acknowledge in writing that you have read the Company employee handbook, and have agreed to follow its rules and regulations. To comply with government-mandated confirmation of employment eligibility, you also will be required to provide proof of your employment eligibility in the form of completed I-9 documentation and the provision of related identification documents.

17. Miscellaneous: Your rights and obligations under this letter shall be neither assignable nor delegable by you, except to the extent that any rights to compensation hereunder may be assigned to your estate or legal representative in the event of your death or disability. This offer letter shall be binding upon and inure to the benefit of you and the Company and your and its respective permitted successors and assigns. This offer letter shall be interpreted under the laws of the Commonwealth of Massachusetts.

If you would like to accept this offer, please sign and return this letter by the end of the day on January 15, 2016.

We look forward to welcoming you as part of the Arsanis team.

Sincerely,

/s/ Tillman Gerngross
Tillman Gerngross
President and Executive Chairman of the Board

AGREED TO:

/s/ Michael Gray
Michael Gray

January 15, 2016
Date

CONFIDENTIAL OFFER LETTER FOR
CHRISTOPHER STEVENS

April 28, 2016

Dear Chris,

We are very pleased to offer you a position with Arsanis, Inc. ("Arsanis" or "Company") as Chief Medical Officer. As outlined in the position description, you will be responsible for overseeing the Medical and Clinical Research functions at Arsanis. You will report directly to the Chief Executive Officer.

This offer contains the following terms:

1. Start Date: Your start date will be June 1, 2016 (the "Start Date").

2. Time Commitment: The time commitment for this position will be a full-time professional commitment. You will be expected to work a minimum of 40 hours per week. You may be required to work more than 40 hours per week as needed. As a non-exempt employee, you are not eligible for overtime pay.

3. Base Salary: Your full-time salary will be $380,000.00 annually (the "Full Time Base Salary"), which will be paid bi-monthly, and which shall be subject to deductions for taxes and other withholdings as required by law or the standard and lawful policies of the Company.

4. Sign-On Bonus: After the Start Date, you will be eligible for a one-time sign-on bonus of $100,000.00 (the "Sign-On Bonus"), which will be paid in full in your first paycheck, and which shall be subject to deductions for taxes and other withholdings as required by law or the standard and lawful policies of the Company. However, the Company's payment of the Sign-On Bonus to you is conditioned on your remaining employed with the Company for a period of one (1) year, beginning on the Start Date. If your employment is terminated on or before June 1, 2017, either by you or the Company, for any reason other than by the Company without Cause (as that term is defined in Section 11(a) below) or by you for Good Reason (as that term is defined in Section 11(c) below), or by termination due to death or disability (as that term is defined in Section 11(e) below) you agree to repay the Company a prorated share of the Sign-On Bonus based on the proportion of time worked divided by one year, less taxes and other withholdings deducted from the Sign-On Bonus, within ten (10) days of your termination date. If you leave the Company for reason of the Company without cause or by you for Good Reason, or due to death or disability before one year of the start date, you will not be required to pay back any portion of the sign-on bonus.

5. Bonus Potential: At the sole discretion of the Company, you will be eligible to earn an annual bonus of up to 30% of your Base Salary, which will be dependent upon (i) the completion of milestones and performance evaluations established by the Board and President at the outset of your employment and annually thereafter and (ii) overall Company performance and

prospects. Any bonus paid to you hereunder will be paid no later than March 15th of the year following the calendar year to which the bonus relates, subject to your continuous employment through the end of the calendar year to which such bonus relates. The foregoing shall be construed and applied so that any bonus payable to you hereunder qualifies as a "short-term deferral" under Section 409A of the Internal Revenue Code of 1986, as amended ("Section 409A").

6. Company Shares and Options: At the sole discretion of the Arsanis Board of Directors, Arsanis expects to grant you an option to purchase up to 90,000 Common Shares (the "Option") promptly following the Start Date. Such Option will be issued with a strike price equal to the fair market value per Share on grant date, determined in accordance with applicable equity compensation requirements under Section 409A by the Arsanis Board of Directors in its sole discretion (the Section 409A valuation as of April 22, 2016 was determined to be $2.68 per share). You acknowledge and agree that the equity interest in the Company represented by the Option may be diluted at any time by the issuance by the Company of more capital stock or options to investors, directors, employees or consultants, and that the value of the Company's capital stock may increase or decrease over time.

The purchase and sale of the Shares shall be governed by a Stock Option Agreement which shall contain, among other things, vesting provisions consistent with this offer letter, and a right of the Company to cancel unvested Options under certain circumstances. Twenty-five percent (25%) of such Shares shall vest on the first anniversary of the Start Date, and the remainder of the Shares shall vest in 36 equal monthly installments thereafter, subject to your continuing employment with the Company as of each such vesting date.

Your supervisor will review your compensation annually and may adjust it in his or her sole discretion.

7. Vacation and Other Time Off: You will receive as vacation, sick leave, and flex time, on an annualized basis, paid time off in the form of:

- up to eleven (11) "holidays" per calendar year in the form of paid time off, such days to be allocated primarily to those official federal and/or public holidays observed in the U.S. and/or Austria, as mutually agreed upon between you and Arsanis;
- up to twenty-five (25) days of vacation per calendar year in the form of paid time off (accruing at a rate of 2 1/2 days per month), such days to be allocated at your sole discretion and shall be subject to the Company's vacation policy; and
- sick leave in the form of paid time off, as required, subject to the Company's sick leave policy.

In addition, Arsanis believes in a flexible schedule policy that encourages employees to work hard but allows flexibility around when work is done.

8. Location: You will be primarily located in the Boston area office located at 890 Winter Street, Suite 230, Waltham, MA 02451, and will play an integral role in establishing Arsanis' U.S. presence and team in the Boston area. You will be asked to travel occasionally to the Company's offices in Vienna, Austria, as mutually agreed upon between you and Company.

9. Benefits: Arsanis will arrange to provide health, dental, vision, life, and disability insurance as required by you and your family.

While Arsanis does not have a policy of matching employee contributions at this time, Arsanis will also arrange for your participation in a nationally recognized 401(k) savings and retirement program no later than June 1, 2016.

10. Travel Reimbursement: Arsanis will reimburse you for all reasonable out-of-pocket expenses incurred in the course of your employment, subject in certain circumstances to approval.

11. Termination of Employment: You or Company may terminate your employment at any time for any reason, with or without cause, subject to the following provisions:

a. Termination for Cause: The Company may terminate your employment for Cause, as defined below, upon written notice to you setting forth in reasonable detail the nature of the Cause. The following, as determined by the Board in its reasonable judgment, shall constitute "Cause" for termination:

i. the commission of, or indictment or conviction for, any felony or any other crime involving dishonesty to the material detriment of the Company;

ii. participation in any fraud, deliberate and substantial misconduct, breach of duty of loyalty or breach of fiduciary duty against the Company;

iii. intentional and substantial damage to any property of the Company;

iv. failure of performance of your duties hereunder (not attributable to sickness, disability or death) after reasonable written notice no later than thirty (30) days following the occurrence of the condition and a 30-day opportunity to cure; or

v. your breach of any material provision of this offer letter, your Invention, Non-Competition, and Non-Disclosure Agreement, or any other agreement to which you and the Company are both parties after reasonable written notice no later than thirty (30) days following the occurrence of the condition and a 30-day opportunity to cure, provided, however, that such opportunity to cure shall only apply to any breach susceptible to cure and that any breach by you of your obligations of confidentiality or non-competition under the Invention, Non-Competition, and Non-Disclosure Agreement shall be deemed not susceptible to cure.

Termination of your employment by the Company for Cause will result in no severance pay or benefits.

b. Termination without Cause: The Company may terminate your employment at any time other than for Cause upon written notice to you.

c. Termination for Good Reason: You may terminate your employment hereunder for Good Reason, as defined below, by providing written notice to the Company of the condition giving rise to the Good Reason, specifying in reasonable detail the basis for such claim of Good Reason, no later than thirty (30) days following the occurrence of the condition, by giving the Company thirty (30) days to remedy the condition and by terminating employment for Good Reason within thirty (30) days thereafter if the Company fails to remedy the condition. The following, if occurring without your consent, shall constitute "Good Reason" for termination by you:

i. a material and adverse diminution of your duties and responsibilities with the Company, provided that such change is not in connection with a termination of your employment relationship with the Company;

ii. a material diminution of your then Full-Time Base Salary provided that such change is not in connection with a termination of your employment relationship with the Company;

iii. relocation of your principal place of employment outside a thirty (30) mile radius from Boston, Massachusetts; or

iv. a material breach by the Company of this offer letter.

d. Termination without Good Reason: You may terminate your employment with the Company other than for Good Reason at any time subject to your provision of thirty (30) days' advance written notice to the Company (the "Applicable Notice Period").

e. Termination Due to Death or Disability: Your employment shall automatically terminate in the event of your death during employment. The Company may terminate your employment, upon notice to you, in the event you become disabled during employment through any illness, accident, injury or condition of either a physical or psychological nature and, as a result, are unable to continue to perform substantially all of your duties and responsibilities (notwithstanding the provision of any reasonable accommodation) for 180 days (whether or not consecutive) during any period of 365 consecutive calendar days. If any question shall arise as to whether you are disabled to the extent that you are unable to perform substantially all of your duties and responsibilities for the Company, you shall, at the Company's request and expense, submit to a medical examination by a mutually acceptable physician in the Boston area who is Board certified in the area of practice involved in the disability and such determination shall, for the purposes of this offer letter, be conclusive of the issue. If such a question arises and you fail to submit to the requested medical examination, the Company's determination of the issue shall be binding on you.

12. Severance and other Matters Related to Termination:

(a) Termination by the Company without Cause or by You for Good Reason: Subject to Sections 12(b) and 12(f) below and **Section 409A,** in the event that your employment is terminated by the Company without Cause pursuant to Section 11(b) of this offer letter or by you for Good Reason pursuant to Section 11(c) of this offer letter, in addition to the Accrued Compensation (as defined below), the Company shall provide you with the severance payments and benefits specified below:

i. the Company shall continue to pay you your Full Time Base Salary, at the rate then in effect and in accordance with the Company's standard payroll policy as then in effect, for a period following the date on which your employment with the Company terminates, such period being determined as follows (the "Applicable Severance Period"):

(1) one (1) month with regard to terminations that are initiated within six (6) months of the Start Date;

(2) two (2) months with regard to terminations that are initiated after six (6) months but before twelve (12) months following the Start Date;

(3) three (3) months with regard to terminations that are initiated on or after the twelve (12) month anniversary of the Start Date; and

ii. subject to your timely election to continue participation in the Company's group health and dental plans under COBRA or Massachusetts law, and only for so long as you are eligible for such coverage through COBRA or Massachusetts law, the Company shall pay you, on a monthly and taxable basis, an amount equal to the full monthly premium cost of such participation until the conclusion of the Applicable Severance Period, or, if earlier, until the date you become eligible to enroll in such plans of any new employer.

(a) Termination by the Company without Cause or by You for Good Reason in Connection with a Change of Control: Subject to **Section 409A,** in the event that your employment is terminated by the Company without Cause pursuant to Section 11(b) of this offer letter or by you for Good Reason pursuant to 11(c) of this offer letter, in either case, within twelve (12) months following a Change of Control (as defined below), in addition to the Accrued Compensation (as defined below), in lieu of any payments and benefits provided in Section 12(a) above, the Company shall provide you the severance payments and benefits specified below:

i. the Company shall continue to pay you your Full Time Base Salary, at the rate then in effect, for the Applicable Severance Period plus an additional one (1) month period (together, the "Change of Control Applicable Severance Period"), in accordance with the Company's standard payroll policy as then in effect;

ii. subject to your timely election to continue participation in the Company's group health and dental plans under COBRA, and only for so long as you are eligible for such coverage through COBRA (or Massachusetts laws), the Company shall pay you, on a monthly and taxable basis, an amount equal to the full monthly premium cost of such participation until the conclusion of the Change of Control Applicable Severance Period, or, if earlier, until the date you become eligible to enroll in such plans of any new employer; and

iii. all outstanding and unvested stock options and other equity awards then held by you shall become fully vested and exercisable and, with respect to any stock options then held by you, those options shall remain exercisable for the period of time set forth in the applicable grant agreement.

In the event that your employment terminates within three (3) months prior to a Change of Control, the Arsanis Board of Directors will promptly review the causes and circumstances surrounding your termination and, to the extent that such termination is determined at its sole discretion to have been specifically related to such Change of Control and without Cause or for Good Reason, you shall receive additional severance payments and benefits pursuant to this Section 12(b).

c. Termination by the Company Due to Your Disability or Death: Subject to **Section 409A**, in the event your employment with the Company is terminated by the Company due to your disability or is terminated due to your death pursuant to Section 11(e) of this offer letter, in addition to the Accrued Compensation (as defined below), the Company shall pay you at the same time as the Accrued Compensation is paid a pro rata annual bonus for the year in which such termination of employment occurs, calculated by multiplying your target annual bonus for such year by a fraction, the numerator of which is the number of days you were employed during such year and the denominator of which is 365 (the "Pro-Rata Bonus").

d. Any Other Termination: In the event your employment with the Company terminates for any reason other than by the Company without Cause pursuant to Section 11(b) of this offer letter, by you for Good Reason pursuant to Section 11(c) of this offer letter, or by the Company due to your disability or death pursuant to Section 11(e) of this offer letter, the Company shall pay you the Accrued Compensation. For purposes of this offer letter, "Accrued Compensation" means any base salary earned but not paid through the date of the termination of employment and an amount equal to the value of any vacation time accrued but unused as of such date.

e. Parachute Payments:

i. In the event of the consummation of a change in ownership or control within the meaning of Section 280G (a "280G Change in Control") of the Company following the time that the Company has stock readily tradeable on an established securities market (within the meaning of Section 280G and the regulations thereunder), if all or a portion of the payments and benefits under this offer letter, together with any other payments and benefits provided to you by the Company or its Affiliates (including, without limitation, any accelerated vesting of stock options and other equity awards) (the "Total Payments"), would constitute an "excess parachute payment" within the meaning of Section 280G (the aggregate of such payments (or portions thereof) being hereinafter referred to as the "Excess Parachute Payments"), you will be entitled to receive (A) an amount limited so that no portion thereof shall fail to be tax deductible under Section 280G (the "Limited Amount"), or (B) if the amount otherwise payable hereunder or otherwise (without regard to clause (A)) reduced by all taxes applicable thereto (including, for the avoidance of doubt, the excise tax levied under Section 4999 of the Code (the "Excise Tax")) would be greater than the Limited Amount reduced by all taxes applicable thereto, the amount otherwise payable hereunder or otherwise.

ii. The determination as to whether the Total Payments include Excess Parachute Payments and, if so, the amount of such Excess Parachute Payments, the amount of any Excise Tax with respect thereto, and the amount of any reduction in Total Payments shall be made at the Company's expense by the independent public accounting firm most recently serving as the Company's outside auditors or such other accounting or benefits consulting group or firm as the Company may designate (the "Accountants"). In the event that any payments under this offer letter or otherwise are required to be reduced as described in Section 12(e)(i) of this offer letter, the adjustment will be made, first, by reducing the amount of base salary payable pursuant to Section 12(a)(i) or 12(b)(i), as applicable; second, if additional reductions are necessary, by reducing the payment of the amounts due to you pursuant to Section 12(a)(ii) or 12(b)(ii), as applicable; and third, if additional reductions are still necessary, by eliminating the accelerated vesting of stock option awards and other equity awards, if any, starting with those awards for which the amount required to be taken into account under Section 280G is the greatest.

iii. In the event that there has been an underpayment or overpayment under this offer letter or otherwise as determined by the Accountants, the amount of such underpayment or overpayment shall forthwith be paid to you or refunded to the Company, as the case may be, with interest at the applicable federal rate provided for in Section 7872(f)(2) of the Code.

f. Release: Any obligation of the Company to provide you severance payments or other benefits (including accelerated vesting of stock options and other equity awards) or any Pro-Rata Bonus (for the avoidance of doubt, other than Accrued Compensation), is conditioned on your (or your legal representative, if applicable, in the case of a termination due to your

disability) signing a release of claims in the form provided by the Company (the "Release") following the termination of your employment within a period of time not to exceed forty-five (45) days from the date of such termination of employment, and on your (or your legal representative, if applicable) not revoking the Release within the revocation period provided therein following your (or your legal representative's, if applicable) execution of the Release, which release shall not apply to (i) claims for indemnification in your capacity as an officer or director of the Company under the Company's Certificate of Incorporation, Bylaws, insurance or other written agreements, if any, providing for director or officer indemnification, (ii) rights to receive insurance payments under any policy maintained by the Company, (iii) vested rights as an equity holder or option holder, (iv) rights to receive retirement and other benefits that are accrued and fully vested at the time of your termination, and (v) any other claims that cannot be released as a matter of law. Except as otherwise provided in **Section 409A**, any payments to be made in the form of salary continuation pursuant to the terms of this offer letter shall be payable in accordance with the normal payroll practices of the Company, with the first such payment (which shall be retroactive to the day immediately following the date of your termination of employment) due and payable as soon as administratively practicable following the date the Release becomes effective, but not later than the date that is sixty (60) days following the date your employment terminates. Notwithstanding the foregoing, if the date your employment terminates occurs in one taxable year and the date that is sixty (60) days following such termination date occurs in a second taxable year, to the extent required by Section 409A, such first payment shall not be made prior to the first day of the second taxable year. For the avoidance of doubt, if you (or your legal representative, if applicable) do not execute a Release within the period specified in this Section 12(f), or if you (or your legal representative, if applicable) revoke the executed Release within the time period permitted by law, you will not be entitled to any payments or benefits (including the accelerated vesting of stock options or other equity awards) or any Pro-Rata Bonus set forth herein (other than the Accrued Compensation), any stock options and other equity awards that vested on account of such termination as provided for in this offer letter shall be cancelled with no consideration due to you, and the Company will not have any further obligations to you under this offer letter or otherwise. You agree to provide the Company prompt notice of your eligibility to participate in the health and, if applicable, dental, plan of any subsequent employer. You further agree to repay any overpayment of health and, if applicable, dental, benefit premiums made by the Company hereunder. Notwithstanding anything to the contrary herein, in the event that the Company's payment of the amounts described in Section 12(a)(ii) or (b)(ii), as applicable, would subject the Company to any tax or penalty under the Patient Protection and Affordable Care Act (as amended from time to time, the "ACA") or Section 105(h) of the Internal Revenue Code of 1986, as amended ("Section 105(h)"), or applicable regulations or guidance issued under the ACA or Section 105(h), you and the Company agree to work together in good faith to restructure such benefit.

g. Survival, Conditions to Severance: Provisions of this offer letter shall survive any termination if so provided in this offer letter or if necessary or desirable to accomplish the purposes of other surviving provisions of the offer letter and the Invention, Non-Competition and Non-Disclosure Agreement. The obligation of the Company to make severance payments to you or on your behalf is expressly conditioned upon (i) your full performance, and continued

performance during any applicable severance periods, of your material obligations under this offer letter, the Invention, Non-Competition and Non-Disclosure Agreement, and any subsequent agreement between you and the Company relating to, without limitation, confidentiality, non-competition, proprietary information or the like, and (ii) your (or your legal representative's, if applicable, in the case of a termination due to your disability) execution and non-revocation of the Release as set forth above.

13. Definitions: For purposes of this offer letter, the following definitions apply:

a. "Change of Control" means the first to occur of any of the following: (i) a merger or consolidation in which (A) the Company is a constituent party, or (B) a subsidiary of the Company is a constituent party and the Company issues shares of its capital stock pursuant to such merger or consolidation, except in the case of either clause (A) or (B) any such merger or consolidation involving the Company or a subsidiary of the Company in which the beneficial owners of the shares of capital stock of the Company outstanding immediately prior to such merger or consolidation continue beneficially to own, immediately following such merger or consolidation, at least a majority by voting power of the capital stock of (x) the surviving or resulting corporation or (y) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation; (ii) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Company or a Company subsidiary of all or substantially all the assets of the Company and the Company subsidiaries taken as a whole (except in connection with a merger or consolidation not constituting a Change of Control under clause (i) or where such sale, lease, transfer, exclusive license or other disposition is to a wholly owned Company subsidiary); or (iii) the sale or transfer, in a single transaction or series of related transactions, by the stockholders of the Company of more than 50% by voting power of the then-outstanding capital stock of the Company to any Person or entity or group of affiliated Persons or entities.

b. "Code" means the Internal Revenue Code of 1986, as amended.

c. "Person" means an individual, a corporation, an association, a partnership, an estate, a trust and any other entity or organization, other than the Company.

d. "Section 280G" means Section 280G of the Code, together with the regulations thereunder.

14. Section 409A.

a. You and the Company agree that this offer letter shall be interpreted to comply with or be exempt from Section 409A, and the regulations and guidance promulgated thereunder to the extent applicable, and all provisions of this offer letter shall be construed in a manner consistent with the requirements for avoiding taxes or penalties under Section 409A.

b. A termination of employment shall not be deemed to have occurred for purposes of any provision of this offer letter providing for the payment of any amounts or benefits considered "nonqualified deferred compensation" under Section 409A upon or following a termination of employment unless such termination is also a "separation from service" within the meaning of Section 409A (after giving effect to the presumptions contained therein) and, for purposes of any such provision of this offer letter, references to a "termination," "termination of employment" or like terms shall mean "separation from service." If you are deemed on the date of termination to be a "specified employee" within the meaning of that term under Section 409A(a)(2)(B), then with regard to any payment or the provision of any benefit that is considered nonqualified deferred compensation under Section 409A payable on account of a "separation from service," such payment or benefit shall be made or provided at the date which is the earlier of (a) the expiration of the six-month period measured from the date of such "separation from service", and (b) the date of your death (the "Delay Period"). Upon the expiration of the Delay Period, all payments and benefits delayed pursuant to this Section 14(b) (whether they would have otherwise been payable in a single sum or in installments in the absence of such delay) shall be paid or reimbursed on the first business day following the expiration of the Delay Period to you in a lump sum, and any remaining payments and benefits due under this offer letter shall be paid or provided in accordance with the normal payment dates specified for them herein.

c. With regard to any provision herein that provides for payment or reimbursement of costs and expenses or in-kind benefits, except as permitted by Section 409A, (a) the right to payment, reimbursement or in-kind benefits shall not be subject to liquidation or exchange for another benefit; (b) the amount of expenses eligible for payment or reimbursement, or in-kind benefits, provided during any taxable year shall not affect the expenses eligible for payment or reimbursement, or in-kind benefits, to be provided in any other taxable year; and (c) such payments shall be made on or before the last day of your taxable year following the taxable year in which the expense occurred.

d. For purposes of Section 409A, your right to receive any installment payments pursuant to this offer letter shall be treated as a right to receive a series of separate and distinct payments.

e. In no event shall the Company have any liability relating to the failure or alleged failure of any payment or benefit under this offer letter to comply with, or be exempt from, the requirements of Section 409A.

15. At-Will Status: As is true for all Company employees, your employment with Arsanis will be "at-will." This means that your employment is for no specified period of time, and may be terminated at any time by either you or the Company, with or without cause, subject the provisions of this offer letter. This letter is not meant to be a contract of employment for any specific duration.

16. Conditions/Required Documentation: This offer of employment is conditioned on the completion of a satisfactory background check. Further, as a condition of employment, the Company will require you to sign an Invention, Non-Competition, and Non-Disclosure Agreement, a form of which has been provided. You will also be required to acknowledge in writing that you have read the Company employee handbook, and have agreed to follow its rules and regulations. To comply with government-mandated confirmation of employment eligibility, you also will be required to provide proof of your employment eligibility in the form of completed I-9 documentation and the provision of related identification documents.

17. Miscellaneous: Your rights and obligations under this letter shall be neither assignable nor delegable by you, except to the extent that any rights to compensation hereunder may be assigned to your estate or legal representative in the event of your death or disability. This offer letter shall be binding upon and inure to the benefit of you and the Company and your and its respective permitted successors and assigns. This offer letter shall be interpreted under the laws of the Commonwealth of Massachusetts.

If you would like to accept this offer, please sign and return this letter by the end of the day on May 6, 2016.

We look forward to welcoming you as part of the Arsanis team.

Sincerely,

/s/ Rene Russo
Rene Russo

Chief Executive Officer

AGREED TO:

/s/ Christopher Stevens
Christopher Stevens

May 27, 2016
Date

Exhibit 10.14

INDEMNIFICATION AGREEMENT

THIS AGREEMENT (the "Agreement") is made and entered into as of [ ] between Arsanis, Inc., a Delaware corporation (the "Company," which term shall include where appropriate, any Entity (as hereinafter defined)), and [ ] ("Indemnitee").

WHEREAS, it is essential to the Company that it be able to retain and attract as directors the most capable persons available;

WHEREAS, increased corporate litigation has subjected directors to litigation risks and expenses, and the limitations on the availability of directors' and officers' liability insurance has made it increasingly difficult for the Company to attract and retain such persons;

WHEREAS, the Company desires to provide Indemnitee with specific contractual assurance of Indemnitee's rights to indemnification against litigation risks and expenses (regardless, among other things, of any amendment to or revocation of the Company's Certificate of Incorporation or By-Laws, each as amended from time to time (the "Charter Documents"), any change in the ownership of the Company or the composition of its Board of Directors) which indemnification is intended to be greater than that which is afforded by the Charter Documents;

WHEREAS, in accordance with the authorization as provided by applicable law and the provisions of the certificate of incorporation and by-laws, the Company shall maintain a policy or policies of directors' and officers' liability insurance ("D & 0 Insurance"), covering certain liabilities which may be incurred by its directors in the performance of their obligations to the Company; and

WHEREAS, in order to induce Indemnitee to serve as a director of the Company, the Company has determined and agreed to enter into this Agreement with Indemnitee.

WHEREAS, Indemnitee has certain rights to indemnification and/or insurance provided by [ ] and/or certain of its affiliates (the "Fund Indemnitors"), which Indemnitee and the Fund Indemnitors intend to be secondary to the primary obligation of the Company to indemnify Indemnitee as provided herein, with the Company's acknowledgement and agreement to the foregoing being a material condition to Indemnitee's willingness to serve on the Board.

NOW, THEREFORE, in consideration of Indemnitee's service as a director, the parties hereto agree as follows:

I. Definitions. For purposes of this Agreement:

(a) "Corporate Status" describes the status of a person who is serving or has served (i) as a director of the Company, including as a member of any committee thereof, (ii) in any capacity with respect to any employee benefit plan of the Company, or (iii) as a director, partner, trustee, officer, employee, or agent of any other Entity (as defined below) at the request of the Company. For purposes of subsection (iii) of this Section 1(a), a director of the Company who is serving or has served as a director, partner, trustee, officer, employee or agent of a Subsidiary (as defined below) shall be deemed to be serving at the request of the Company.

(b) “Disinterested Director” means a director of the Company who is not and was not a party to the Proceeding in respect of which indemnification is sought by Indemnitee.

(c) “Entity” shall mean any corporation, partnership, limited liability company, joint venture, trust, foundation, association, organization or other legal entity.

(d) “Expenses” shall mean all reasonable fees, costs and expenses actually incurred in connection with any Proceeding (as defined below), including, without limitation, reasonable attorneys’ fees, disbursements and retainers, reasonable fees and disbursements of expert witnesses, private investigators and professional advisors (including, without limitation, accountants and investment bankers), court costs, transcript costs, fees of experts, travel expenses, duplicating, printing and binding costs, telephone and fax transmission charges, postage, delivery services, secretarial services and other reasonable disbursements and expenses.

(e) “Independent Counsel” means a law firm, or a member of a law firm, that is experienced in matters of corporation law and neither presently is, nor in the past five years has been, retained to represent: (i) the Company or Indemnitee in any matter material to either such party (other than with respect to matters concerning the Indemnitee under this Agreement, or of other indemnitees under similar indemnification agreements), or (ii) any other party to the Proceeding giving rise to a claim for indemnification hereunder. Notwithstanding the foregoing, the term “Independent Counsel” shall not include any person who, under the applicable standards of professional conduct then prevailing, would have a conflict of interest in representing either the Company or Indemnitee in an action to determine Indemnitee’s rights under this Agreement. The Company agrees to pay the reasonable fees of the Independent Counsel referred to above and to fully indemnify such counsel against any and all Expenses and Liabilities (as defined below) arising out of or relating to this Agreement or its engagement pursuant hereto.

(1) “Liabilities” shall mean judgments, damages, liabilities, losses, penalties, excise taxes, fines and amounts paid in settlement.

(g) “Proceeding” shall mean any threatened, pending or completed claim, action, suit, arbitration, alternate dispute resolution process, investigation, administrative hearing, appeal, or any other proceeding, whether civil, criminal, administrative, arbitrative or investigative, whether formal or informal, including a proceeding initiated by Indemnitee pursuant to Section 10 of this Agreement to enforce Indemnitee’s rights hereunder, and shall include a Proceeding pending on or before the date of this Agreement.

(h) “Subsidiary” shall mean any corporation, partnership, limited liability company, joint venture, trust or other Entity of which the Company owns (either directly or through or together with another Subsidiary of the Company) either (i) a general partner, managing member or other similar interest or (ii) (A) more than 50% of the voting power of the voting capital equity interests of such corporation, partnership, limited liability company, joint venture or other Entity, or (B) more than 50% of the outstanding voting capital stock or other voting equity interests of such corporation, partnership, limited liability company, joint venture or other Entity.

2. Agreement to Indemnify.

(a) Proceedings Other Than Proceedings by or in the Right of the Company. Indemnitee shall be entitled to the rights of indemnification provided in this Section 2(a) if, by reason of Indemnitee' s Corporate Status, Indemnitee is, or is threatened to be made, a party to or participant in any Proceeding other than a Proceeding by or in the right of the Company or a Proceeding instituted by Indemnitee pursuant to Section 9 of this Agreement to enforce Indemnitee's rights under this Agreement. Pursuant to this Section 2(a), Indemnitee shall be indemnified by the Company against all Expenses and Liabilities incurred or paid by Indemnitee in connection with such Proceeding, if Indemnitee acted in good faith and in a manner Indemnitee reasonably believed to be in or not opposed to the best interests of the Company and, with respect to any criminal Proceeding, had no reasonable cause to believe Indemnitee' s conduct was unlawful.

(b) Proceedings by or in the Right of the Company. Indemnitee shall be entitled to the rights of indemnification provided in this Section 2(b) if, by reason of Indemnitee's Corporate Status, Indemnitee is, or is threatened to be made, a party to or participant in any Proceeding brought by or in the right of the Company. Pursuant to this Section 2(b), Indemnitee shall be indemnified by the Company against all Expenses incurred or paid by Indemnitee in connection with such Proceeding if Indemnitee acted in good faith and in a manner Indemnitee reasonably believed to be in or not opposed to the best interests of the Company; provided, however, that, if applicable law so provides, no indemnification against such Expenses shall be made in respect of any claim, issue or matter in such Proceeding as to which Indemnitee shall have been adjudged to be liable to the Company unless and to the extent that the Court of Chancery of the State of Delaware or other court of competent jurisdiction shall determine that such indemnification may be made.

3. Indemnification for Expenses of a Party Who is Wholly or Partly Successful. Notwithstanding any other provision of this Agreement, to the extent that Indemnitee is, by reason of Indemnitee's Corporate Status, a party to and is successful, on the merits or otherwise, in any Proceeding, Indemnitee shall be indemnified to the maximum extent permitted by applicable law against all Expenses and Liabilities incurred or paid by Indemnitee in connection therewith. If Indemnitee is not wholly successful in such Proceeding but is successful, on the merits or otherwise, as to one or more but less than all claims, issues or matters in such Proceeding, the Company shall indemnify Indemnitee against all Expenses and Liabilities incurred or paid by Indemnitee in connection with each successfully resolved claim, issue or matter. For purposes of this Section and without limitation, the termination of any claim, issue or matter in such a Proceeding by dismissal, with or without prejudice, shall be deemed to be a successful result as to such claim, issue or matter.

4. Additional Indemnity. In addition to, and without regard to any limitations on, the indemnification provided for in Section 2, the Company shall and hereby does indemnify and hold harmless Indemnitee against all Expenses and Liabilities incurred or paid by Indemnitee or on Indemnitee's behalf if, by reason of Indemnitee's Corporate Status, Indemnitee is, or is

threatened to be made, a party to or participant in any Proceeding (including a Proceeding by or in the right of the Company), including, without limitation, all liability arising out of the negligence or active or passive wrongdoing of Indemnitee. The only limitation that shall exist upon the Company's obligations pursuant to this Agreement shall be that the Company shall not be obligated to make any payment to Indemnitee that is finally determined (under the procedures, and subject to the presumptions, set forth in Section 8 hereof) to be unlawful under applicable law.

5. Contribution in the Event of Joint Liability.

(a) Whether or not the indemnification provided in Sections 2 or 4 hereof is available, in respect of any threatened, pending or completed action, suit or proceeding in which the Company is jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), the Company shall pay, in the first instance, the entire amount of any judgment or settlement of such action, suit or proceeding without requiring Indemnitee to contribute to such payment and the Company hereby waives and relinquishes any right of contribution it may have against Indemnitee. The Company shall not enter into any settlement of any action, suit or proceeding in which the Company is jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding) unless such settlement provides for a full and final release of all claims asserted against Indemnitee.

(b) Without diminishing or impairing the obligations of the Company set forth in the preceding subparagraph, if, for any reason, Indemnitee shall elect or be required to pay all or any portion of any judgment or settlement in any threatened, pending or completed action, suit or proceeding in which the Company is jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), the Company shall contribute to the amount of Expenses and Liabilities incurred and paid or payable by Indemnitee in proportion to the relative benefits received by the Company and all officers, directors or employees of the Company other than Indemnitee who are jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), on the one hand, and Indemnitee, on the other hand, from the transaction from which such action, suit or proceeding arose; provided, however, that the proportion determined on the basis of relative benefit may, to the extent necessary to conform to law, be further adjusted by reference to the relative fault of the Company and all officers, directors or employees of the Company other than Indemnitee who are jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), on the one hand, and Indemnitee, on the other hand, in connection with the events that resulted in such Expenses or Liabilities, as well as any other equitable considerations which the law may require to be considered. The relative fault of the Company and all officers, directors or employees of the Company other than Indemnitee who are jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), on the one hand, and Indemnitee, on the other hand, shall be determined by reference to, among other things, the degree to which their actions were motivated by intent to gain personal profit or advantage, the degree to which their liability is primary or secondary, and the degree to which their conduct is active or passive.

(c) The Company hereby agrees to fully indemnify and hold Indemnitee harmless from any claims of contribution which may be brought by officers, directors or employees of the Company other than Indemnitee who may be jointly liable with Indemnitee.

6. Indemnification for Expenses of a Witness or in Response to a Subpoena. Notwithstanding any other provision of this Agreement, to the extent that Indemnitee, is by reason of Indemnitee's Corporate Status, a witness in any Proceeding to which Indemnitee is not a party, or receives a subpoena in any Proceeding to which Indemnitee is not a party, Indemnitee shall be indemnified against all Expenses paid or incurred by Indemnitee in connection therewith and in the manner set forth in this Agreement.

7. Advancement of Expenses. Notwithstanding any other provision of this Agreement, the Company shall advance all Expenses incurred by or on behalf of Indemnitee in connection with any Proceeding by reason of Indemnitee's Corporate Status within thirty (30) days after the receipt by the Company of a statement or statements from Indemnitee requesting such advance or advances from time to time, whether prior to or after final disposition of such Proceeding. Such statement or statements shall reasonably evidence the Expenses incurred by Indemnitee and shall include or be preceded or accompanied by an undertaking by or on behalf of Indemnitee to repay any Expenses advanced if it shall ultimately be determined by a final, non-appealable order of the Court of Chancery of the State of Delaware or other court of competent jurisdiction that Indemnitee is not entitled to be indemnified against such Expenses. Any advances and undertakings to repay pursuant to this Section 7 shall be unsecured and interest free and made without regard to Indemnitee's financial ability to repay such Expenses.

8. Procedures and Presumptions for Determination of Entitlement to Indemnification. It is the intent of this Agreement to secure for Indemnitee rights of indemnity that are at least as favorable as may be permitted under applicable law and public policy of the State of Delaware. Accordingly, the parties agree that the following procedures and presumptions shall apply in the event of any question as to whether Indemnitee is entitled to indemnification under this Agreement:

(a) To obtain indemnification (including, but not limited to, the advancement of Expenses and contribution by the Company) under this Agreement, Indemnitee shall submit to the Company a written request, including therein or therewith such documentation and information as is reasonably available to Indemnitee and is reasonably necessary to determine whether and to what extent Indemnitee is entitled to indemnification.

(b) Upon written request by Indemnitee for indemnification pursuant to the first sentence of Section 8(a) hereof, a determination, if required by applicable law, with respect to Indemnitee's entitlement thereto shall be made in the specific case by one of the following three methods, which shall be at the sole election of Indemnitee: (J) by a majority vote of the Disinterested Directors, even though less than a quorum, or (2) by Independent Counsel in a written opinion, or (3) by the stockholders of the Company.

(c) If the determination of entitlement to indemnification is to be made by Independent Counsel pursuant to Section 8(b) hereof, the Independent Counsel shall be selected as provided in this Section 8(c). The Independent Counsel shall be selected by Indemnitee (unless Indemnitee shall request that such selection be made by the Board of Directors). Indemnitee or the Company, as the case may be, may, within 10 days after such written notice of selection shall have been given, deliver to the Company or to Indemnitee, as the case may be, a written objection to such selection; provided, however, that such objection may be asserted only

on the ground that the Independent Counsel so selected does not meet the requirements of "Independent Counsel" as defined in Section I of this Agreement, and the objection shall set forth with particularity the factual basis of such assertion. Absent a proper and timely objection, the person so selected shall act as Independent Counsel. If a written objection is made and substantiated, the Independent Counsel selected may not serve as Independent Counsel unless and until such objection is withdrawn or a court has determined that such objection is without merit. If, within 20 days after submission by Indemnitee of a written request for indemnification pursuant to Section 8(a) hereof, no Independent Counsel shall have been selected and not objected to, either the Company or Indemnitee may petition the Court of Chancery of the State of Delaware or other court of competent jurisdiction for resolution of any objection which shall have been made by the Company or Indemnitee to the other's selection of Independent Counsel and/or for the appointment as Independent Counsel of a person selected by the court or by such other person as the court shall designate, and the person with respect to whom all objections are so resolved or the person so appointed shall act as Independent Counsel under Section 8(b) hereof. The Company shall pay any and all reasonable fees and expenses of Independent Counsel incurred by such Independent Counsel in connection with acting pursuant to Section 8(b) hereof, and the Company shall pay all reasonable fees and expenses incident to the procedures of this Section 8(c), regardless of the manner in which such Independent Counsel was selected or appointed.

(d) In making a determination with respect to entitlement to indemnification hereunder, the person or persons or entity making such determination shall presume that Indemnitee is entitled to indemnification under this Agreement if Indemnitee has submitted a request for indemnification in accordance with Section 8(a) of this Agreement. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion, by clear and convincing evidence.

(e) Indemnitee shall be deemed to have acted in good faith for purposes of indemnification under this Agreement if Indemnitee's actions are based on the records or books of account of the Company, including financial statements, or on information supplied to Indemnitee by the directors, officers, agents or employees of the Company in the course of their duties, or on the advice of legal counsel for the Company or on information or records given or reports made to the Company by an independent certified public accountant or by an appraiser or other expert selected by the Company. In addition, the knowledge and/or actions, or failure to act, of any director, officer, agent or employee of the Company shall not be imputed to Indemnitee for purposes of determining the right to indemnification under this Agreement. Whether or not the foregoing provisions of this Section 8(e) are satisfied, it shall in any event be presumed that Indemnitee has at all times acted in good faith and in a manner Indemnitee reasonably believed to be in or not opposed to the best interests of the Company. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion, by clear and convincing evidence.

(f) If the person, persons or entity empowered or selected under Section 8 to determine whether Indemnitee is entitled to indemnification shall not have made a determination within forty-five (45) days after receipt by the Company of the request therefor, the requisite determination of entitlement to indemnification shall be deemed to have been made and Indemnitee shall be entitled to such indemnification, absent (i) a misstatement by Indemnitee of

a material fact, or an omission of a material fact necessary to make Indemnitee' s statement not materially misleading, in connection with the request for indemnification, or (ii) a prohibition of such indemnification under applicable law; provided, however, that such forty-five day period may be extended for a reasonable time, not to exceed an additional fifteen (15) days, if the person, persons or entity making the determination with respect to entitlement to indemnification in good faith requires such additional time for the obtaining or evaluating documentation and/or information relating thereto; and provided, further, that the foregoing provisions of this Section 8(f) shall not apply if the determination of entitlement to indemnification is to be made by the stockholders of the Company pursuant to Section 8(b) of this Agreement and if (A) within fifteen (15) days after receipt by the Company of the request for such determination the Board of Directors or the Disinterested Directors, if appropriate, resolve to submit such determination to the stockholders for their consideration at an annual meeting thereof to be held within seventy five (75) days after such receipt and such determination is made thereat, or (B) a special meeting of stockholders is called within fifteen (15) days after such receipt for the purpose of making such determination, such meeting is held for such purpose within sixty (60) days after having been so called and such determination is made thereat.

(g) Indemnitee shall cooperate with the person, persons or entity making such determination with respect to Indemnitee's entitlement to indemnification, including providing to such person, persons or entity upon reasonable advance request any documentation or information which is not privileged or otherwise protected from disclosure and which is reasonably available to Indemnitee and reasonably necessary to such determination. Any Independent Counsel, member of the Board of Directors, or stockholder of the Company shall act reasonably and in good faith in making a determination under the Agreement of the Indemnitee's entitlement to indemnification. Any costs or expenses (including attorneys' fees and disbursements) incurred by Indemnitee in so cooperating with the person, persons or entity making such determination shall be borne by the Company (irrespective of the determination as to Indemnitee's entitlement to indemnification) and the Company hereby indemnifies and agrees to hold Indemnitee harmless therefrom.

(h) The Company acknowledges that a settlement or other disposition short of final judgment may be successful if it permits a party to avoid expense, delay, distraction, disruption and uncertainty. In the event that any action, claim or proceeding to which Indemnitee is a party is resolved in any manner other than by adverse judgment against Indemnitee (including, without limitation, settlement of such action, claim or proceeding with or without payment of money or other consideration) it shall be presumed that Indemnitee has been successful on the merits or otherwise in such action, suit or proceeding. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion, by clear and convincing evidence.

9. Remedies of Indemnitee.

(a) In the event that (i) a determination is made pursuant to Section 8 of this Agreement that Indemnitee is not entitled to indemnification under this Agreement, (ii) advancement of Expenses is not timely made pursuant to Section 7 of this Agreement, (iii) no determination of entitlement to indemnification shall have been timely made pursuant to Section 8(b) of this Agreement after receipt by the Company of the request for indemnification, or

(iv) payment of indemnification is not made within thirty (30) days after a determination has been made that Indemnitee is entitled to indemnification or such determination is deemed to have been made pursuant to Section 8 of this Agreement, Indemnitee shall be entitled to an adjudication in the Chancery Court of the State of Delaware, or in any other court of competent jurisdiction, of Indemnitee's entitlement to such indemnification. The Company shall not oppose Indemnitee's right to seek any such adjudication.

(b) In the event that a determination shall have been made pursuant to Section S(b) of this Agreement that Indemnitee is not entitled to indemnification, any judicial proceeding commenced pursuant to this Section 9 shall be conducted in all respects as a *de nova* trial, on the merits and Indemnitee shall not be prejudiced by reason of that adverse determination under Section S(b).

(c) If a determination shall have been made pursuant to Section S(b) of this Agreement that Indemnitee is entitled to indemnification, the Company shall be bound by such determination in any judicial proceeding commenced pursuant to this Section 9, absent a prohibition of such indemnification under applicable law.

(d) In the event that Indemnitee, pursuant to this Section 9, seeks a judicial adjudication of Indemnitee's rights under, or to recover damages for breach of, this Agreement, or to recover under any directors' and officers' liability insurance policies maintained by the Company, the Company shall pay on Indemnitee's behalf, in advance, any and all Expenses paid or incurred by him in such judicial adjudication, regardless of whether Indemnitee ultimately is determined to be entitled to such indemnification, advancement of expenses or insurance recovery. The Company shall, within thirty (30) days after receipt by the Company of a written request therefor from Indemnitee, advance such Expenses to Indemnitee pursuant to comparable procedures as those set forth in Section 7 with respect to advancement of Expenses therein.

(e) The Company shall be precluded from asserting in any judicial proceeding commenced pursuant to this Section 9 that the procedures and presumptions of this Agreement are not valid, binding and enforceable and shall stipulate in any such court that the Company is bound by all the provisions of this Agreement.

10. Non-Exclusivity; Survival of Rights; Insurance; Subrogation, Primacy of Indemnification.

(a) The rights of indemnification as provided by this Agreement shall not be deemed exclusive of any other rights to which Indemnitee may at any time be entitled under applicable law, the Charter Documents, a vote of stockholders or a resolution of directors, or otherwise. The Company shall not adopt any amendment to the Charter Documents the effect of which would be to deny, diminish or encumber the Indemnitee' s rights to identification pursuant to this Agreement, the Charter Documents or applicable law prior to such amendment, alteration or repeal. To the extent that a change in applicable law, whether by statute or judicial decision, permits greater indemnification than would be afforded currently under the Charter Documents and this Agreement, Indemnitee shall enjoy by this Agreement the greater benefits so afforded by such change. No right or remedy herein conferred is intended to be exclusive of any other right or remedy, and every other right and remedy shall be cumulative and in addition to every

other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or remedy hereunder, or otherwise, shall not prevent the concurrent assertion or employment of any other right or remedy.

(b) The Indemnitee shall be covered by the D & 0 Insurance and any other insurance policy or policies providing liability insurance for directors, officers, employees, or agents or fiduciaries of the Company or of any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise which such person serves at the request of the Company, and Indemnitee shall be covered by such policy or policies in accordance with its or their terms to the maximum extent of the coverage available for any such director, officer, employee or agent under such policy or policies.

(c) In the event of any payment under this Agreement, the Company shall be subrogated to the extent of such payment to all of the rights of recovery of Indemnitee, who shall execute all papers required and take all action necessary to secure such rights, including execution of such documents as are necessary to enable the Company to bring suit to enforce such rights.

(d) The Company shall not be liable under this Agreement to make any payment of amounts otherwise indemnifiable hereunder if and to the extent that Indemnitee has otherwise actually received such payment under any insurance policy, contract, agreement or otherwise.

(e) The Company hereby acknowledges that Indemnitee has certain rights to indemnification, advancement of expenses and/or insurance provided by the Fund Indemnitors. The Company hereby agrees (i) that it is the indemnitor of first resort (i.e., its obligations to Indemnitee are primary and any obligation of the Fund Indemnitors to advance expenses or to provide indemnification for the same expenses or liabilities incurred by Indemnitee are secondary), (ii) that it shall be required to advance the full amount of expenses incurred by Indemnitee and shall be liable for the full amount of all Expenses, judgments, penalties, fines and amounts paid in settlement to the extent legally permitted and as required by the terms of this Agreement and the Certificate of Incorporation or Bylaws of the Company (or any other agreement between the Company and Indemnitee), without regard to any rights Indemnitee may have against the Fund Indemnitors, and, (iii) that it irrevocably waives, relinquishes and releases the Fund Indemnitors from any and all claims against the Fund Indemnitors for contribution, subrogation or any other recovery of any kind in respect thereof. The Company further agrees that no advancement or payment by the Fund Indemnitors on behalf of Indemnitee with respect to any claim for which Indemnitee has sought indemnification from the Company shall affect the foregoing and the Fund Indemnitors shall have a right of contribution and/or be subrogated to the extent of such advancement or payment to all of the rights of recovery of Indemnitee against the Company. The Company and Indemnitee agree that the Fund Indemnitors are express third party beneficiaries of the terms of this Section lO(e).

11. Exception to Right of Indemnification. Notwithstanding any other provision of this Agreement, Indemnitee shall not be entitled to indemnification under this Agreement with respect to any Proceeding brought by Indemnitee, or any claim therein, unless (a) the bringing of such Proceeding or making of such claim shall have been approved by the Board of Directors of the Company or (b) such Proceeding is being brought by the Indemnitee to assert, interpret or enforce Indemnitee's rights under this Agreement.

12. Duration of Agreement. All agreements and obligations of the Company contained herein shall continue during the period Indemnitee is a director of the Company (or is or was serving at the request of the Company as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise) and shall continue thereafter so long as Indemnitee shall be subject to any current or future Proceeding (or any proceeding commenced under Section 9) by reason of Indemnitee's Corporate Status, whether or not Indemnitee is acting or serving in any such capacity at the time any liability or expense is incurred for which indemnification can be provided under this Agreement. This Agreement shall be binding upon and inure to the benefit of and be enforceable by the parties hereto and their respective successors (including any direct or indirect successor by purchase, merger, consolidation or otherwise to all or substantially all of the business or assets of the Company), assigns, spouses, heirs, executors and personal and legal representatives. This Agreement shall continue in effect regardless of whether Indemnitee continues to serve as an officer or director of the Company or any other Entity at the Company's request.

13. Security. To the extent requested by the Indemnitee and approved by the Board of Directors of the Company, the Company may at any time and from time to time provide security to the Indemnitee for the Company's obligations hereunder through an irrevocable bank line of credit, funded trust or other collateral. Any such security, once provided to the Indemnitee, may not be revoked or released without the prior written consent of the Indemnitee.

14. Enforcement.

(a) The Company expressly confirms and agrees that it has entered into this Agreement and assumed the obligations imposed on it hereby in order to induce Indemnitee to serve as a director of the Company, and the Company acknowledges that Indemnitee is relying upon this Agreement in serving as a director of the Company.

(b) This Agreement constitutes the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all prior agreements and understandings, oral, written and implied, between the parties hereto with respect to the subject matter hereof.

15. Fees and Expenses: During the term of the Indemnitee's service as a director, the Company shall promptly reimburse the Indemnitee for all reasonable out-of-pocket expenses incurred by him in connection with Indemnitee's service as a director or member of any board committee or otherwise in connection with the Company's conduct of business.

16. Severability. If any provision or provisions of this Agreement shall be held by a court of competent jurisdiction to be invalid, void, illegal or otherwise unenforceable for any reason whatsoever: (a) the validity, legality and enforceability of the remaining provisions of this Agreement (including without limitation, each portion of any section of this Agreement containing any such provision held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall not in any way be affected or impaired thereby and shall

remain enforceable to the fullest extent permitted by applicable law; and (b) to the fullest extent possible, the provisions of this Agreement (including, without limitation, each portion of any section of this Agreement containing any such provision held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall be construed so as to give effect to the intent manifested thereby.

17. Modification and Waiver. Except as provided by Section 1O(a) with respect to changes in applicable law that broaden the rights of Indemnitee to be indemnified by the Company, no supplement, modification, termination or amendment of this Agreement shall be binding unless executed in writing by both of the parties hereto. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provisions hereof (whether or not similar) nor shall such waiver constitute a continuing waiver.

18. Notice By Indemnitee. Indemnitee agrees promptly to notify the Company in writing upon being served with any summons, citation, subpoena, complaint, indictment, information or other document relating to any Proceeding or matter which may be subject to indemnification covered hereunder. The failure to so notify the Company shall not relieve the Company of any obligation which it may have to the Indemnitee under this Agreement or otherwise unless and only to the extent that such failure or delay materially prejudices the Company.

19. Notices. All notices, requests, demands and other communications hereunder shall be in writing and shall be deemed to have been duly given if (i) delivered by hand and receipted for by the party to whom said notice or other communication shall have been directed, or (ii) mailed by certified or registered mail with postage prepaid, on the second business day after the date on which it is so mailed:

(a) If to Indemnitee, to the address set forth below Indemnitee's signature hereto.

(b) If to the Company, to:

Arsanis, Inc.
c/o Errik Anderson
16 Cavendish Court
Lebanon, NH 03766

with a copy to:

[ ]
Fax: [ ]
Email: [ ]

or to such other address as may have been furnished to Indemnitee by the Company or to the Company by Indemnitee, as the case may be.

20. Identical Counterparts. This Agreement may be executed in one or more counterparts, each of which shall for all purposes be deemed to be an original but all of which together shall constitute one and the same Agreement. Only one such counterpart signed by the party against whom enforceability is sought needs to be produced to evidence the existence of this Agreement.

21. Headings. The headings of the paragraphs of this Agreement are inserted for convenience only and shall not be deemed to constitute part of this Agreement or to affect the construction thereof.

22. Governing Law. The parties agree that this Agreement shall be governed by, and construed and enforced in accordance with, the laws of the State of Delaware without application of the conflict of laws principles thereof.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on and as of the day and year first above written.

ARSANIS, INC.

By: _____

Name:
Title:

INDEMNITEE

_____

Name:
Address:

Exhibit 10.15

INDEMNIFICATION AGREEMENT

THIS AGREEMENT (the "Agreement") is made and entered into as of [ ] between Arsanis, Inc., a Delaware corporation (the "Company," which term shall include where appropriate, any Entity (as hereinafter defined)), and [ ] ("Indemnitee").

WHEREAS, it is essential to the Company that it be able to retain and attract as directors the most capable persons available;

WHEREAS, increased corporate litigation has subjected directors to litigation risks and expenses, and the limitations on the availability of directors' and officers' liability insurance has made it increasingly difficult for the Company to attract and retain such persons;

WHEREAS, the Company desires to provide Indemnitee with specific contractual assurance of Indemnitee's rights to indemnification against litigation risks and expenses (regardless, among other things, of any amendment to or revocation of the Company's Certificate of Incorporation or By-Laws, each as amended from time to time (the "Charter Documents"), any change in the ownership of the Company or the composition of its Board of Directors) which indemnification is intended to be greater than that which is afforded by the Charter Documents;

WHEREAS, in accordance with the authorization as provided by applicable law and the provisions of the certificate of incorporation and by-laws, the Company shall maintain a policy or policies of directors' and officers' liability insurance ("D & O Insurance"), covering certain liabilities which may be incurred by its directors in the performance of their obligations to the Company; and

WHEREAS, in order to induce Indemnitee to serve as a director of the Company, the Company has determined and agreed to enter into this Agreement with Indemnitee;

NOW, THEREFORE, in consideration of Indemnitee's service as a director, the parties hereto agree as follows:

1. Definitions. For purposes of this Agreement:

(a) "Corporate Status" describes the status of a person who is serving or has served (i) as a director of the Company, including as a member of any committee thereof, (ii) in any capacity with respect to any employee benefit plan of the Company, or (iii) as a director, partner, trustee, officer, employee, or agent of any other Entity (as defined below) at the request of the Company. For purposes of subsection (iii) of this Section 1(a), a director of the Company who is serving or has served as a director, partner, trustee, officer, employee or agent of a Subsidiary (as defined below) shall be deemed to be serving at the request of the Company.

(b) "Disinterested Director" means a director of the Company who is not and was not a party to the Proceeding in respect of which indemnification is sought by Indemnitee.

(c) “Entity” shall mean any corporation, partnership, limited liability company, joint venture, trust, foundation, association, organization or other legal entity.

(d) “Expenses” shall mean all reasonable fees, costs and expenses actually incurred in connection with any Proceeding (as defined below), including, without limitation, reasonable attorneys’ fees, disbursements and retainers, reasonable fees and disbursements of expert witnesses, private investigators and professional advisors (including, without limitation, accountants and investment bankers), court costs, transcript costs, fees of experts, travel expenses, duplicating, printing and binding costs, telephone and fax transmission charges, postage, delivery services, secretarial services and other reasonable disbursements and expenses.

(e) “Independent Counsel” means a law firm, or a member of a law firm, that is experienced in matters of corporation law and neither presently is, nor in the past five years has been, retained to represent: (i) the Company or Indemnitee in any matter material to either such party (other than with respect to matters concerning the Indemnitee under this Agreement, or of other indemnitees under similar indemnification agreements), or (ii) any other party to the Proceeding giving rise to a claim for indemnification hereunder. Notwithstanding the foregoing, the term “Independent Counsel” shall not include any person who, under the applicable standards of professional conduct then prevailing, would have a conflict of interest in representing either the Company or Indemnitee in an action to determine Indemnitee’s rights under this Agreement. The Company agrees to pay the reasonable fees of the Independent Counsel referred to above and to fully indemnify such counsel against any and all Expenses and Liabilities (as defined below) arising out of or relating to this Agreement or its engagement pursuant hereto.

(f) “Liabilities” shall mean judgments, damages, liabilities, losses, penalties, excise taxes, fines and amounts paid in settlement.

(g) “Proceeding” shall mean any threatened, pending or completed claim, action, suit, arbitration, alternate dispute resolution process, investigation, administrative hearing, appeal, or any other proceeding, whether civil, criminal, administrative, arbitrative or investigative, whether formal or informal, including a proceeding initiated by Indemnitee pursuant to Section 10 of this Agreement to enforce Indemnitee’s rights hereunder, and shall include a Proceeding pending on or before the date of this Agreement.

(h) “Subsidiary” shall mean any corporation, partnership, limited liability company, joint venture, trust or other Entity of which the Company owns (either directly or through or together with another Subsidiary of the Company) either (i) a general partner, managing member or other similar interest or (ii) (A) more than 50% of the voting power of the voting capital equity interests of such corporation, partnership, limited liability company, joint venture or other Entity, or (B) more than 50% of the outstanding voting capital stock or other voting equity interests of such corporation, partnership, limited liability company, joint venture or other Entity.

2. Agreement to Indemnify.

(a) Proceedings Other Than Proceedings by or in the Right of the Company. Indemnitee shall be entitled to the rights of indemnification provided in this Section 2(a) if, by reason of Indemnitee's Corporate Status, Indemnitee is, or is threatened to be made, a party to or participant in any Proceeding other than a Proceeding by or in the right of the Company or a Proceeding instituted by Indemnitee pursuant to Section 9 of this Agreement to enforce Indemnitee's rights under this Agreement. Pursuant to this Section 2(a), Indemnitee shall be indemnified by the Company against all Expenses and Liabilities incurred or paid by Indemnitee in connection with such Proceeding, if Indemnitee acted in good faith and in a manner Indemnitee reasonably believed to be in or not opposed to the best interests of the Company and, with respect to any criminal Proceeding, had no reasonable cause to believe Indemnitee's conduct was unlawful.

(b) Proceedings by or in the Right of the Company. Indemnitee shall be entitled to the rights of indemnification provided in this Section 2(b) if, by reason of Indemnitee's Corporate Status, Indemnitee is, or is threatened to be made, a party to or participant in any Proceeding brought by or in the right of the Company. Pursuant to this Section 2(b), Indemnitee shall be indemnified by the Company against all Expenses incurred or paid by Indemnitee in connection with such Proceeding if Indemnitee acted in good faith and in a manner Indemnitee reasonably believed to be in or not opposed to the best interests of the Company; provided, however, that, if applicable law so provides, no indemnification against such Expenses shall be made in respect of any claim, issue or matter in such Proceeding as to which Indemnitee shall have been adjudged to be liable to the Company unless and to the extent that the Court of Chancery of the State of Delaware or other court of competent jurisdiction shall determine that such indemnification may be made.

3. Indemnification for Expenses of a Party Who is Wholly or Partly Successful. Notwithstanding any other provision of this Agreement, to the extent that Indemnitee is, by reason of Indemnitee's Corporate Status, a party to and is successful, on the merits or otherwise, in any Proceeding, Indemnitee shall be indemnified to the maximum extent permitted by applicable law against all Expenses and Liabilities incurred or paid by Indemnitee in connection therewith. If Indemnitee is not wholly successful in such Proceeding but is successful, on the merits or otherwise, as to one or more but less than all claims, issues or matters in such Proceeding, the Company shall indemnify Indemnitee against all Expenses and Liabilities incurred or paid by Indemnitee in connection with each successfully resolved claim, issue or matter. For purposes of this Section and without limitation, the termination of any claim, issue or matter in such a Proceeding by dismissal, with or without prejudice, shall be deemed to be a successful result as to such claim, issue or matter.

4. Additional Indemnity. In addition to, and without regard to any limitations on, the indemnification provided for in Section 2, the Company shall and hereby does indemnify and hold harmless Indemnitee against all Expenses and Liabilities incurred or paid by Indemnitee or on Indemnitee's behalf if, by reason of Indemnitee's Corporate Status, Indemnitee is, or is threatened to be made, a party to or participant in any Proceeding (including a Proceeding by or in the right of the Company), including, without limitation, all liability arising out of the negligence or active or passive wrongdoing of Indemnitee. The only limitation that shall exist upon the Company's obligations pursuant to this Agreement shall be that the Company shall not be obligated to make any payment to Indemnitee that is finally determined (under the procedures, and subject to the presumptions, set forth in Section 8 hereof) to be unlawful under applicable law.

5. Contribution in the Event of Joint Liability.

(a) Whether or not the indemnification provided in Sections 2 or 4 hereof is available, in respect of any threatened, pending or completed action, suit or proceeding in which the Company is jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), the Company shall pay, in the first instance, the entire amount of any judgment or settlement of such action, suit or proceeding without requiring Indemnitee to contribute to such payment and the Company hereby waives and relinquishes any right of contribution it may have against Indemnitee. The Company shall not enter into any settlement of any action, suit or proceeding in which the Company is jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding) unless such settlement provides for a full and final release of all claims asserted against Indemnitee.

(b) Without diminishing or impairing the obligations of the Company set forth in the preceding subparagraph, if, for any reason, Indemnitee shall elect or be required to pay all or any portion of any judgment or settlement in any threatened, pending or completed action, suit or proceeding in which the Company is jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), the Company shall contribute to the amount of Expenses and Liabilities incurred and paid or payable by Indemnitee in proportion to the relative benefits received by the Company and all officers, directors or employees of the Company other than Indemnitee who are jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), on the one hand, and Indemnitee, on the other hand, from the transaction from which such action, suit or proceeding arose; provided, however, that the proportion determined on the basis of relative benefit may, to the extent necessary to conform to law, be further adjusted by reference to the relative fault of the Company and all officers, directors or employees of the Company other than Indemnitee who are jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), on the one hand, and Indemnitee, on the other hand, in connection with the events that resulted in such Expenses or Liabilities, as well as any other equitable considerations which the law may require to be considered. The relative fault of the Company and all officers, directors or employees of the Company other than Indemnitee who are jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), on the one hand, and Indemnitee, on the other hand, shall be determined by reference to, among other things, the degree to which their actions were motivated by intent to gain personal profit or advantage, the degree to which their liability is primary or secondary, and the degree to which their conduct is active or passive.

(c) The Company hereby agrees to fully indemnify and hold Indemnitee harmless from any claims of contribution which may be brought by officers, directors or employees of the Company other than Indemnitee who may be jointly liable with Indemnitee.

6. Indemnification for Expenses of a Witness or in Response to a Subpoena. Notwithstanding any other provision of this Agreement, to the extent that Indemnitee, is by reason of Indemnitee's Corporate Status, a witness in any Proceeding to which Indemnitee is not a party, or receives a subpoena in any Proceeding to which Indemnitee is not a party, Indemnitee shall be indemnified against all Expenses paid or incurred by Indemnitee in connection therewith and in the manner set forth in this Agreement.

7. Advancement of Expenses. Notwithstanding any other provision of this Agreement, the Company shall advance all Expenses incurred by or on behalf of Indemnitee in connection with any Proceeding by reason of Indemnitee's Corporate Status within thirty (30) days after the receipt by the Company of a statement or statements from Indemnitee requesting such advance or advances from time to time, whether prior to or after final disposition of such Proceeding. Such statement or statements shall reasonably evidence the Expenses incurred by Indemnitee and shall include or be preceded or accompanied by an undertaking by or on behalf of Indemnitee to repay any Expenses advanced if it shall ultimately be determined by a final, non-appealable order of the Court of Chancery of the State of Delaware or other court of competent jurisdiction that Indemnitee is not entitled to be indemnified against such Expenses. Any advances and undertakings to repay pursuant to this Section 7 shall be unsecured and interest free and made without regard to Indemnitee's financial ability to repay such Expenses.

8. Procedures and Presumptions for Determination of Entitlement to Indemnification. It is the intent of this Agreement to secure for Indemnitee rights of indemnity that are at least as favorable as may be permitted under applicable law and public policy of the State of Delaware. Accordingly, the parties agree that the following procedures and presumptions shall apply in the event of any question as to whether Indemnitee is entitled to indemnification under this Agreement:

(a) To obtain indemnification (including, but not limited to, the advancement of Expenses and contribution by the Company) under this Agreement, Indemnitee shall submit to the Company a written request, including therein or therewith such documentation and information as is reasonably available to Indemnitee and is reasonably necessary to determine whether and to what extent Indemnitee is entitled to indemnification.

(b) Upon written request by Indemnitee for indemnification pursuant to the first sentence of Section 8(a) hereof, a determination, if required by applicable law, with respect to Indemnitee's entitlement thereto shall be made in the specific case by one of the following three methods, which shall be at the sole election of Indemnitee: (1) by a majority vote of the Disinterested Directors, even though less than a quorum, or (2) by Independent Counsel in a written opinion, or (3) by the stockholders of the Company.

(c) If the determination of entitlement to indemnification is to be made by Independent Counsel pursuant to Section 8(b) hereof, the Independent Counsel shall be selected as provided in this Section 8(c). The Independent Counsel shall be selected by Indemnitee (unless Indemnitee shall request that such selection be made by the Board of Directors). Indemnitee or the Company, as the case may be, may, within 10 days after such written notice of selection shall have been given, deliver to the Company or to Indemnitee, as the case may be, a written objection to such selection; provided, however, that such objection may be asserted only on the ground that the Independent Counsel so selected does not meet the requirements of "Independent Counsel" as defined in Section 1 of this Agreement, and the objection shall set forth with particularity the factual basis of such assertion. Absent a proper and timely objection, the person so selected shall act as Independent Counsel. If a written objection is made and substantiated, the Independent Counsel selected may not serve as Independent Counsel unless and until such objection is withdrawn or a court has determined that such objection is without merit. If, within 20 days after submission by Indemnitee of a written request for indemnification

pursuant to Section 8(a) hereof, no Independent Counsel shall have been selected and not objected to, either the Company or Indemnitee may petition the Court of Chancery of the State of Delaware or other court of competent jurisdiction for resolution of any objection which shall have been made by the Company or Indemnitee to the other's selection of Independent Counsel and/or for the appointment as Independent Counsel of a person selected by the court or by such other person as the court shall designate, and the person with respect to whom all objections are so resolved or the person so appointed shall act as Independent Counsel under Section 8(b) hereof. The Company shall pay any and all reasonable fees and expenses of Independent Counsel incurred by such Independent Counsel in connection with acting pursuant to Section 8(b) hereof, and the Company shall pay all reasonable fees and expenses incident to the procedures of this Section 8(c), regardless of the manner in which such Independent Counsel was selected or appointed.

(d) In making a determination with respect to entitlement to indemnification hereunder, the person or persons or entity making such determination shall presume that Indemnitee is entitled to indemnification under this Agreement if Indemnitee has submitted a request for indemnification in accordance with Section 8(a) of this Agreement. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion, by clear and convincing evidence.

(e) Indemnitee shall be deemed to have acted in good faith for purposes of indemnification under this Agreement if Indemnitee's actions are based on the records or books of account of the Company, including financial statements, or on information supplied to Indemnitee by the directors, officers, agents or employees of the Company in the course of their duties, or on the advice of legal counsel for the Company or on information or records given or reports made to the Company by an independent certified public accountant or by an appraiser or other expert selected by the Company. In addition, the knowledge and/or actions, or failure to act, of any director, officer, agent or employee of the Company shall not be imputed to Indemnitee for purposes of determining the right to indemnification under this Agreement. Whether or not the foregoing provisions of this Section 8(e) are satisfied, it shall in any event be presumed that Indemnitee has at all times acted in good faith and in a manner Indemnitee reasonably believed to be in or not opposed to the best interests of the Company. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion, by clear and convincing evidence.

(f) If the person, persons or entity empowered or selected under Section 8 to determine whether Indemnitee is entitled to indemnification shall not have made a determination within forty-five (45) days after receipt by the Company of the request therefor, the requisite determination of entitlement to indemnification shall be deemed to have been made and Indemnitee shall be entitled to such indemnification, absent (i) a misstatement by Indemnitee of a material fact, or an omission of a material fact necessary to make Indemnitee's statement not materially misleading, in connection with the request for indemnification, or (ii) a prohibition of such indemnification under applicable law; provided, however, that such forty-five day period may be extended for a reasonable time, not to exceed an additional fifteen (15) days, if the person, persons or entity making the determination with respect to entitlement to indemnification in good faith requires such additional time for the obtaining or evaluating documentation and/or information relating thereto; and provided, further, that the foregoing provisions of this

Section 8(f) shall not apply if the determination of entitlement to indemnification is to be made by the stockholders of the Company pursuant to Section 8(b) of this Agreement and if (A) within fifteen (15) days after receipt by the Company of the request for such determination the Board of Directors or the Disinterested Directors, if appropriate, resolve to submit such determination to the stockholders for their consideration at an annual meeting thereof to be held within seventy five (75) days after such receipt and such determination is made thereat, or (B) a special meeting of stockholders is called within fifteen (15) days after such receipt for the purpose of making such determination, such meeting is held for such purpose within sixty (60) days after having been so called and such determination is made thereat.

(g) Indemnitee shall cooperate with the person, persons or entity making such determination with respect to Indemnitee's entitlement to indemnification, including providing to such person, persons or entity upon reasonable advance request any documentation or information which is not privileged or otherwise protected from disclosure and which is reasonably available to Indemnitee and reasonably necessary to such determination. Any Independent Counsel, member of the Board of Directors, or stockholder of the Company shall act reasonably and in good faith in making a determination under the Agreement of the Indemnitee's entitlement to indemnification. Any costs or expenses (including attorneys' fees and disbursements) incurred by Indemnitee in so cooperating with the person, persons or entity making such determination shall be borne by the Company (irrespective of the determination as to Indemnitee's entitlement to indemnification) and the Company hereby indemnifies and agrees to hold Indemnitee harmless therefrom.

(h) The Company acknowledges that a settlement or other disposition short of final judgment may be successful if it permits a party to avoid expense, delay, distraction, disruption and uncertainty. In the event that any action, claim or proceeding to which Indemnitee is a party is resolved in any manner other than by adverse judgment against Indemnitee (including, without limitation, settlement of such action, claim or proceeding with or without payment of money or other consideration) it shall be presumed that Indemnitee has been successful on the merits or otherwise in such action, suit or proceeding. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion, by clear and convincing evidence.

9. Remedies of Indemnitee.

(a) In the event that (i) a determination is made pursuant to Section 8 of this Agreement that Indemnitee is not entitled to indemnification under this Agreement, (ii) advancement of Expenses is not timely made pursuant to Section 7 of this Agreement, (iii) no determination of entitlement to indemnification shall have been timely made pursuant to Section 8(b) of this Agreement after receipt by the Company of the request for indemnification, or (iv) payment of indemnification is not made within thirty (30) days after a determination has been made that Indemnitee is entitled to indemnification or such determination is deemed to have been made pursuant to Section 8 of this Agreement, Indemnitee shall be entitled to an adjudication in the Chancery Court of the State of Delaware, or in any other court of competent jurisdiction, of Indemnitee's entitlement to such indemnification. The Company shall not oppose Indemnitee's right to seek any such adjudication.

(b) In the event that a determination shall have been made pursuant to Section 8(b) of this Agreement that Indemnitee is not entitled to indemnification, any judicial proceeding commenced pursuant to this Section 9 shall be conducted in all respects as a *de novo* trial, on the merits and Indemnitee shall not be prejudiced by reason of that adverse determination under Section 8(b).

(c) If a determination shall have been made pursuant to Section 8(b) of this Agreement that Indemnitee is entitled to indemnification, the Company shall be bound by such determination in any judicial proceeding commenced pursuant to this Section 9, absent a prohibition of such indemnification under applicable law.

(d) In the event that Indemnitee, pursuant to this Section 9, seeks a judicial adjudication of Indemnitee's rights under, or to recover damages for breach of, this Agreement, or to recover under any directors' and officers' liability insurance policies maintained by the Company, the Company shall pay on Indemnitee's behalf, in advance, any and all Expenses paid or incurred by him in such judicial adjudication, regardless of whether Indemnitee ultimately is determined to be entitled to such indemnification, advancement of expenses or insurance recovery. The Company shall, within thirty (30) days after receipt by the Company of a written request therefor from Indemnitee, advance such Expenses to Indemnitee pursuant to comparable procedures as those set forth in Section 7 with respect to advancement of Expenses therein.

(e) The Company shall be precluded from asserting in any judicial proceeding commenced pursuant to this Section 9 that the procedures and presumptions of this Agreement are not valid, binding and enforceable and shall stipulate in any such court that the Company is bound by all the provisions of this Agreement.

10. Non-Exclusivity; Survival of Rights; Insurance; Subrogation, Primacy of Indemnification.

(a) The rights of indemnification as provided by this Agreement shall not be deemed exclusive of any other rights to which Indemnitee may at any time be entitled under applicable law, the Charter Documents, a vote of stockholders or a resolution of directors, or otherwise. The Company shall not adopt any amendment to the Charter Documents the effect of which would be to deny, diminish or encumber the Indemnitee's rights to identification pursuant to this Agreement, the Charter Documents or applicable law prior to such amendment, alteration or repeal. To the extent that a change in applicable law, whether by statute or judicial decision, permits greater indemnification than would be afforded currently under the Charter Documents and this Agreement, Indemnitee shall enjoy by this Agreement the greater benefits so afforded by such change. No right or remedy herein conferred is intended to be exclusive of any other right or remedy, and every other right and remedy shall be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or remedy hereunder, or otherwise, shall not prevent the concurrent assertion or employment of any other right or remedy.

(b) The Indemnitee shall be covered by the D & O Insurance and any other insurance policy or policies providing liability insurance for directors, officers, employees, or agents or fiduciaries of the Company or of any other corporation, partnership, joint venture, trust,

employee benefit plan or other enterprise which such person serves at the request of the Company, and Indemnitee shall be covered by such policy or policies in accordance with its or their terms to the maximum extent of the coverage available for any such director, officer, employee or agent under such policy or policies.

(c) In the event of any payment under this Agreement, the Company shall be subrogated to the extent of such payment to all of the rights of recovery of Indemnitee, who shall execute all papers required and take all action necessary to secure such rights, including execution of such documents as are necessary to enable the Company to bring suit to enforce such rights.

(d) The Company shall not be liable under this Agreement to make any payment of amounts otherwise indemnifiable hereunder if and to the extent that Indemnitee has otherwise actually received such payment under any insurance policy, contract, agreement or otherwise.

11. Exception to Right of Indemnification. Notwithstanding any other provision of this Agreement, Indemnitee shall not be entitled to indemnification under this Agreement with respect to any Proceeding brought by Indemnitee, or any claim therein, unless (a) the bringing of such Proceeding or making of such claim shall have been approved by the Board of Directors of the Company or (b) such Proceeding is being brought by the Indemnitee to assert, interpret or enforce Indemnitee's rights under this Agreement.

12. Duration of Agreement. All agreements and obligations of the Company contained herein shall continue during the period Indemnitee is a director of the Company (or is or was serving at the request of the Company as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise) and shall continue thereafter so long as Indemnitee shall be subject to any current or future Proceeding (or any proceeding commenced under Section 9) by reason of Indemnitee's Corporate Status, whether or not Indemnitee is acting or serving in any such capacity at the time any liability or expense is incurred for which indemnification can be provided under this Agreement. This Agreement shall be binding upon and inure to the benefit of and be enforceable by the parties hereto and their respective successors (including any direct or indirect successor by purchase, merger, consolidation or otherwise to all or substantially all of the business or assets of the Company), assigns, spouses, heirs, executors and personal and legal representatives. This Agreement shall continue in effect regardless of whether Indemnitee continues to serve as an officer or director of the Company or any other Entity at the Company's request.

13. Security. To the extent requested by the Indemnitee and approved by the Board of Directors of the Company, the Company may at any time and from time to time provide security to the Indemnitee for the Company's obligations hereunder through an irrevocable bank line of credit, funded trust or other collateral. Any such security, once provided to the Indemnitee, may not be revoked or released without the prior written consent of the Indemnitee.

14. Enforcement.

(a) The Company expressly confirms and agrees that it has entered into this Agreement and assumed the obligations imposed on it hereby in order to induce Indemnitee to serve as a director of the Company, and the Company acknowledges that Indemnitee is relying upon this Agreement in serving as a director of the Company.

(b) This Agreement constitutes the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all prior agreements and understandings, oral, written and implied, between the parties hereto with respect to the subject matter hereof.

15. Fees and Expenses: During the term of the Indemnitee's service as a director, the Company shall promptly reimburse the Indemnitee for all reasonable out-of-pocket expenses incurred by him in connection with Indemnitee's service as a director or member of any board committee or otherwise in connection with the Company's conduct of business.

16. Severability. If any provision or provisions of this Agreement shall be held by a court of competent jurisdiction to be invalid, void, illegal or otherwise unenforceable for any reason whatsoever: (a) the validity, legality and enforceability of the remaining provisions of this Agreement (including without limitation, each portion of any section of this Agreement containing any such provision held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall not in any way be affected or impaired thereby and shall remain enforceable to the fullest extent permitted by applicable law; and (b) to the fullest extent possible, the provisions of this Agreement (including, without limitation, each portion of any section of this Agreement containing any such provision held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall be construed so as to give effect to the intent manifested thereby.

17. Modification and Waiver. Except as provided by Section 10(a) with respect to changes in applicable law that broaden the rights of Indemnitee to be indemnified by the Company, no supplement, modification, termination or amendment of this Agreement shall be binding unless executed in writing by both of the parties hereto. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provisions hereof (whether or not similar) nor shall such waiver constitute a continuing waiver.

18. Notice By Indemnitee. Indemnitee agrees promptly to notify the Company in writing upon being served with any summons, citation, subpoena, complaint, indictment, information or other document relating to any Proceeding or matter which may be subject to indemnification covered hereunder. The failure to so notify the Company shall not relieve the Company of any obligation which it may have to the Indemnitee under this Agreement or otherwise unless and only to the extent that such failure or delay materially prejudices the Company.

19. Notices. All notices, requests, demands and other communications hereunder shall be in writing and shall be deemed to have been duly given if (i) delivered by hand and receipted for by the party to whom said notice or other communication shall have been directed, or (ii) mailed by certified or registered mail with postage prepaid, on the second business day after the date on which it is so mailed:

(a) If to Indemnitee, to the address set forth below Indemnitee's signature hereto.

(b) If to the Company, to:

Arsanis, Inc.
890 Winter Street, Suite 230
Waltham, MA 02451
Attn. President

with a copy to:

[ ]
Email: [ ]

or to such other address as may have been furnished to Indemnitee by the Company or to the Company by Indemnitee, as the case may be.

20. Identical Counterparts. This Agreement may be executed in one or more counterparts, each of which shall for all purposes be deemed to be an original but all of which together shall constitute one and the same Agreement. Only one such counterpart signed by the party against whom enforceability is sought needs to be produced to evidence the existence of this Agreement.

21. Headings. The headings of the paragraphs of this Agreement are inserted for convenience only and shall not be deemed to constitute part of this Agreement or to affect the construction thereof.

22. Governing Law. The parties agree that this Agreement shall be governed by, and construed and enforced in accordance with, the laws of the State of Delaware without application of the conflict of laws principles thereof.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on and as of the day and year first above written.

ARSANIS, INC.

By: _____
Name:
Title:

INDEMNITEE

_____
Name:
Address:

Exhibit 10.16

EXECUTION COPY

LEASE

LANDLORD:

WALTHAM WINTER STREET 890 LP

TENANT:

ARSANIS, INC.

Lease Dated: October 30, 2015

ARTICLE I

DEMISING CLAUSE AND DEFINED TERMS

1.1 Demising Clause.

This lease (this "**Lease**") is made and entered into by and between the Landlord and the Tenant, as defined below, as of the date set forth above. In consideration of the mutual covenants made herein, Landlord hereby leases to Tenant, and Tenant hereby leases from Landlord, the Premises as, defined below, on all of the terms and conditions set forth herein.

1.2 Defined Terms.

The terms listed below shall have the following meanings throughout this Lease:

LANDLORD:	Waltham Winter Street 890 LP, a Delaware limited partnership
LANDLORD'S ORIGINAL ADDRESS:	c/o Clarion Partners, LLC 101 Arch Street Boston, Massachusetts 02110
TENANT:	Arsanis, Inc., a Delaware corporation
TENANT'S ORIGINAL ADDRESS:	7 Lucent Drive Lebanon, New Hampshire 03766
BUILDING:	The building located at 890 Winter Street, Waltham, Massachusetts, and located on the parcel of land (the "**Lot**") described in Exhibit A.
PROPERTY:	The Building and the Lot.
TENANT'S SPACE:	7,814 rentable square feet ("**RSF**") on the second (2nd) floor of the Building, as shown on Exhibit B.
COMMENCEMENT DATE:	November 1, 2015.
RENT COMMENCEMENT DATE:	February 1, 2016 (subject to extension pursuant to Section 2.6).
TERM:	The term commencing on the Commencement Date and ending on the date which is three (3) years and three (3) months following the Commencement

	Date.	
FIXED RENT:	Per Annum	Per Month
Commencing on the Rent Commencement Date through the last day immediately preceding the first anniversary of the Rent Commencement Date:	$300,839.00	$25,069.92
Commencing on the first anniversary of the Rent Commencement Date through the last day immediately preceding the second anniversary of the Rent Commencement Date:	$308,653.00	$25,721.08
Commencing on the second anniversary of the Rent Commencement Date through the last day of the Term:	$316,467.00	$26,372.25

TENANT'S OPERATING EXPENSE BASE:	Tenant's Proportionate Share of the total Operating Expenses for the Property incurred during calendar year 2016 (January 1, 2016 through December 31, 2016).
TENANT'S TAX BASE:	Tenant's Proportionate Share of the fiscal year 2016 Real Estate Taxes for the Property (July 1, 2015 through June 30, 2016), as adjusted by the results of any abatement, reassessment or litigation.
TOTAL RENTABLE FLOOR AREA OF THE BUILDING:	173,070 rentable square feet.
TENANT'S PROPORTIONATE SHARE:	Tenant's Proportionate Share is based on a fraction, the total rentable square feet of the Building as the denominator (173,070 sq. ft.) and the total rentable square feet of the Premises as the numerator (7,814 sq. ft.). Tenant's Proportionate Share is four and fifty-one one hundredths percent (4.51%).
PERMITTED USES:	General office use and uses ancillary thereto, and for no other purpose.
SECURITY DEPOSIT:	See Section 8.17

BROKER:	Transwestern/RBJ and Jones Lang LaSalle (collectively, the "**Broker**")

1.3 Exhibits.

There are incorporated as a part of this Lease:

EXHIBIT A	-	Property Description
EXHIBIT B	-	Floor Plan
EXHIBIT C	-	Reserved
EXHIBIT D	-	Landlord's Services
EXHIBIT E	-	Rules and Regulations
EXHIBIT F	-	Insurance Requirements

1.4 Table of Contents

ARTICLE II

PREMISES, TERM AND RENT

2.1 The Premises

Landlord hereby leases to Tenant and Tenant hereby hires from Landlord Tenant's Space in the Building, excluding exterior faces of exterior walls, the common stairways and stairwells, elevators and elevator shafts, the roof, storage areas, fan rooms, electric and telephone closets, janitor closets, freight elevator vestibules, and pipes, ducts, conduits, wires and appurtenant fixtures serving exclusively or in common other parts of the Building, and if Tenant's Space includes less than the entire rentable area of any floor, excluding the common corridors, elevator lobbies and toilets located on such floor. Tenant's Space with such exclusions is hereinafter referred to as the "**Premises**."

2.2 Parking

Tenant and its employees and visitors shall be permitted to use twenty six (26) parking spaces in the parking areas on a non-exclusive basis in common with other Building tenants on the Lot, without charge, including two (2) non-exclusive spaces in the parking areas beneath the Building. Tenant shall not sublet, assign or otherwise transfer its right to use parking spaces in the garage beneath the Building without the prior written consent of Landlord except in connection with a sublease or assignment permitted under this Lease (including a sublease or assignment to a Tenant Affiliate (as defined in Section 5.6 below)).

2.3 Rights to Use Common Facilities

Tenant shall have, as appurtenant to the Premises, rights to use in common with others, subject to reasonable rules of general applicability to tenants of the Building from time to time made by Landlord of which Tenant is given notice: (a) the common lobbies, corridors, stairways, elevators and the pipes, ducts, conduits, wires and appurtenant meters and equipment serving the Premises, (b) common walkways and driveways necessary for access to the Building and the loading area in the rear of the Building, (c) to the extent made available for the general use of tenants and occupants of the Building, the Building conference room, café, fitness center, and other common areas of the Building or the office park in which the Building is located, and (d) if the Premises include less than the entire rentable area of any floor, the common toilets, corridors and elevator lobbies of such floor.

2.4 Landlord's Reservation

Landlord reserves the right from time to time, without unreasonable interference with Tenant's Permitted Use and upon reasonable prior notice: (a) to install, use, maintain, repair, replace and relocate for service to the Premises and other parts of the Building, or either, pipes, ducts, conduits, wires and appurtenant fixtures, wherever located in the Premises or Building, and (b) to alter or relocate any other common facility, provided that substitutions are substantially equivalent or better. Installations, replacements and relocations referred to in clause (a) above shall be located so far as practicable in the central core area of the Building, above ceiling surfaces, below floor surfaces or within perimeter walls of the Premises.

2.5 Habendum: Commencement Date

Tenant shall have and hold the Premises for a period commencing on the Commencement Date and continuing for the Term unless sooner terminated as provided in Section 6.1 or ARTICLE VII or extended pursuant to Section 2.12. Notwithstanding the foregoing, Landlord, upon request by Tenant, shall grant to Tenant and Tenant's agents a license to enter the Premises at any time from and after the date which Landlord reasonably determines to be twenty-one (21) days prior to the date Landlord's Work (as defined herein) will be substantially completed for the purposes of installing Tenant's furniture, fixtures, equipment and cabling in the Premises. It shall be a condition to the grant by Landlord and continued effectiveness of such license that:

(a) Tenant's request for such early access shall be accompanied by: (i) a description of and schedule for the work to be performed by those persons and entities for whom such access is being requested; (ii) the names and addresses of all contractors for whom such early access is being requested and copies of all licenses and permits required in connection with the performance of the work for which such access is being requested; and (iii) certificates of insurance (in amounts and with insured parties satisfactory to Landlord). All of the foregoing shall be subject to Landlord's reasonable approval.

(b) Such early access for installation purposes shall be subject to reasonable scheduling by Landlord.

(c) Tenant's agents, contractors, workmen, mechanics, suppliers and invitees shall work in harmony and not interfere with (i) Landlord and Landlord's agents in performing Landlord's Work or work by Landlord or its agents in other premises or common areas of the Building, or (ii) the general operation of the Building. If at any time such entry shall cause or reasonably threaten to cause such disharmony or interference (including introducing union labor to the Building), Landlord may withdraw such license if, upon written notice to Tenant, Tenant fails to correct such interference within 24 hours.

Any such entry into and occupation of the Premises by Tenant shall be deemed to be under all of the terms, covenants, conditions and provisions of the Lease (including, without limitation, the insurance and indemnity provisions therein), excluding only the covenant to pay Fixed Rent, additional rent or electricity; provided, however, that, notwithstanding the foregoing, Tenant's obligation to pay Fixed Rent, additional rent and electricity hereunder shall commence upon Tenant conducting any material and regular business activities at the Premises. Landlord shall not be liable for any injury, loss or damage which may occur to any of Tenant's work or installations made in the Premises or to property placed therein prior to the commencement of the Term, the same being at Tenant's sole risk and liability. Tenant shall be liable to Landlord for any damage to the Premises or to any portion of Landlord's Work caused by Tenant or any of

Tenant's employees, agents, contractors, workmen or suppliers. In the event the performance of the work by Tenant, its agents, employees or contractors causes material extra costs to Landlord, Tenant shall reimburse Landlord for the entire extra cost upon receipt of substantiating backup of such cost.

2.6 Monthly Fixed Rent Payments

Tenant shall pay, commencing on the Rent Commencement Date, without notice, demand, offset or deduction, monthly installments of Fixed Rent in advance on the first day of each month to such person and at such place as Landlord shall from time to time designate by notice to Tenant. Landlord initially designates its address set forth in Section 1.2 for this purpose.

Fixed Rent for any partial calendar month following the Rent Commencement Date shall be prorated on a daily basis, and shall be due and payable in advance on the Rent Commencement Date.

If the Landlord's Work is not substantially completed by November 15, 2015, then, excluding any delay caused by Tenant, the Rent Commencement Date will be extended for a period of time equal to (i) the total number of days between November 15, 2015 and the day on which the Landlord's Work is substantially completed. In such circumstances, at the request of either Party, the Parties shall execute an amendment to the Lease solely for the purpose of implementing such modifications; provided, however, that such modifications shall be deemed to take effect immediately, whether or not such executed amendment to the Lease has been executed.

2.7 Adjustments for Operating Expenses

A. Terms used herein are defined as follows:

(1) "**Operating Expenses for the Property**" means the cost of operation of the Property which shall **exclude** costs of special services rendered to tenants (including Tenant) for which a separate charge is made and items of expense referred to in Section 2.8 hereof, but shall **include**, without limitation, the following: premiums for insurance carried with respect to the Property; compensation and all fringe benefits, worker's compensation insurance premiums and payroll taxes paid to, for or with respect to all persons engaged in directly operating, repairing, maintaining, or cleaning of the Property; steam, water, sewer, electric, gas, oil and telephone and other utility charges; costs of building and cleaning supplies, materials and equipment; costs of maintenance, cleaning and repairs; costs of snow removal and care of landscaping; fees, expenses and contributions for the Building and Property to the common expenses of the office park in which they are located; payments under service contracts for any of the foregoing services with independent contractors or subsidiaries or affiliates of Landlord; management fees at reasonable rates consistent with the type of occupancy and the service rendered and all other reasonable and necessary expenses paid in connection with the operation, repair, cleaning and maintenance of the Property. Any of the services may be performed by subsidiaries or affiliates of Landlord, provided that the contracts for the performance of such services shall be competitive with comparable first class office buildings in the Boston metropolitan area.

For purposes of the preceding definition, the Operating Expenses for the Property shall include the cost (amortized with interest using generally accepted accounting principles) of any capital improvement (including, without limitation any equipment installed as a fixture) made by Landlord for the purpose of (a) reducing other operating costs; or (b) complying with any governmental requirement (including, without limitation, any law, ordinance, code, regulation or bylaw) which shall first become applicable to the Property after the date of this Lease; or (c) such items as are required to keep the Building and Property as a first quality office building in the Boston metropolitan area.

Notwithstanding the foregoing, Operating Expenses for the Property shall **exclude:**

(a) Expenses for any item or service not provided to Tenant but provided exclusively to another tenant in that tenant's space within the Building;

(b) Expenses for any item or service which Tenant pays directly to a third party or separately pays to Landlord (e.g., electricity);

(c) Landlord's general corporate overhead and administrative expenses;

(d) Expenses incurred by Landlord to resolve disputes, enforce or negotiate lease terms with prospective or existing tenants or in connection with any financing, sale or syndication of the Property;

(e) Any cost incurred by the gross negligence or willful misconduct of the Landlord, its agents and employees;

(f) Penalties, fines and other costs incurred due to violation by the Landlord of any lease or any laws, rules, regulations or ordinances applicable to the Building and any interest or penalties due for late payment by Landlord of any of the Operating Expenses for the Property;

(g) Expenses incurred by Landlord to (i) lease space to new tenants or to retain existing tenants including leasing commissions, advertising and promotional expenditures, and (ii) prepare, renovate, repaint, redecorate or perform any other work in any space leased to an existing or prospective tenant or other occupant of the Building;

(h) Depreciation and amortization, except to the extent provided above;

(i) Interest, principal, points and fees, amortization or other costs and expenses associated with any debt or rent payable under any ground lease;

(j) Real Estate Taxes for the Property;

(k) Cost of alterations, capital improvements, equipment replacement and other items (including reserves for the same) which under generally accepted accounting principles are properly classified as capital expenditures except for capital expenditures to the extent expressly permitted above;

(l) Payments for rented equipment, the cost of which equipment would constitute a capital expenditure if the equipment were purchased;

(m) Costs and expenses incurred by the Landlord in connection with the repair of damage to the Building or Property caused by fire or other casualty, insured or required to be insured against hereunder; and

(n) Costs and expenses of investigating, monitoring and remediating hazardous materials on, under or about the Building.

(2) The "**Operating Statement**" shall mean a statement rendered to Tenant by Landlord within approximately one hundred twenty (120) days or as soon thereafter as reasonably possible after the end of each calendar year during the Term. The Operating Statement shall be in reasonable detail, certified by Landlord's representative, and show the amount of the Operating Expenses for the Property and the Operating Expenses Allocable to the Premises for the preceding calendar year or fraction thereof, as the case may be.

(3) The phrase "**Operating Expenses Allocable to the Premises**" means Tenant's Proportionate Share of the Operating Expenses for the Property.

(4) In any calendar year when the Building has an average annual occupancy rate of less than ninety-five percent (95%), then, for the purpose of this Section 2.7, items which are variable according to occupancy comprising the Operating Expenses for the Property shall be equitably adjusted as though the Building were ninety-five percent (95%) occupied. In any calendar year when the Building has an average annual occupancy rate of ninety-five percent (95%) or more then the Operating Expenses for the Property shall be the actual Operating Expenses for the Property.

B. If, with respect to any calendar year or fraction thereof ending within the Term, the Operating Expenses Allocable to the Premises for a full calendar year exceed Tenant's Operating Expense Base then, within thirty (30) days after receipt by Tenant of the Operating Statement, Tenant shall pay to Landlord, as additional rent, the amount of such excess, less any amounts previously paid by Tenant pursuant to Paragraph C below. In the event the actual amounts due for the period encompassed by Landlord's statement are less than the estimated amounts theretofore paid by Tenant with respect to such period, Tenant shall receive a credit for the excess amounts paid, which credit may be applied against subsequent installments of additional rent due under this Section 2.7, or, if this Lease has already been terminated, Landlord shall refund such amounts to Tenant within 15 business days.

C. Landlord shall have the right from time to time by notice to Tenant to estimate amounts required to be paid by Tenant under this Section 2.7 to reflect Landlord's latest reasonable estimate of the actual amounts which will be due from Tenant hereunder based upon then current budgets and expenditures incurred to date. Following any notice by Landlord requesting that Tenant make estimated monthly payments toward its obligation under this Section 2.7, Tenant shall make such monthly payments in accordance with such notice, until

further notice is given by Landlord. If the Term of this Lease expires prior to the determination by Landlord and payment by or refund to Tenant of any amounts due hereunder, Tenant's obligation to pay and Landlord's obligation to refund such amounts for any portion of the Term of this Lease shall survive the termination of this Lease even though determination of such amounts may not be made until after such termination.

D. Landlord agrees to keep books and records showing Operating Expenses for the Property in accordance with a system of accounts and accounting practices consistently maintained. Tenant shall have the right, at its sole expense, upon reasonable prior notice to Landlord, to inspect such books and records at Landlord's office during business hours for ninety days following receipt of an annual Operating Statement; provided, however, that such right may not be exercised by an agent of Tenant whose fee is based on the success of the inspection. Should such inspection reveal errors in excess of five percent (5%), Landlord shall reimburse Tenant for its reasonable out of pocket expenses of such inspection.

2.8 Adjustments for Real Estate Taxes

A. Terms used herein are defined as follows:

(1) "**Tax Year**" means the twelve-month period beginning July 1 each year during the Term or if the appropriate governmental tax fiscal period shall begin on any date other than July 1, such other date.

(2) "**Landlord's Tax Expenses**" with respect to any Tax Year means the aggregate Real Estate Taxes for the Property with respect to that Tax Year, reduced by any abatements actually received with respect to that Tax Year.

(3) "**Real Estate Taxes for the Property**" means all taxes and special assessments of every kind and nature assessed by any governmental authority on the Lot or the Building or the Property which Landlord shall become obligated to pay because of or in connection with the ownership, leasing and operation of the Lot, the Building and the Property and reasonable expenses of any proceedings for abatement of taxes. The amount of special taxes or special assessments to be included shall be limited to the amount of the installment (plus any interest, other than penalty interest, payable thereon) of such special tax or special assessment required to be paid during the year in respect of which such taxes are being determined. There shall be excluded from such taxes all income, estate, succession, inheritance and transfer taxes and interest and penalties assessed by reason of Landlord's failure to pay such real estate taxes when due; provided, however, that if at any time during the Term the present system of ad valorem tax of real property shall be changed so that in lieu of the whole or any part of the ad valorem tax on real property, there shall be assessed on Landlord a capital levy or other tax on the gross rents received with respect to the Lot or Building or Property, or a federal, state, county, municipal, or other local income, franchise, excise or similar tax, assessment, levy or charge (distinct from any now in effect in Massachusetts) measured by or based, in whole or in part, upon any such gross rents, then any and all of such taxes shall be included within the term "Real Estate Taxes for the Property."

(4) The "**Tax Statement**" shall mean a statement rendered to Tenant by Landlord within thirty (30) days or as soon thereafter as reasonably practical after receipt of the real estate tax bills for each Tax Year (or partial year, if applicable) during the Term and within ninety (90) days or as soon thereafter as reasonably practical after Lease termination. The Tax Statement shall be in reasonable detail showing for the respective Tax Year or fraction thereof, as the case may be, Real Estate Taxes for the Property.

(5) "**Tax Expenses Allocable to the Premises**" means Tenant's Proportionate Share of Real Estate Taxes for the Property.

B. If with respect to any Tax Year, Tax Expenses Allocable to the Premises exceed Tenant's Tax Base, then within thirty (30) days after receipt by Tenant of the Tax Statement, Tenant shall pay to Landlord, as additional rent, the amount of such excess, less any amounts previously paid by Tenant pursuant to Paragraph C below. In the event the actual amounts due for the period encompassed by the Tax Statement are less than the estimated amounts theretofore paid by Tenant with respect to such period, Tenant shall receive a credit for the excess amounts paid, which credit may be applied against subsequent installments of additional rent due under this Section 2.8, or, if this Lease has already been terminated, Landlord shall promptly refund such amounts to Tenant. Appropriate prorations shall be made for those periods at the beginning or end of the Term which are less than a full Tax Year.

C. Landlord shall have the right from time to time by notice to Tenant to estimate amounts required to be paid by Tenant under this Section 2.8 to reflect Landlord's latest reasonable estimate of the actual amounts which will be due from Tenant hereunder. Following any notice by Landlord requesting that Tenant make estimated monthly payments toward its obligation under this Section 2.8, Tenant shall make such monthly payments in accordance with such notice, until further notice is given by Landlord. If the Term of this Lease expires prior to the determination by Landlord and payment by or refund to Tenant of any amounts due hereunder, Tenant's obligation to pay and Landlord's obligation to refund such amounts for any portion of the Term of this Lease shall survive the termination of this Lease even though determination of such amounts may not be made until after such termination.

D. To the extent that Real Estate Taxes for the Property shall be payable to the taxing authority in installments for periods less than a Tax Year, the foregoing statement shall be rendered and payments made on account of such installments with respect to such periods rather than with respect to such full Tax Year.

E. No decrease in Real Estate Taxes for the Property with respect to any Tax Year shall result in a reduction of the Fixed Rent payable by Tenant.

2.9 Electricity Charge

Tenant shall initially pay $1.50 per rentable square foot per year for the estimated cost of electricity for lights and outlets within the Premises (subject to adjustment pursuant to Section 2.7(C)), payable in equal monthly installments with the Fixed Rent and subject to the reconciliation process set forth in Section 2.7(B). The actual cost of Tenant's share of electricity within the Premises shall be included in the annual Operating Statement along with Tenant's Proportionate Share of common area electricity. Tenant shall not exceed electrical usage of 6.5 watts per square foot included in the Premises.

2.10 Due Date of Additional Payments; No Offsets

Except as otherwise specifically provided herein, any sum, amount, item or charge designated or considered as additional rent in this Lease shall be paid by Tenant to Landlord on or before the tenth (10th) business day after Landlord notifies Tenant of the amount payable. Any such notice shall specify in reasonable detail the basis of such additional rent. Additional rent shall be paid by Tenant to Landlord without offset or deduction.

2.11 Late Payment of Rent

If any installment of Fixed Rent or payment of additional rent is paid after the date the same was due, it shall bear interest from the due date at the rate published as the "prime rate" in The Wall Street Journal, as it may be adjusted from time to time, plus six percent (6%) per annum, but in no event more than the maximum rate of interest allowed by law, the payment of which shall be additional rent. For any installment of Fixed Rent or additional rent paid after the date the same was due, Tenant shall pay to Landlord, as additional rent, an amount equal to five percent (5%) of the total amount of delinquent rent (Fixed Rent plus additional rent) to offset Landlord's administrative expenses resulting from Tenant's delinquent payment.

2.12 Renewal Option

A. Provided that (i) a default as described in Section 7.1 of the Lease shall not have occurred and be continuing on the day on which Tenant purports to exercise the Renewal Option (defined below) or on the first day of the applicable Renewal Term (as defined below), and (ii) the Tenant named herein or a Tenant Affiliate is actually occupying at least 80% of the Premises as of each of said dates, Tenant shall have the option ("**Renewal Option**") to renew the Term of this Lease for one (1) additional periods of three (3) years (the "**Renewal Term**"), unless sooner terminated as provided in this Lease, subject to all the terms of this Lease except for the change in Fixed Rent as provided below and there shall be no further Renewal Options.

B. Tenant shall exercise the Renewal Option, if at all, by giving written notice ("**Notice to Renew**") of exercise to Landlord no later than nine (9) months prior to expiration of the Term. If Tenant fails to give such notice to Landlord within such time, Tenant shall be deemed to have waived the right to exercise the Renewal Option. Upon Tenant's exercise of each Renewal Option, the Term shall be deemed to include the applicable Renewal Term.

C. The annual Fixed Rent payable during each Renewal Term shall be the fair market rent for comparable first class office space in effect in the 128 West office market on the commencement date of the applicable Renewal Term (the "**Fair Market Rent**"). The determination of Fair Market Rent (whether such determination is made by Landlord and/or Tenant or the brokers referenced herein) shall take into account all relevant factors such as (but not limited to) the rental rate currently charged by Landlord for space at the Property, the term of the lease, the base year for operating expenses and taxes, and brokerage commissions. The Fair Market Rent shall be determined as follows:

(1) Within fifteen (15) calendar days after receipt of a Notice to Renew, Landlord shall furnish Tenant with Landlord's estimate of Fair Market Rent ("**Landlord's Rent Estimate**").

(2) Within fifteen (15) calendar days after receipt of Landlord's Rent Estimate, Tenant shall respond and specify whether and the extent to which Tenant disputes Landlord's Rent Estimate.

(3) If Tenant disputes Landlord's Rent Estimate, Tenant and Landlord shall negotiate in good faith for an additional thirty (30) calendar days to reach agreement on the Fair Market Rent.

(4) If Tenant and Landlord shall not have reached agreement as to the Fair Market Rent after such additional thirty (30) calendar days, Landlord and Tenant, within ten (10) calendar days after the expiration of such thirty (30) calendar day period, shall each select a real estate broker affiliated with a major Boston commercial real estate brokerage firm and having at least fifteen (15) years' experience in the field with office properties similar to the Building in the Boston area to determine the Fair Market Rent. The two selected brokers shall within fourteen (14) calendar days appoint a third broker having the qualifications described above (the "**Third Broker**"). Each party shall pay the fees and expenses of the broker it selected and the fees and expenses of the Third Broker shall be borne equally by both parties.

(5) Within thirty (30) calendar days after the selection of the Third Broker, the brokers shall determine the Fair Market Rent. In the event that the brokers have not agreed upon the Fair Market Rent within such thirty (30) day period, each broker shall simultaneously deliver, within ten (10) calendar days thereafter, a written appraisal of the Fair Market Rent to Landlord and Tenant, and the Fair Market Rent shall be the average of the two closest appraisals.

(6) If Landlord or Tenant shall have failed to designate a broker within the time period provided therefor above, then the broker which has been designated, whether by Landlord or Tenant, shall alone make the determination of the Fair Market Rent. If Tenant and Landlord have both designated brokers but the two brokers so designated do not agree upon and designate the third broker willing so to act within the time period provided therefor above, the Tenant, the Landlord or either broker previously designated may request the Greater Boston Real Estate Board, Inc. to designate the third broker willing so to act and a broker so appointed shall, for all purposes, have the same standing and powers as though such broker had been seasonably appointed by the brokers first appointed. In case of the inability or refusal to serve of any person designated as a broker, or in case any broker for any reason ceases to be such, a broker to fill such vacancy shall be appointed by the Tenant, the Landlord, the broker first appointed or the said Greater Boston Real Estate Board, Inc., as the case may be, whichever made the original appointment.

ARTICLE III

CONSTRUCTION

3.1 Premises As Is

THE PREMISES ARE LEASED "AS IS" AND "WHERE IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTY WHATSOEVER, INCLUDING ANY WARRANTY OF MERCHANTABILITY, HABITABILITY OR FITNESS FOR INTENDED USE.

3.2 Landlord's Work

Landlord shall prepare the Premises for Tenant's use by painting and re-carpeting the Premises with building standard materials and finishes ("**Landlord's Work**"). Notwithstanding anything to the contrary, Tenant shall be responsible for all furniture, tel/data wiring, security, other specialty items for the Premises (including dedicated HVAC units, if any) and any other improvements not part of Landlord's Work at Tenant's sole cost and expense.

3.3 General Provisions Applicable to Construction

All construction work required or permitted by this Lease, whether by Landlord or Tenant, shall be done in a good and workmanlike manner and in compliance with all applicable laws and all lawful ordinances, regulations and orders of governmental authority and insurers of the Property. Each party may inspect the work of the other at reasonable times and shall promptly give notice of observed defects.

3.4 Liens

Tenant will not permit any mechanic's lien or other liens to be placed upon the Premises or the Property as a result of any materials or labor ordered by Tenant or any of Tenant's agents, officers, or employees. If such a lien is filed, then within five (5) days after Landlord has delivered notice to Tenant, Tenant must either pay the amount of the lien or diligently contest such lien and deliver to Landlord a bond or other security satisfactory to Landlord. If Tenant fails to comply with the foregoing provisions of this Section 3.4, Landlord may exercise its self-help rights set forth in Section 8.6 to discharge or bond over the lien at Tenant's sole cost and expense in any manner deemed appropriate by Landlord in its sole discretion.

ARTICLE IV

LANDLORD'S COVENANTS; INTERRUPTIONS AND DELAYS

Landlord covenants:

4.1 Services Furnished by Landlord

To furnish, through Landlord's employees or independent contractors, services, utilities, facilities and supplies set forth in Exhibit D equal in quality to those customarily provided by landlords in similar office buildings in the vicinity of the Building.

4.2 Additional Services Available to Tenant

To furnish, through Landlord's employees or independent contractors, at Tenant's expense, reasonable additional building operation services which are usual and customary additional services in similar office buildings in the vicinity of the Building upon reasonable advance request of Tenant at reasonable, equitable market rates from time to time established by Landlord.

4.3 Roof, Exterior Wall, Floor Slab and Common Facility Repair

Except as otherwise provided in ARTICLE VI, to make such repairs to the roof, exterior walls, other structural components, floor slabs, exterior glass (except as set forth in Section 5.2) and common areas and facilities including all utilities and elevators, of the Property as may be necessary to keep them in good order, repair and condition, the expense of which shall be charged in accordance with Section 2.7.

4.4 Quiet Enjoyment

That Tenant on paying the Fixed Rent and additional rent and performing the obligations of Tenant in this Lease shall peacefully and quietly have, hold and enjoy the Premises without interference from Landlord, or persons claiming by, through or under Landlord, subject to all of the terms and provisions hereof.

4.5 Interruptions and Delays in Service and Repairs, etc.

Landlord shall not be liable to Tenant for any compensation or reduction of rent by reason of inconvenience or annoyance or for loss of business arising from the necessity of Landlord or its agents' entering the Premises for any of the purposes in this Lease authorized, or for repairing the Premises or any portion of the Building however the necessity may occur. In case Landlord is prevented or delayed from making any repairs, alterations or improvements, or furnishing any services or performing any other covenant or duty to be performed on Landlord's part, by reason of any cause reasonably beyond Landlord's control, Landlord shall not be liable to Tenant therefor, nor except as expressly otherwise provided in this Section 4.5 or Section 6.1 shall Tenant be entitled to any abatement or reduction of rent by reason thereof, nor shall the same give rise to a claim in Tenant's favor that such failure constitutes actual or constructive, total or partial, eviction from the Premises.

Landlord reserves the right to stop any service or utility system, when necessary by reason of accident or emergency, or until necessary repairs have been completed; provided, however, that in each instance of stoppage Landlord shall exercise reasonable diligence to eliminate the cause thereof. Except in case of emergency repairs, Landlord will give Tenant reasonable advance notice of any contemplated stoppage and will use reasonable efforts to avoid unnecessary inconvenience to Tenant by reason thereof.

Notwithstanding anything to the contrary contained herein, if: (i) Landlord ceases to furnish any service in the Building for a period in excess of five (5) consecutive days after Tenant notifies Landlord of such cessation (the "Interruption Notice"); (ii) such cessation results from an act or omission of Landlord; (iii) the restoration of such service is within the reasonable

control of Landlord; and (iv) as a result of such cessation, the Premises, or a material portion thereof, is rendered untenantable and Tenant in fact ceases to use the Premises, or a material portion thereof (each such cessation, a "**Material Service Interruption**"), then Tenant, as its sole remedy, shall be entitled to receive an abatement of Fixed Rent and additional rent during the period beginning on the sixth (6th) consecutive day after Landlord's receipt of the Interruption Notice and ending on the day when the service in question has been restored. In the event the entire Premises has not been rendered untenantable by the Material Service Interruption, the amount of abatement that Tenant is entitled to receive shall be prorated based upon the percentage of the Premises so rendered untenantable and not used by Tenant.

4.6 Payment of Legal Expenses

To pay all reasonable costs, counsel and other fees incurred by Tenant in connection with the successful enforcement by Tenant of any obligations of Landlord under this Lease.

4.7 Landlord to Maintain Insurance; Waiver of Subrogation

Landlord shall procure and maintain the following:

(a) Property insurance "the equivalent of causes of loss – special form" on the Property. Landlord shall not be obligated to insure any furniture, equipment, trade fixtures, machinery, goods, or supplies which Tenant may keep or maintain in the Premises or any alteration, addition, or improvement which Tenant may make upon the Premises. In addition, Landlord may elect to secure and maintain rental income insurance. If the annual cost to Landlord for such property or rental income insurance exceeds the standard rates because of the nature of Tenant's operations, Tenant shall, upon receipt of appropriate invoices, reimburse Landlord for such increased cost.

(b) Commercial general liability insurance, which shall be in addition to, and not in lieu of, insurance required to be maintained by Tenant. Tenant shall not be included as an additional insured on any policy of liability insurance maintained by Landlord.

(c) Landlord waives any and all rights of recovery against Tenant for or arising out of damage to, or destruction of the Premises to the extent (i) that Landlord's property insurance policies then in force insure against such damage or destruction and permit such waiver and only to the extent of insurance proceeds actually received by Landlord for such damage or destruction; or (ii) such damage or destruction would have been covered by insurance proceeds had Landlord maintained the insurance required hereunder.

(d) Landlord will not be responsible for or liable to Tenant for any loss or damage that may be occasioned by or through the acts or omissions of persons occupying adjoining premises or any part of the premises adjacent to or connected with the Premises or any part of the Building or for any loss or damage resulting to Tenant or its property from burst, stopped or leaking water, gas, sewer or steam pipes or falling plaster, or electrical wiring or for any damage or loss of property within the Premises from any causes whatsoever, including but not limited to theft, and/or acts or threatened acts of terrorism, damage or injury due to mold, excepting only losses or damages resulting from the gross negligence or willful misconduct of Landlord. Landlord will not be liable under any circumstances to Tenant for any incidental or consequential damages.

(e) Landlord, its agents, servants, employees, invitees, or contractors (each an "**Indemnified Party**") shall not be liable to Tenant and Tenant hereby waives all claims against each Indemnified Party for any injury to or death of any person or damage to or destruction of property in or about the Premises or the Property by or from any cause whatsoever, including, without limitation, gas, fire, oil, electricity or leakage of any character from the roof, walls, basement or other portion of the Premises or the Property, but excluding, however, the gross negligence or willful misconduct of any Indemnified Party of which gross negligence or willful misconduct Landlord has knowledge and reasonable time to correct. Except as to injury to persons or damage to property to the extent caused by the gross negligence or willful misconduct of an Indemnified Party, Tenant shall indemnify, defend and hold each Indemnified Party harmless from and against any and all expenses, including reasonable attorneys' fees, in connection therewith, arising out of any injury to or death of any person or damage to or destruction of property occurring in, on or about the Premises, or any part thereof, from any cause whatsoever.

(f) To the maximum extent permitted by law, Tenant shall indemnify, defend and hold harmless the Indemnified Parties (including reasonable attorneys' fees, investigation costs and remediation costs) from and against any and all claims, demands, liabilities, damages, judgments, fines and penalties which in any manner whatsoever arise out of or are in any manner related to: (i) Tenant's failure to maintain the Premises pursuant to Section 5.2 of this Lease; or (ii) the presence of mold in the Premises or Building to the extent caused by, contributed to, or allowed by Tenant.

(g) Except for damages incurred by Landlord pursuant to Section 8.15 of this Lease, Tenant will not be liable under any circumstances to Landlord for any incidental or consequential damages.

ARTICLE V

TENANT'S COVENANTS

Tenant covenants during the Term and such further time as Tenant occupies any part of the Premises:

5.1 Payments

To pay when due all Fixed Rent and additional rent and all charges for utility services rendered to the Premises and, as further additional rent, all charges for additional services and utilities rendered pursuant to Section 4.2.

5.2 Repair and Yield Up

Except as otherwise provided in ARTICLE VI and Section 4.3, at its sole cost and expense, to keep the Premises in good order, repair and condition, and all glass in windows

(except uninsured glass in exterior walls of the Building unless the damage thereto is attributable to Tenant's negligence or misuse) and doors of the Premises whole and in good condition with glass of the same quality as that injured or broken, damage by fire and other casualty and reasonable wear only excepted, and at the expiration or termination of this Lease peaceably to yield up the Premises and all alterations and additions thereto in good order, repair and condition, damage by fire and other casualty excepted, first removing all goods and effects of Tenant and, if identified by Landlord for removal at the time that Tenant requested Landlord's approval, all alterations and additions made by Tenant and all partitions, and repairing any damage caused by such removal and restoring the Premises and leaving them clean and neat and in reasonably tenantable condition for office use.

5.3 Use

To use and occupy the Premises for the Permitted Uses, and not to injure or deface the Premises, or the Property, nor to permit in the Premises any auction sale, or inflammable fluids or chemicals (except that Tenant may keep and use in the Premises normal office supplies in full compliance with law), nor to permit any nuisance, or the emission from the Premises of any objectionable noise or odor, nor to use or devote the Premises or any part thereof for any purpose other than the Permitted Uses, nor any use thereof which is contrary to law or ordinance or liable to invalidate or increase the premiums for any insurance on the Building or liable to render necessary any alteration or addition to the Building.

5.4 Obstructions; Items Visible from Exterior; Rules and Regulations; Signs

Not to obstruct in any manner any portion of the Building not hereby leased or any portion thereof or of the Property; not without prior consent of Landlord to permit the painting or placing of any signs, curtains, blinds, shades, awnings, aerials or flagpoles, or the like, visible from outside the Premises; and to comply with Landlord's Rules and Regulations set forth in Exhibit E and all other reasonable Rules and Regulations now or hereafter made by Landlord, of which Tenant has been given notice, for the care and use of the Building and Lot and their facilities and approaches; Landlord shall not be liable to Tenant for the failure of other occupants of the Building to conform to such Rules and Regulations, but Landlord shall use reasonable efforts to enforce the same in a non-discriminatory manner against all tenants and occupants of the Building. Tenant's name shall be displayed on the tenant directory within the Building and on the doors to the Premises in accordance with Landlord's standard graphics or such other graphics as Landlord shall approve in its sole discretion. Except on such directory and doors to the Premises and on floors of the Building occupied solely by Tenant, no other signs for Tenant on the interior of the Building will be permitted without Landlord's consent which will not be unreasonably withheld.

5.5 Safety Appliances; Hazardous Materials

To keep the Premises equipped with all safety appliances required by law or ordinance or any other regulation of any public authority because of any use made by Tenant or its employees, agents, officers, customers or clients other than normal office use, and to procure all licenses and permits so required because of such use and, if requested by Landlord, to do any work so required because of such use, it being understood that the foregoing provisions shall not be construed to broaden in any way Tenant's Permitted Uses.

Tenant shall not cause, suffer or allow any hazardous materials to be used, generated, stored or disposed of on, under or about the Premises except in accordance with applicable law. Tenant shall defend, indemnify and save harmless Landlord from and against any injuries, claims, accidents, damages, liabilities and expenses and any contamination of or injury to the Premises or the Building or the Lot (including reasonable counsel fees) arising out of any breach of Tenant's obligations under this Section 5.5 or any storage, use, disposal or release of the foregoing materials by Tenant.

Tenant shall provide Landlord on February 1 and August 1 of each year of the Term with a list of the names and quantities of all hazardous materials generated, stored or used at the Premises (other than reasonable quantities of cleaning and office supplies). Material Safety Data Sheets shall be provided for all such substances. Storage of all hazardous materials shall be in accordance with applicable federal, state and local laws, regulations and ordinances. Tenant shall prepare and follow a spill prevention and countermeasure plan for such substances. Transfer and mixing of hazardous materials shall be performed in a designated area designed and operated to prevent spilling, leakage or runoff from escaping from the Premises. Tenant shall comply with all applicable OSHA rules applicable to its business and the handling of hazardous materials.

Tenant shall immediately notify Landlord both by telephone and in writing of any spill or unauthorized discharge or release of hazardous materials. At the expiration or termination of this Lease, Tenant shall yield up the Premises free of all hazardous materials and contaminants of any kind resulting from Tenant's use of the Premises or any action of Tenant, its employees, agents, contractors and invitees.

For purposes of this paragraph the term hazardous material shall mean, (i) "hazardous substances" or "toxic substances" or "oil" as those terms are defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9601, et seq., or the Hazardous Materials Transportation Act, 49 U.S.C. § 1801 or the Massachusetts Oil and Hazardous Material Release Prevention and Response Act, M.G.L. c. 21E; (ii) "hazardous wastes," as that term is defined by the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6901, et seq.; (iii) any pollutant or contaminant or hazardous, dangerous, or toxic chemicals, materials, or substances within the meaning of any other applicable federal, state, or local law, regulation, ordinance, or requirement relating to or imposing liability or standards of conduct concerning any hazardous, toxic, or dangerous waste substance or material; (iv) any radioactive material, including any source, special nuclear or by-product material as defined at 42 U.S.C. § 2011, et seq.; (v) asbestos in any form or condition; and (vi) polychlorinated biphenyls (PCBs) or substances or compounds containing PCBs.

5.6 Assignment; Sublease

(a) Without prior written consent of Landlord, not to assign, mortgage, pledge or otherwise transfer (directly or indirectly) this Lease or its rights hereunder, or to make any sublease, or to permit occupancy of the Premises or any part thereof by anyone other than

Tenant, except that Tenant may assign this Lease without Landlord's consent (but with at least thirty (30) days' prior written notice to Landlord) to (i) an entity controlling, controlled by or under common control with Tenant, or (ii) an entity purchasing all of Tenant's business, assets and liabilities, or (iii) an entity that succeeds to the interests of Tenant under this Lease by way of merger, consolidation, or corporate reorganization (each entity described in clauses (i), (ii) and (iii) of this sentence, a "Tenant Affiliate"), only if such Tenant Affiliate has a net worth at least equal to that of Tenant as of the date of this Lease. In connection with any proposed assignment or subletting, Tenant shall submit to Landlord in writing (i) the name of the proposed assignee or sublessee, (ii) such information as to its financial responsibility and standing as Landlord may reasonably require, (iii) all of the terms and provisions upon which the proposed assignment or subletting is to be made; and (iv) the nature of its business and proposed use of the Premises. Tenant shall supply such additional information as Landlord reasonably requests.

(b) Tenant shall not offer to make or enter into negotiations with respect to an assignment or sublease (i) to any tenant in the Building or the adjacent building at 880 Winter Street, Waltham, Massachusetts, (ii) to any party with whom, to Tenant's knowledge (after first consulting with Landlord), Landlord is then negotiating (or with which it has negotiated in the last six months) with respect to space in the Building or such adjacent building, (iii) to any party which would be of such type, character or condition as to be inappropriate as a tenant for a comparable office building, or (iv) unless the aggregate rent payable to Tenant equals or exceeds the then prevailing market rate rent for assigning or subleasing (as applicable) space comparable to the Premises in comparable office buildings in the Boston Metropolitan area.

(c) If Tenant intends to assign this Lease or sublease all or any part of the Premises, it shall notify Landlord thereof together with identification of the space involved and the contemplated economic terms, and Landlord shall have the option, exercisable by notice to Tenant (a "**Termination Notice**") given within thirty (30) days after receipt of any such notification and information, to terminate this Lease as of a date specified in such Termination Notice, which date shall not be less than thirty (30) or more than ninety (90) days after the date of such Termination Notice. If Tenant does not thereafter notify Landlord within two (2) business days following Tenant's receipt of such Termination Notice that Tenant no longer intends to assign this Lease or sublease all or any part of the Premises, as applicable, Landlord may exercise its right to terminate this Lease pursuant to the applicable provisions of this paragraph. If Tenant does so notify Landlord, then Landlord's Termination Notice shall be deemed waived and of no further force or effect, and this Lease shall continue in accordance with its terms. In no event shall Landlord's right of recapture apply in case of a sublease or assignment to a Tenant Affiliate.

(d) If Landlord does not exercise its right to terminate this Lease pursuant to the foregoing provisions, Landlord shall not unreasonably withhold or delay its consent to an assignment or subletting consistent with the information supplied by Tenant in its notification, provided that the terms and provisions of such assignment or subletting shall specifically make applicable to the assignee or sublessee all of the provisions of this Section 5.6 so that Landlord shall have against the assignee or sublessee all rights with respect to any further assignment and subletting which are set forth herein; no assignment or subletting shall affect the continuing primary liability of Tenant (which, following assignment, shall be joint and several with the assignee); no consent to any of the foregoing in a specific instance shall operate as a waiver in a

subsequent instance; and no assignment shall be binding upon Landlord or any of Landlord's mortgagees, unless Tenant shall deliver to Landlord an instrument in recordable form which contains a covenant of assumption by the assignee running to Landlord and all persons claiming by, through or under Landlord and Landlord and all of its mortgagees decide, in their sole discretion, to accept such assumption, but the failure or refusal of the assignee to execute such instrument of assumption shall not release or discharge assignee from its liability as Tenant hereunder. Should Landlord exercise its right to terminate this Lease to only a portion of the Premises, Tenant shall be obligated to reimburse Landlord for the cost of demising walls, doors and partitions in compliance with applicable codes and at Building standard finishes.

(e) It shall be reasonable for Landlord to refuse consent to any assignment or sublease to any governmental agency or to any entity which by reputation or expected use is not comparable to other types of tenants in the Building or to an entity which is a tenant of the Property or the adjacent building at 890 Winter Street, Waltham, Massachusetts, or to an entity which does not have, in Landlord's sole good faith determination, a satisfactory financial condition in relation to the obligations to be assumed under the assignment or sublease or if the assignment or sublease would cause Landlord to be in violation or any laws or any other lease, mortgage or other agreement. If Tenant disputes Landlord's decision to deny consent to an assignment or sublease, Tenant's sole remedy shall be to seek injunctive relief.

Without limitation of the rights of Landlord hereunder, if there is an assignment of this Lease by Tenant or a subletting of the Premises by Tenant to any person or entity other than a Tenant Affiliate at a rent which, in either case, exceeds the rent payable hereunder by Tenant, Tenant shall pay to Landlord, as additional rent, fifty percent (50%) of such excess rent (after deducting therefrom any reasonable costs incurred by Tenant for brokerage commissions, legal fees or fit up work or allowances in connection with such assignment or subletting). For purposes of this Section 5.6, the term "rent" shall mean all Fixed Rent, additional rent or other payment and/or consideration payable to Tenant.

The term "subletting" or "sublease" shall not only mean a sublease, but also any license or concession agreement or agreement for the use, occupancy or utilization of the Premises. Tenant shall reimburse Landlord for its reasonable legal and other expenses in connection with any request for consent under this Section.

5.7 Indemnity; Insurance; Waiver of Subrogation

A. To defend with counsel first reasonably approved by Landlord, save harmless, and indemnify Landlord, its agents and employees, from any liability for injury, loss, accident or damage to any person or property, and from any claims, actions, proceedings and expenses and costs in connection therewith (including without limitation reasonable counsel fees), (i) arising from (a) the omission, fault, willful act, negligence or other misconduct of Tenant, its employees, agents or invitees, or (b) any use made or thing done or occurring on the Premises not due to the negligence or willful misconduct of Landlord or its agents or employees, or (ii) resulting from the failure of Tenant to perform and discharge its covenants and obligations under this Lease;

B. In the event that Tenant fails to provide evidence of insurance required to be provided by Tenant in this Lease in accordance with Section 5.7E, Landlord shall be authorized (but not required) to procure such coverage in the amount stated with all costs thereof to be chargeable to Tenant and payable upon written invoice thereof.

C. The limits of insurance required by this Lease, or as carried by Tenant, shall not limit the liability of Tenant or relieve Tenant of any obligation thereunder, except to the extent provided for under Section 4.7(b) of this Lease. Any deductibles selected by Tenant shall be the sole responsibility of Tenant.

D. Tenant, at Tenant's expense, agrees to keep in force during the Term of this Lease:

(i) Commercial general liability insurance which insures against claims for bodily injury, personal injury, advertising injury, and property damage based upon, involving, or arising out of the use, occupancy, or maintenance of the Premises and the Property. Such insurance shall afford, at a minimum, the following limits:

Each Occurrence	$1,000,000
General Aggregate	$2,000,000
Products/Completed Operations Aggregate	$1,000,000
Personal and Advertising Injury Liability	$1,000,000
Fire Damage Legal Liability	$100,000
Medical Payments	$5,000

Any general aggregate limit shall apply on a per location basis. Tenant's commercial general liability insurance shall include Waltham Winter Street 880 LP and, Waltham Winter Street 890 LP and, Clarion Partners, LLC, and CB Richard Ellis – N.E. Partners, Limited Partnership, and their trustees, officers, directors, members, agents, and employees, Landlord's mortgagees, Landlord's property manager, Landlord's representatives and any other party reasonably requested by Landlord as additional insureds (the "**Additional Insured Parties**"). This coverage shall be written on the most current ISO CGL form (or its equivalent), shall include contractual liability, premises-operations and products-completed operations and shall contain an exception to any pollution exclusion which insures damage or injury arising out of heat, smoke, or fumes from a hostile fire. Such insurance shall be written on an occurrence basis and contain a standard separation of insureds provision.

(ii) Business automobile liability insurance covering owned, hired and non-owned vehicles with minimum limits of $1,000,000 combined single limit per occurrence.

(iii) Workers' compensation insurance in accordance with the laws of the state in which the Premises are located with employer's liability insurance in an amount not less than $1,000,000.

(iv) Umbrella/excess liability insurance, on an occurrence basis, that applies excess of the required commercial general liability, business automobile liability, and employer's liability policies with the following minimum limits:

Each Occurrence	$5,000,000
Annual Aggregate	$5,000,000

Umbrella/Excess liability policies shall contain an endorsement stating that any entity qualifying as an additional insured on the insurance stated in the Schedule of Underlying Insurance shall be an additional insured on the umbrella/excess liability policies, and that they apply immediately upon exhaustion of the insurance stated in the Schedule of Underlying Insurance as respects the coverage afforded to any additional insured. The umbrella/excess liability policies shall also provide that they apply before any other insurance, whether primary, excess, contingent or on any other basis, available to an additional insured on which the additional insured is a named insured (which shall include any self-insurance), and that the insurer will not seek contribution from such insurance.

(v) Property insurance "the equivalent of causes of loss – special form" including flood, earthquake, windstorm, theft, sprinkler leakage and boiler and machinery coverage on all of Tenant's trade fixtures, furniture, inventory and other personal property in the Premises, and on any alterations, additions, or improvements made by Tenant upon the Premises all for the full replacement cost thereof. Tenant shall use the proceeds from such insurance for the replacement of trade fixtures, furniture, inventory and other personal property and for the restoration of Tenant's improvements, alterations, and additions to the Premises. Landlord shall be named as loss payee with respect to alterations, additions, or improvements of the Premises where the Tenant cannot remove at the end of the lease term wherein ownership then reverts to the Landlord.

(vi) Business income and extra expense insurance with limits not less than one hundred percent (100%) of all rent and charges payable by Tenant under this Lease for a period of twelve (12) months.

E. All policies required to be carried by Tenant hereunder shall be issued by an insurance company licensed or authorized to do business in the state in which the Property is located with a rating of at least "A-: X" or better as set forth in the most current issue of Best's Insurance Reports, unless otherwise approved by Landlord. Tenant shall not do or permit anything to be done that would invalidate the insurance policies required herein. Liability insurance maintained by Tenant shall be primary coverage on behalf of the Additional Insured Parties and any policies of the Additional Insured Parties shall be non-contributory. Certificates of insurance, acceptable to Landlord, evidencing the existence and amount of each insurance policy required hereunder shall be delivered to Landlord prior to delivery or possession of the Premises and ten (10) days following each renewal date. Certificates of insurance shall evidence that the Additional Insured Parties are included as additional insureds on liability policies and that Landlord is included as loss payee on the property insurance with respect to alterations, additions, or improvements of the Premises where the Tenant cannot remove at the end of the lease term wherein ownership then reverts to the Landlord. Further, each policy shall contain provisions endeavoring to give Landlord and each of the other Additional Insured Parties at least thirty (30) days prior written notice of cancellation or non-renewal of coverage.

F. In the event that Tenant fails to provide evidence of insurance required to be provided by Tenant in this Lease, prior to the Commencement Date and thereafter during the Term, within ten (10) days following Landlord's request thereof, and thirty (30) days prior to the expiration of any such coverage, Landlord shall be authorized (but not required) to procure such coverage in the amount stated with all costs thereof to be chargeable to Tenant and payable upon written invoice thereof.

G. The limits of insurance required by this Lease, or as carried by Tenant, shall not limit the liability of Tenant or relieve Tenant of any obligation thereunder, except to the extent provided for under Section 4.7 above. Any deductibles selected by Tenant shall be the sole responsibility of Tenant.

H. Tenant insurance requirements stipulated in Section 5.7(D)(i) are based upon current industry standards. Landlord reserves the right to require additional coverage or to increase limits as industry standards change.

I. Should Tenant engage the services of any contractor to perform work in the Premises, Tenant shall ensure that such contractor carries commercial general liability, business automobile liability, umbrella/excess liability, worker's compensation and employers liability coverages in substantially the same forms as required of the Tenant under this Lease and in amounts approved by landlord and/or landlord's property manager. Contractor shall include Landlord and each of the other Additional Insured Parties as additional insureds on the liability policies required hereunder.

All policies required to be carried by any contractor shall be issued by and binding upon an insurance company licensed or authorized to do business in the state in which the Property is located with a rating of at least "A-: X" or better as set forth in the most current issue of Best's Insurance Reports, unless otherwise approved by Landlord. Certificates of insurance, acceptable to Landlord, evidencing the existence and amount of each insurance policy required hereunder shall be delivered to Landlord prior to the commencement of any work in the Premises. Further, each policy will contain provisions giving Landlord and each of the other Additional Insured Parties with at least thirty (30) days' prior written notice of any cancelation, non-renewal or material change in coverage. The above requirements shall apply equally to any subcontractor engaged by contractor.

J. Tenant waives any and all rights of recovery against Landlord for or arising out of damage to or destruction of any property of Tenant to the extent that Tenant's property insurance policies then in force or the policies required by this Lease, whichever is broader, insure against such damage or destruction.

5.8 Personal Property at Tenant's Risk

That notwithstanding anything to the contrary, all of the furnishings, fixtures, equipment, effects and property of every kind, nature and description of Tenant and all persons claiming by, through or under Tenant which, during the continuance of this Lease or any occupancy of the

Premises by Tenant or anyone claiming under Tenant, may be on the Premises or elsewhere in the Building or on the Lot shall be at the sole risk and hazard of Tenant, and if the whole or any part thereof shall be destroyed or damaged by fire, water or otherwise, or by the leakage or bursting of water pipes, steam pipes, or other pipes, by theft or from any other cause, no part of said loss or damage is to be charged to or be borne by Landlord, except that Landlord shall in no event be indemnified or held harmless or exonerated from any liability to Tenant or to any person, for any injury, loss, damage or liability to the extent such indemnity, hold harmless or exoneration is prohibited by law.

5.9 Right of Entry

To permit Landlord and its agents after reasonable notice (which may be oral) except in the case of an emergency: to examine the Premises at reasonable times and, if Landlord shall so elect, to make any repairs or replacements Landlord may deem necessary; to remove, at Tenant's expense, any alterations, additions, signs, curtains, blinds, shades, awnings, aerials, flagpoles, or the like not consented to in writing (where such consent is required under the terms of this Lease); and to show the Premises to prospective tenants and to prospective purchasers and mortgagees at all reasonable times. In exercising its rights under this paragraph, Landlord shall use reasonable efforts to avoid interference with Tenant's business.

5.10 Floor Load; Prevention of Vibration and Noise

Not to place a load upon the Premises exceeding an average rate of eighty (80) pounds of live load per rentable square foot of floor area (partitions shall be considered as part of the live load); Landlord reserves the right to prescribe the weight and position of all safes, files and heavy equipment which Tenant desires to place in the Premises so as properly to distribute the weight thereof; Tenant's business machines and mechanical equipment which cause vibration or noise that may be transmitted to the Building structure or to any other space in the Building shall be so installed, maintained and used by Tenant as to eliminate such vibration or noise.

5.11 Personal Property Taxes

To pay promptly when due all taxes which may be imposed upon personal property (including without limitation, fixtures and equipment) in the Premises to whomever assessed if failure to pay would result in a lien on the Property.

5.12 Payment of Legal Expenses

As additional rent, to pay all reasonable costs, counsel and other fees incurred by Landlord in connection with the successful enforcement by Landlord of any obligations of Tenant under this Lease.

5.13 Compliance with Insurance Regulations

Not to do or permit to be done any act or thing upon the Premises which will invalidate or be in conflict with the terms of the Massachusetts standard form of fire, boiler, sprinkler, water damage or other insurance policies covering the Building and the fixtures and property therein; Tenant shall, at its own expense, comply with all rules, regulations, and requirements of the

National Board of Fire Underwriters or any state or other similar body having jurisdiction, and shall not knowingly do or permit anything to be done in or upon the Premises in a manner which increases the rate of fire insurance upon the Building or on any property or equipment located therein. If activity, use, or occupancy by Tenant, its employees, agents or invitees in or upon the Premises results in the increase in the rate of fire insurance upon the Building, Landlord shall bill Tenant for such excess and Tenant shall promptly pay such excess insurance costs. Notwithstanding the foregoing, such billing by Landlord and payment by Tenant shall not waive Landlord's right to require such activity to cease.

ARTICLE VI

CASUALTY AND TAKING

6.1 Termination or Restoration; Rent Adjustment

If during the Term all or any substantial part of the Premises or the Building or the Lot are damaged materially by fire or other casualty or by action of public or other authority in consequence thereof, or are taken by eminent domain or Landlord receives compensable damage by reason of anything lawfully done in pursuance of public or other authority, this Lease shall terminate at Landlord's election, which may be made notwithstanding Landlord's entire interest may have been divested, by notice given to Tenant within forty-five (45) days after the date of casualty or taking specifying the effective date of termination. If this Lease is not so terminated by Landlord, Landlord shall provide to Tenant in writing within forty-five (45) days after the casualty or taking the estimate from a contractor engaged by Landlord of the cost of repair and when the Premises or the Common Areas of the Building, as the case may be, could be restored to proper condition for occupancy by Tenant. If such estimate is nine (9) months or more after the date of the casualty or taking, or if there is a taking of fifteen (15%) per cent or more of the area of the Premises or a taking of material portions of the Building or the Property providing access to the Premises or of a material portion of the parking areas and Tenant certifies to Landlord that the remainder of the Premises is insufficient for the operations of Tenant's business, then Tenant may terminate this Lease by written notice to Landlord within twenty (20) days after receipt of such estimate or the date possession of the Premises is taken, as the case may be. The effective date of termination specified by either Landlord or Tenant shall not be less than fifteen (15) nor more than thirty (30) days after the date of notice of such termination. Unless terminated pursuant to the foregoing provisions, this Lease shall remain in full force and effect following any such damage or taking, subject, however, to the following provisions. If in any such case the Premises are rendered unfit for use and occupancy and this Lease is not so terminated, Landlord shall use due diligence (following the expiration of the period in which Landlord or Tenant may terminate this Lease pursuant to the foregoing provisions of this Section 6.1) to put the Premises, or in case of taking what may remain thereof (excluding in case of both casualty and taking any items installed or paid for by Tenant which Tenant may be required to remove), into proper condition for use and occupancy (in the case of a taking to the extent permitted by the net award of damages and in the case of a casualty, to the extent of the net insurance proceeds and any retained amount), and a just proportion of the Fixed Rent and additional rent according to the nature and extent of the injury shall be abated from the date of such casualty or taking until the Premises or such remainder shall have been put by Landlord in such condition; and in case of taking which permanently reduces the area of the Premises, a just

proportion of the Fixed Rent and additional rent shall be abated for the remainder of the Term. In addition, if neither Landlord nor Tenant terminate this Lease as permitted above, and Landlord does not complete restoration of the Premises within 270 days after the date of the casualty or taking, Tenant shall have the right to terminate this Lease by written notice to Landlord.

6.2 Eminent Domain Award

Landlord reserves to itself any and all rights to receive awards made for damages to the Premises and Building and Lot and the leasehold hereby created, or any one or more of them, accruing by reason of exercise of eminent domain or by reason of anything lawfully done in pursuance of public or other authority. Tenant hereby releases and assigns to Landlord all Tenant's rights to such awards, and covenants to deliver such further assignments and assurances thereof as Landlord may from to time request. Tenant hereby irrevocably designates and appoints Landlord as its attorney-in-fact to execute and deliver in Tenant's name and on its behalf any such further assignments thereof. Notwithstanding the foregoing, Tenant shall be entitled to any damages for personal property of Tenant and for reasonable relocation expenses which are available to Tenant in a separate action or separate award.

6.3 Temporary Taking

In the event of taking of the Premises or any part thereof for temporary use, (i) this Lease shall be and remain unaffected thereby and rent shall not abate, and (ii) Tenant shall be entitled to receive for itself such portion or portions of any award made for such use with respect to the period of the taking which is within the Term, provided that if such taking shall remain in force at the expiration or earlier termination of this Lease, Tenant shall then pay to Landlord a sum equal to the reasonable cost of performing Tenant's obligations under Section 5.2 with respect to surrender of the Premises and upon such payment shall be excused from such obligations.

ARTICLE VII

DEFAULT

7.1 Events of Default

If any default, breach or failure of performance by Tenant of any agreement, covenant, condition, provision, or warranty contained herein continues, in cases of failure to pay Fixed Rent or additional rent or other payments required hereunder (i) within five (5) days after notice from Landlord to be given no more than two (2) times in any calendar year and otherwise (ii) on the date due, or in cases other than monetary defaults continuing for more than thirty (30) days after notice from Landlord and such additional time, if any, as is reasonably necessary to cure the default if the default is of such a nature that it cannot reasonably be cured in thirty (30) days provided Tenant commences to cure promptly and diligently pursues the cure to completion but in no case more than ninety (90) days after notice from Landlord; or if Tenant or any guarantor or any guarantors of any of Tenant's obligations under this Lease is not paying its debts as such debts become due, becomes insolvent, files or has filed against it (and in the case of an involuntary petition such is not dismissed within 30 days after the filing) a petition under any chapter of the U.S. Bankruptcy Code (or any similar petition under any insolvency law of any

jurisdiction), proposes any dissolution, liquidation, composition, financial reorganization or recapitalization with creditors, makes an assignment or trust mortgage for the benefit of creditors, or if a receiver, trustee, custodian or similar agent is appointed or takes possession with respect to any property or business of Tenant or such guarantor, then in any such case, whether or not the Term shall have begun, Landlord may immediately, or at any time while such default exists and without further notice, terminate this Lease by notice to Tenant, specifying the date on which this Lease shall terminate and this Lease shall come to an end on the date specified therein as fully and completely as if such date were the date herein originally fixed for the expiration of the Term, and Tenant shall then quit and surrender the Premises to Landlord, but Tenant shall remain liable as hereinafter provided.

7.2 Landlord's Rights and Tenant's Obligations after Termination

In the event that this Lease is terminated under any of the provisions contained in Section 7.1, Tenant covenants to pay forthwith to Landlord upon demand, as compensation, the excess of the total rent reserved for the residue of the Term over the fair market rental value of the Premises for said residue of the Term (after deduction of all anticipated expenses of reletting) discounted to present value determined by reference to The Wall Street Journal listing of "Treasury Bonds, Notes, and Bills" (representative of New York, based on transactions of $1,000,000 or more), of the yield to maturity on issues closest to the expiration of the Term of this Lease. In calculating the rent reserved there shall be included, in addition to the Fixed Rent and all additional rent, the value of all other considerations agreed to be paid or performed by Tenant for said residue. For purposes of clarification, Landlord shall not be obligated to wait for the original expiration of the Term of the Lease or until the Premises have been relet to exercise the foregoing remedy. Landlord may exercise such remedy immediately upon termination of the Lease, and Tenant shall be obligated to pay the applicable damages immediately upon Landlord's demand. In no event shall Tenant be entitled to a credit if the excess of the fair market rental value of the Premises for the residue of the Term exceeds the total rent reserved for the residue of the Term.

Tenant further covenants as an additional and cumulative obligation after any such termination to pay punctually to Landlord all the sums and perform all the obligations which Tenant covenants in this Lease to pay and to perform in the same manner and to the same extent and at the same time as if this Lease had not been terminated. In calculating the amounts to be paid by Tenant under the foregoing covenant Tenant shall be credited with any amount paid to Landlord as compensation as in this Section 7.2 provided and also with the net proceeds of any rent obtained by Landlord by reletting the Premises, after deducting reasonable expenses in connection with such reletting, including, without limitation, repossession costs, brokerage commissions, fees for legal services and expenses of preparing the Premises for such reletting, it being agreed by Tenant that Landlord may (but shall have no obligation to) (i) relet the Premises or any part or parts thereof, for a term or terms which may, at Landlord's option, be equal to or less than or exceed the period which would otherwise have constituted the balance of the Term and may grant such concessions and free rent as Landlord in its sole judgment considers advisable or necessary to relet the same, and (ii) make such alterations, repairs and decorations in the Premises as Landlord in its sole judgment considers advisable or necessary to relet the same, and no action of Landlord in accordance with the foregoing or failure to relet or to collect rent under reletting shall operate or be construed to release or reduce Tenant's liability as aforesaid.

In no event shall Tenant be entitled to a reletting credit that exceeds the amount due to Landlord under this Section 7.2.

In lieu of any other damages or indemnity and in lieu of full recovery by Landlord of all sums payable under all the foregoing provisions of this Section 7.2, Landlord may, by written notice to Tenant, at any time after this Lease is terminated under any of the provisions contained in Section 7.1 or is otherwise terminated for breach of any obligation of Tenant and before such full recovery, elect to recover, and Tenant shall thereupon pay, as liquidated damages, an amount equal to the aggregate of the Fixed Rent and additional rent accrued under Sections 2.6, 2.7 and 2.8 in the twelve (12) month period immediately prior to such termination plus the amount of Fixed Rent and additional rent of any kind accrued and unpaid at the time of termination and less the amount of any recovery by Landlord under the foregoing provisions of this Section 7.2 up to the time of payment of such liquidated damages. Landlord and Tenant acknowledge that: (i) it would be impossible or impracticable to fix the actual damages suffered by Landlord as a result of termination of this Lease pursuant to this Section 7.2; (ii) the amount of the liquidated damages represents a fair and reasonable compensation to Landlord for such damages; and (iii) the liquidated damages set forth in this Section 7.2 do not constitute a penalty.

Nothing contained in this Lease shall limit or prejudice the right of Landlord to prove for and obtain in proceedings for bankruptcy or insolvency by reason of the termination of this Lease, an amount equal to the maximum allowed by any statute or rule of law in effect at the time when, and governing the proceedings in which, the damages are to be proved.

ARTICLE VIII

MISCELLANEOUS

8.1 Notice of Lease; Consent and Approval; Notices; Bind and Inure

The titles of the Articles are for convenience only and are not to be considered in construing this Lease. Tenant agrees not to record this Lease, but upon request of either party both parties shall execute and deliver a notice of this Lease pursuant to M.G.L. c. 183 § 4, and if this Lease is terminated before the Term expires, an instrument in such form acknowledging the date of termination. Whenever any notice, approval, consent, request or election is given or made pursuant to this Lease it shall be in writing. Communications and payments shall be addressed if to Landlord at Landlord's Original Address or at such other address as may have been specified by prior notice to Tenant, and if to Tenant, at Tenant's Original Address or after the Commencement Date at the Premises, with a copy to Foley Hoag LLP, 155 Seaport Boulevard, Boston, MA 02210, Attn: Robert L. Birnbaum, Esq., or at such other place as may have been specified by prior notice to Landlord. Any communication so addressed shall be deemed duly given upon delivery in hand or one (1) business day after it is sent by overnight mail or by regularly recognized overnight courier which supplies a receipt therefor, or two (2) business days after it is mailed by registered or certified mail, return receipt requested. If Landlord by notice to Tenant at any time designates some other person to receive payments or notices, all payments or notices thereafter by Tenant shall be paid or given to the person designated until notice to the contrary is received by Tenant from Landlord. The obligations of this Lease shall run with the land, and this Lease shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns, subject to the limitations set forth in Section 0.

8.2 Landlord's Failure to Enforce

The failure of Landlord to seek redress for violation of, or to insist upon strict performance of, any covenant or condition of this Lease, shall not be deemed a waiver of such violation nor prevent a subsequent act which would have originally constituted a violation, from having all the force and effect of an original violation. The receipt by Landlord of Fixed Rent or additional rent with knowledge of the breach of any covenant of this Lease shall not be deemed a waiver of such breach. No provision of this Lease shall be deemed to have been waived by Landlord or Tenant unless such waiver is in writing signed by the party to be charged. No consent or waiver, express or implied, by Landlord or Tenant, to or of any breach of any agreement or duty shall be construed as a waiver or consent to or of any other breach of the same or any other agreement or duty.

8.3 Acceptance of Partial Payments of Rent; Delivery of Keys

No acceptance by Landlord of a lesser sum than the Fixed Rent and additional rent then due shall be deemed to be other than on account of the earliest installment of such rent due, nor shall any endorsement or statement on any check or any letter accompanying any check or payment as rent be deemed an accord and satisfaction, and Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such installment or pursue any other remedy in this Lease provided. The delivery of keys to any employee of Landlord or to Landlord's agent or any employee or other party thereof shall not operate as a termination of this Lease or surrender of the Premises.

8.4 Cumulative Remedies

The specific remedies to which Landlord may resort under the terms of this Lease are cumulative and are not intended to be exclusive of any other remedies or means of redress to which it may be lawfully entitled in case of any breach or threatened breach by Tenant of any provisions of this Lease. In addition to other remedies provided in this Lease, Landlord shall be entitled to the restraint by injunction of the violation or attempted or threatened violation of any of the covenants, conditions or provisions of this Lease or to a decree compelling specific performance of any such covenants, conditions or provisions.

8.5 Partial Invalidity

If any term of this Lease, or the application thereof to any person or circumstances, shall to any extent be invalid or unenforceable, the remainder of this Lease, or the application of such term to persons or circumstances other than those as to which it is invalid or unenforceable shall not be affected thereby, and each term of this Lease shall be valid and enforceable to the fullest extent permitted by law.

8.6 Self-Help

If Tenant shall at any time default in the performance of any obligation under this Lease and such default shall continue for more than five (5) days after notice from Landlord plus such additional time, if any, as is reasonably necessary (but in no event to exceed thirty (30) additional days) to cure the default if the default is of such a nature that it cannot reasonably be cured in five (5) days provided Tenant commences to cure promptly and diligently pursues the cure to completion (except in the case of emergencies when no notice shall be required), Landlord shall have the right, but shall not be obligated, to enter upon the Premises and to perform such obligation notwithstanding the fact that no specific provision for such substituted performance by Landlord is made in this Lease with respect to such default. In performing such obligation, Landlord may make any payment of money or perform any other act. All sums so paid by Landlord (together with interest at the rate of two and one-half (2.5%) percentage points over the then prevailing prime rate as published in The Wall Street Journal) and all necessary incidental costs and expenses in connection with the performance of any such act by Landlord, shall be deemed to be additional rent under this Lease and shall be payable to Landlord immediately on demand. Landlord may exercise the foregoing rights without waiving any other of its rights or releasing Tenant from any of its obligations under this Lease.

8.7 Estoppel Certificate

Each party agrees from time to time, upon not less than fifteen (15) business days' prior written request by the other party, to execute, acknowledge and deliver to the requesting party a statement in writing certifying, to the extent the same are accurate, that this Lease is unmodified and in full force and effect and that there are no uncured defaults of Landlord or Tenant under this Lease, and if Landlord is the requesting party that Tenant has no defenses, offsets or counterclaims against its obligations to pay the Fixed Rent and additional rent and to perform its other covenants under this Lease (or, if there have been any modifications that the same is in full force and effect as modified and stating the modifications and, if there are any defenses, offsets, counterclaims, or defaults, setting them forth in reasonable detail), the dates to which the Fixed Rent, additional rent and other charges have been paid and such other matters relating to the Lease as may be reasonably requested. Any such statement delivered pursuant to this Section 8.7 may be relied upon by a prospective purchaser or mortgagee of the Property or any prospective assignee of any mortgagee of the Property, or by a prospective assignee of Tenant's interest in this Lease, as the case may be.

8.8 Waiver of Subrogation

Any property damage insurance carried by either party with respect to the Premises or property therein shall include a clause or endorsement denying to the insurer rights of subrogation against the other party. Each party, notwithstanding any provisions of this Lease to the contrary, hereby waives any rights of recovery against the other for injury or loss due to hazards covered by such insurance to the extent of the indemnification received thereunder.

8.9 All Agreements Contained; Independent Covenants; Construction

This Lease contains all of the agreements of the parties with respect to the subject matter thereof and supersedes all prior dealings between them with respect to such subject matter. Each term, covenant, agreement, obligation or other provision of this Lease on Tenant's part to be performed shall be deemed and construed as a separate and independent covenant of Tenant, not dependent upon any of the other terms of this Lease. This Lease shall be construed without regard to any presumption or other rule requiring construction against the party causing this Lease to be drafted.

8.10 Brokerage

Each party represents that it has had no dealings with any broker or agent other than the Broker(s) identified in Section 1.2 in connection with this Lease and covenants to defend, hold harmless and indemnify the other party and its agents from and against any and all cost, expense or liability resulting from a breach of the foregoing representation. Landlord will pay the commissions due the aforesaid Broker in accordance with separate commission agreements.

8.11 Submission Not an Option

The submission of this Lease or a summary of some or all of its provisions for examination does not constitute a reservation of or option for the Premises or an offer to lease, and it is not effective as a lease or otherwise until the execution by and delivery to both Landlord and Tenant.

8.12 Applicable Law

This Lease, and the rights and obligations of the parties hereto, shall be construed and enforced in accordance with the laws of the Commonwealth of Massachusetts.

8.13 Waiver of Jury Trial

LANDLORD AND TENANT HEREBY WAIVE TRIAL BY JURY IN ANY ACTION, PROCEEDING OR COUNTERCLAIM BROUGHT BY EITHER OF THE PARTIES HERETO AGAINST THE OTHER, ON OR IN RESPECT TO ANY MATTER WHATSOEVER ARISING OUT OF OR IN ANY WAY CONNECTED WITH THIS LEASE, THE RELATIONSHIP OF LANDLORD AND TENANT HEREUNDER, TENANT'S USE OR OCCUPANCY OF THE PREMISES, AND/OR CLAIM OF INJURY OR DAMAGES.

8.14 Access and Security

Tenant shall have access to the Premises at all times during the Term of this Lease, except in the event of an emergency or for safety precautions. The Building is accessed by an automated card key system. Landlord may require that parties desiring to enter the Building after regular office hours must provide proper identification. Tenant shall be responsible for any security required for Tenant's property in or around the Premises, including, but not limited to, the loading area. In connection with the foregoing, Tenant shall have the right, subject to the prior written consent of Landlord, to install a security system for Premises at Tenant's sole cost and expense.

8.15 Holdover

Should Tenant holdover in occupancy of the Premises after the expiration or other termination of the Term of this Lease, without the consent of Landlord, such holding over shall be as a tenant at sufferance and Tenant shall be liable to Landlord for (i) use and occupancy equal to the greater of one hundred and fifty percent (150%) percent of then-current market value rent or the Fixed Rent and additional rent in effect at the end of the Term, for the first month during such holding over, (ii) use and occupancy equal to the greater of two hundred percent (200%) percent of then-current market value rent or the Fixed Rent and additional rent in effect at the end of the Term, for each month after the first month of such holding over, and (iii) all damages sustained by Landlord on account of such holding over. The provisions of this Section shall not operate as a waiver of any right of reentry provided in this Lease.

8.16 Limitation on Liability

In consideration of the benefits accruing hereunder, Tenant hereby covenants and agrees that, in the event of any actual or alleged failure, breach or default hereunder by Landlord:

(a) The obligations of Landlord under this Lease do not constitute personal obligations of the members, trustees, individual partners, directors, officers or shareholders of Landlord or any constituent entity of Landlord, and Tenant shall not seek recourse against the members, trustees, partners, directors, officers or shareholders of Landlord or any constituent entity of Landlord, or any of their personal assets for satisfaction of any liability with respect to this Lease.

(b) Tenant's sole and exclusive remedy shall be against Landlord's interest in the Property.

(c) These covenants and agreements are enforceable by Landlord, and shall bind Tenant and its successors and assigns.

8.17 Security Deposit

On or prior to the date hereof, Tenant shall provide Landlord with a letter of credit in form and substance satisfactory to Landlord and from a financial institution satisfactory to Landlord in its reasonable judgment in the original amount of $77,163.25. Tenant shall maintain such letter of credit until the date that is forty-five (45) days after expiration of the Term. Tenant may reduce the security deposit to $51,442.17 on the first anniversary of the Rent Commencement Date, provided that no defaults have occurred under this Lease beyond applicable notice and grace periods, and further provided that upon any default by Tenant under the Lease beyond applicable notice and grace periods (even if occurring following such reduction), Tenant shall restore any amount of the letter of credit drawn by the Landlord on account of such default and increase the letter of credit to its original amount of $77,163.25 for the duration of the Term of the Lease. Such letter of credit may be drawn from time to time by Landlord upon Tenant's default of its obligations under this Lease beyond applicable notice and

grace periods, or if such letter of credit is about to expire and has not been renewed within thirty (30) days preceding such expiration. Should Landlord draw down the letter of credit, Tenant shall be obligated to restore it to its original amount. Landlord may assign the security deposit to a successor or transferee and, following the assignment, Landlord shall have no further liability with respect to the security deposit. If the letter of credit is drawn down and held by Landlord as a cash security deposit, Landlord (i) shall not be required to keep the security deposit separate from its other accounts, and (ii) shall return any unapplied portion of the security deposit to Tenant within forty-five (45) days after the later to occur of the expiration of the Term or the date Tenant surrenders the Premises to Landlord in compliance with Section 5.2.

8.18 Representations

Tenant guarantees, warrants and represents that (a) Tenant is duly incorporated or otherwise established or formed and validly existing under the laws of its state of incorporation, establishment or formation, (b)Tenant has and is duly qualified to do business in the state in which the Property is located, (c) Tenant has full corporate, partnership, trust, association or other appropriate power and authority to enter into this Lease and to perform all Tenant's obligations hereunder, (d) each person (and all of the persons if more than one signs) signing this Lease on behalf of Tenant is duly and validly authorized to do so and (e) neither (i) the execution, delivery or performance of this Lease nor (ii) the consummation of the transactions contemplated hereby will violate or conflict with any provision of documents or instruments under which Tenant is constituted or to which Tenant is a party.

Tenant guarantees, warrants and represents that none of (x) it, or (y) to the best of its actual knowledge, its affiliates, partners, members, shareholders or other equity owners or any of their respective employees, officers, directors, representatives or agents is a person or entity with whom U.S. persons or entities are restricted from doing business under regulations of the Office of Foreign Asset Control ("**OFAC**") of the Department of the Treasury (including those named on OFAC's Specially Designated and Blocked Persons List) or under any statute, executive order (including the September 24, 2001, Executive Order Blocking Property and Prohibiting Transactions with Persons Who Commit, Threaten to Commit, or Support Terrorism) or other similar governmental action.

ARTICLE IX

RIGHTS OF PARTIES HOLDING PRIOR INTERESTS

9.1 Lease Subordinate

This Lease shall be subject and subordinate to any mortgage now or hereafter on the Property, and to each advance made or hereafter to be made under any mortgage, and to all renewals, modifications, consolidations, replacements and extensions thereof and all substitutions therefor. Landlord represents that the Property is not presently encumbered by a mortgage. Tenant's obligation to subordinate this Lease to a future mortgage is expressly conditioned upon Tenant receiving from the holder thereof an agreement with Tenant in such holder's standard form by the terms of which such holder will agree to recognize the rights of Tenant under this Lease and to accept Tenant as tenant of the Premises under the terms and

conditions of this Lease in the event of acquisition of title by such holder through foreclosure proceedings or otherwise and Tenant will agree to recognize and attorn to the holder of such mortgage as Landlord in such event, which agreement shall be made expressly to bind and inure to the benefit of the successors and assigns of Tenant and of the holder and upon anyone purchasing the Premises at any foreclosure sale. Notwithstanding the foregoing, any such holder may at its election subordinate its mortgage to this Lease without the consent or approval of Tenant. Tenant agrees to execute and deliver any appropriate instruments containing terms and provisions commonly contained in such instruments necessary to carry out the agreements contained in this Section 9.1.

9.2 Rights of Holder of Mortgage to Notice of Defaults by Landlord and to Cure Same

No act or failure to act on the part of Landlord which would entitle Tenant under the terms of this Lease, or by law, to be relieved of Tenant's obligations hereunder or to terminate this Lease, shall result in a release or termination of such obligations or a termination of this Lease unless (i) Tenant shall have first given written notice of Landlord's act or failure to act to Landlord's mortgagees of record of whom Landlord has given Tenant notice, if any, specifying the act or failure to act on the part of Landlord which could or would give basis to Tenant's rights; and (ii) such mortgagees after receipt of such notice, have failed or refused to correct or cure the condition complained of within a reasonable time thereafter; but nothing contained in this Section 9.2 shall be deemed to impose any obligation on any such mortgagees to correct or cure any condition. "Reasonable time" as used above means and includes a reasonable time to obtain possession of the mortgaged premises if the mortgagee elects to do so and a reasonable time to correct or cure the condition if such condition is determined to exist.

[Signatures on following page]

EXECUTED as a sealed instrument in two or more counterparts on the day first above written.

LANDLORD:

WALTHAM WINTER STREET 890 LP, a
Delaware limited partnership, doing business in Massachusetts
as Waltham Winter Street 890 Limited Partnership

By: Waltham Sub GP LLC, a Delaware limited liability company, its General Partner

By: Clarion Partners, LLC, a New York limited liability company, its Manager

By: /s/ Brian Collins
Name: Brian Collins
Title: Authorized Signatory

TENANT:

ARSANSIS, INC., a Delaware corporation:

By: /s/ Noah Oshry
Name: Noah Oshry
Title: Executive Director – U.S. Business Operations

EXHIBIT A

Property Description

That certain parcel of land situate in the City of Waltham in the County of Middlesex, Commonwealth of Massachusetts, described as follows:

Parcel 1:

Lot 3 as shown on Land Court Plan No. 30618C.

Parcel 2:

Lot N as shown on plan entitled “Plan of Land in Waltham, Massachusetts prepared for 880 Winter Street, L.L.C. and 890 Winter Street, L.L.C.” dated May 19, 1998 by Martinage Engineering Associates, Inc. and recorded with the Middlesex South District Registry of Deeds as Plan No. 734 of 1998.

EXHIBIT B

Floor Plan

[TO BE ATTACHED]

EXHIBIT C

[RESERVED]

EXHIBIT D

Landlord's Services

I. Cleaning

A. Office Area

Daily on Business Days:

1. Empty and clean all waste receptacles and ash trays and remove waste material from the Premises; wash receptacles as necessary.
2. Sweep and dust mop all non-carpeted areas.
3. Vacuum all rugs and carpeted areas.
4. Hand dust and wipe clean with treated cloths all horizontal surfaces including furniture, office equipment, window sills, door ledges, chair rails, and convector tops, within normal reach.
5. Wash clean all water fountains.
6. Remove and dust under all desk equipment and telephones and replace same.
7. Wipe clean all brass and other bright work.
8. Hand dust all grill work within normal reach.
9. Upon completion of cleaning, all lights will be turned off and doors locked, leaving the Premises in an orderly condition

Weekly:

1. Dust coat racks and the like.
2. Remove all finger marks from private entrance doors, light switches and doorways.
3. Clean all interior glass, including sidelights and conference room glass walls.

Monthly:

4. All vinyl floor surfaces will be cleaned

Quarterly:

Render high dusting not reached in daily cleaning to include:

5. Dusting all pictures, frames, charts, graphs and similar wall hangings.
6. Dusting all pipes, ducts and high moldings.
7. Dusting all venetian blinds.

B. Lavatories

Daily on Business Days:

1. Sweep and damp mop floors.
2. Clean all mirrors, powder shelves, dispensers and receptacles, bright work, flushometers, piping and toilet seat hinges.
3. Wash both sides of toilet seats.
4. Wash all basins, bowls and urinals.
5. Dust and clean all powder room fixtures.
6. Empty and clean paper towel and sanitary disposal receptacles.
7. Remove waste paper and refuse.
8. Refill tissue holders, soap dispensers, towel dispensers, vending sanitary dispensers; materials to be furnished by Landlord.
9. A sanitizing solution will be used in all lavatory cleaning.

Monthly:

10. Machines scrub lavatory floors.
11. Wash all partitions and tile walls in lavatories.

C. Main Lobby, Elevators, Building Exterior and Corridors

Daily on Business Days:

1. Sweep and wash all floors.
2. Wash all rubber mats.
3. Clean elevators, wash or vacuum floors, wipe down walls and corridors.
4. Spot clean any metal work inside lobby.
5. Spot clean any metal work surrounding Building entrance doors.
6. Clean glass, where appropriate.

Monthly:

All resilient tile floors in public areas to be treated equivalent to spray buffing.

As Needed:

Ash urns in Building exterior.

D. Exterior Windows

Biannually:

Wash exterior windows.

II. Heating, Ventilating and Air Conditioning

A. Heating, ventilating, and air conditioning ("HVAC") as required to provide reasonably comfortable temperatures for normal business day occupancy (excepting holidays); Mondays through Fridays from 8:00 am to 6:00 pm and 9 am to 1 pm on Saturdays, provided that as part of Landlord's environmental commitment, Saturday morning's HVAC services are provided only as requested by each tenant of the Building. HVAC provided during days or hours other than those described herein shall be provided to Tenant at the rate established by Landlord, currently $60 per hour.

B. Maintenance and use of any additional or special air conditioning equipment and the associated operating cost will be at Tenant's expense. A 24-hour notice is needed to program additional comfort.

C. Holidays are defined for all purposes of this Lease, as the following days: New Year's Day, Martin Luther King Day, President's Day, Patriot's Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day and Christmas, and other days defined as "legal holidays" for the entire state under the laws of the Commonwealth of Massachusetts.

III. Water

Hot and cold water, in reasonable quantities, for lavatory, pantry, drinking and toilet purposes.

IV. Elevators (Passenger and Freight)

A. Passenger: Elevators for the use of all tenants and the general public for access to and from all floors of the Building.

B. Freight: Elevators for use by all tenant deliveries for access to and from all floors of the Building.

C. Building Directory: Landlord will furnish and install Building Directory tablets, at Landlord's expense, and the number of listings thereon for Tenant and any permitted occupants of the Premises shall be at the discretion of Landlord.

V. Electricity

A. Electricity to the Premises as set forth in Section 2.9 of the Lease. Tenant's use of electric energy in Tenant's Space shall not at any time exceed the capacity of any of the

electrical conductors or equipment in or otherwise serving Tenant's Space. In order to ensure that such capacity is not exceeded and to avert possible adverse effect upon the Building electric service, Tenant shall not, without prior written notice to Landlord in each instance, connect to the Building electric distribution system any fixtures, appliance or equipment which operate on a voltage in excess of 120 volts nominal or make any material alteration or addition to the electrical system of Tenant's Space. All additional risers or other equipment required by Tenant shall be provided by Landlord and the cost thereof shall be paid by Tenant upon Landlord's demand.

B. Lighting of the parking areas, walkways, Building entrance, lobbies, elevators and other common areas of the Building.

VI. Lot.

A. Snow and ice removal from the driveways, parking areas, walkways and Building entrance.

B. Landscaping consistent with a first-class office park in the Route 128 West Office market.

EXHIBIT E

Landlord's Rules and Regulations

I. The following regulations are generally applicable:

1. The public sidewalks, entrances, passages, courts, elevators, vestibules, stairways, corridors or halls shall not be obstructed or encumbered by Tenant (except as necessary for deliveries) or used for any purpose other than ingress and egress to and from the Premises.

2. Landlord shall furnish Building standard blinds for all exterior windows. No awnings, curtains, blinds, shades, screens or other projections shall be attached to or hung in, or used in connection with, any exterior window of the Premises or any outside wall of the Building. Such awnings, curtains, blinds, shades, screens or other projections must be of a quality, type, design and color, and attached in the manner, approved by Landlord.

3. No show cases or other articles shall be put in front of or affixed to any part of the exterior of the Building, nor placed in the halls, corridors or vestibules.

4. The water and wash closets and other plumbing fixtures shall not be used for any purposes other than those for which they were designed and constructed, and no sweepings, rubbish, rags, acids or like substances shall be deposited therein. All damages resulting from any misuse of the fixtures by Tenant shall be borne by the Tenant.

5. Tenant shall not use the Premises or any part thereof, or permit the Premises or any part thereof to be used, for manufacturing. Tenant shall not use the Premises or any part thereof or permit the Premises or any part thereof to be used as a public employment bureau or for the sale of property of any kind at auction, except in connection with Tenant's business.

6. Tenant must upon the termination of its tenancy, restore to the Landlord all locks, cylinders and keys to offices and toilet rooms of the Premises.

7. The Landlord reserves the right to exclude from the Building between the hours of 6 p.m. and 8 a.m. and at all hours on Sunday and holidays all persons connected with or calling upon the Tenant who do not present a pass to the Building signed by the Tenant. Tenant shall be responsible for all persons for whom it issues any such pass and shall be liable to the Landlord for all wrongful acts of such persons.

8. The requirements of Tenant will be attended to only upon application at the Building Superintendent's Office. Employees of Landlord shall not perform any work or do anything outside of their regular duties, unless under special instructions from the office of the Landlord.

9. There shall not be used in any space, or in the public halls of the Building, either by Tenant or by jobbers or others, in the delivery or receipt of merchandise, any hand trucks, except those equipped with rubber tires and side guards.

10. No bicycles, vehicles or animals of any kind shall be brought into or kept in or about the Premises, except guide dogs where necessary.

11. No Tenant shall make, or permit to be made, any unseemly or disturbing noises or disturb or interfere with occupants of this or neighboring building or premises or those having business with them whether by use of any musical instrument, radio, talking machine, unmusical noise, whistling, singing, or in any other way. No Tenant shall throw anything out of the doors, windows or skylights or down the passageways.

12. The Premises shall not be used for lodging or sleeping or for any immoral or illegal purpose.

13. No smoking shall be permitted in the Premises or the Building. Smoking shall only be permitted in smoking areas outside of the Building which have been designated by the Landlord.

14. Tenants shall reasonably cooperate with Landlord in obtaining maximum effectiveness of the cooling system by closing draperies when the sun's rays fall directly on the windows of the Premises.

15. Landlord shall have the right, exercisable without notice and without liability to any tenant, to change the name and street address of the Building. Landlord shall promptly notify Tenant after any such changes have been made.

16. Any person desiring to use the health and fitness facility shall first execute and deliver to the Landlord a liability waiver form prepared by the Landlord.

II. The following regulations are applicable to any additions, alterations or improvements being undertaken by or for Tenant in the Premises:

A. General

1. All alterations to be made by Tenant in, to or about the Premises shall be subject to Landlord's prior written approval and made in accordance with the requirements of this Exhibit and by contractors, subcontractors and/or mechanics approved by Landlord, such approval not be unreasonably withheld or delayed; provided, however, Landlord's consent shall not be required for alterations of a cosmetic nature (such as painting, carpeting, wall papering).

2. Tenant shall, prior to the commencement of any work, submit for Landlord's written approval, complete plans for the alterations except that no plans or drawings shall be required for cosmetic alterations (such as painting, carpeting, wall papering). Drawings are to be complete with full details and specifications for all of the alterations.

3. Alterations must comply with the Building Code applicable to the Property and the requirements, rules and regulations of any governmental agencies having jurisdiction over the Property.

4. No work shall be permitted to commence without the Landlord being furnished with a valid permit and all other necessary approvals from agencies having jurisdiction.

5. All demolition, removals or other categories of work that may inconvenience other tenants or disturb Building operations, must be scheduled and performed before or after normal Business Hours and Tenant shall provide the Building manager with at least 24 hours' notice prior to proceeding with such work.

6. All inquiries, submissions, approvals and all other matters regarding alterations to the Premises shall be processed through the Building manager.

B. Prior to Commencement of Work

1. Tenant shall submit to the Building manager a request to perform the work. The request shall include the following enclosures:

(i) A list of Tenant's contractors and/or subcontractors for Landlord's approval.

(ii) Where appropriate, four complete sets of plans and specifications properly stamped by a registered architect or professional engineer.

(iii) A properly executed building permit application form.

(iv) Four executed copies of the Insurance Requirements agreement in the form attached to this Lease as Exhibit F from Tenant's contractor and if requested by Landlord from the contractor's subcontractors.

(v) Contractor's and subcontractor's insurance certificates including an indemnity in accordance with the Insurance Requirements agreement.

2. Landlord will return the following to Tenant:

(i) Two sets of plans approved or a disapproval with specific comments as to the reasons therefor (such approval or comments shall not constitute a waiver of approval of governmental agencies) along with Landlord's response to Tenant's request for identification of alterations that will be required to be removed at the expiration of the Term, as more fully provided in Section 5.2 of the Lease.

(ii) Two fully executed copies of the Insurance Requirements agreement.

3. Tenant shall obtain a building permit from the Building Department and necessary permits from other governmental agencies. Tenant shall be responsible for keeping current all permits. Tenant shall submit copies of all approved plans and permits to Landlord and shall post the original permit on the Premises prior to the commencement of any work. All work, if performed by a contractor or subcontractor, shall be subject to reasonable supervision and inspection by Landlord's Construction Representative. Such supervision and inspection shall be at Tenant's sole expense and Tenant shall pay Landlord's reasonable charges for such supervision and inspection.

C. Requirements and Procedures

1. All structural and floor loading requirements shall be subject to the prior approval of Landlord's structural engineer.

2. All mechanical (HVAC, plumbing and sprinkler) and electrical requirements shall be subject to the approval of Landlord's mechanical and electrical engineers and all mechanical and electrical work shall be performed by contractors approved by Landlord, which approval shall not be unreasonably withheld or delayed. When necessary, Landlord will require engineering and shop drawings, which drawings must be approved by Landlord before work is started, not to be unreasonably withheld or delayed. Drawings are to be prepared by Tenant and all approvals shall be obtained by Tenant.

3. Elevator service for construction work shall be without charge to Tenant. Prior arrangements for elevator use shall be made with Building manager by Tenant. No material or equipment shall be carried under or on top of elevators. If an operating engineer is required by any union regulations, such engineer shall be paid for by Tenant.

4. If shutdown of risers and mains for electrical, HVAC, sprinkler and plumbing work is required, such work shall be supervised by Landlord's Construction Representative. No work will be performed in Building mechanical equipment rooms without Landlord's approval and under Landlord's supervision.

5. Tenant's contractor shall:

(i) have a superintendent or foreman on the Premises at all times that construction is active;

(ii) police the job at all times, continually keeping the Premises orderly;

(iii) maintain cleanliness and protection of all areas, including elevators and lobbies;

(iv) protect the front and top of all peripheral HVAC units and thoroughly clean them at the completion of work;

(v) block off supply and return grills, diffusers and ducts to keep dust from entering into the Building air conditioning system; and

(vi) avoid the disturbance of other tenants.

6. If Tenant's contractor is negligent in any of its responsibilities, Tenant shall be charged for corrective work.

7. All equipment and installations must be equal to the standards generally in effect with respect to the remainder of the Building. Any deviation from such standards will be permitted only if indicated or specified on the plans and specifications and approved by Landlord.

8. A properly executed air balancing report signed by a professional engineer shall be submitted to landlord upon the completion of all HVAC work.

9. Upon completion of the alterations, Tenant shall submit to Landlord a permanent certificate of occupancy and final approval by the other governmental agencies having jurisdiction, where required.

10. Where appropriate, Tenant shall submit to Landlord a final "as-built" set of drawings showing all items of the alterations in full detail.

11. Additional and differing provisions in the Lease, if any, will be applicable and will take precedence.

III. The following regulations shall be effective with respect to any plans or specifications that Tenant is required to prepare under the Lease:

Whenever Tenant shall be required by the terms of the Lease to submit plans to Landlord in connection with any improvement or alteration to the Premises, such plans shall include at least the following:

1. Floor plan indicating location of partitions and doors (details required of partition and door types).

2. Location of standard electrical convenience outlets and telephone outlets.

3. Location and details of special electrical outlets: e.g., photocopiers, etc.

4. Reflected ceiling plan showing layout of standard ceiling and lighting fixtures. Partitions to be shown lightly with switches located indicating fixtures to be controlled.

5. Locations and details of special ceiling conditions, lighting fixtures, speakers, etc.

6. Location and specifications of floor covering, paint, or paneling with paint colors referenced to standard color system.

7. Finish schedule plan indicating wall covering, paint, or paneling with paint colors referenced to standard color system.

8. Details and specifications of special millwork, glass partitions, rolling doors and grilles, blackboards, shelves, etc.

9. Hardware schedule indicating door number keyed to plan, size, hardware required including butts, latchsets or locksets, closures, stops and any special items such as thresholds, soundproofing, etc. Keying schedule is required.

10. Verified dimensions of all built-in equipment (file cabinets, lockers, plan files, etc.)

11. Location and weights of storage files.

12. Location of any special soundproofing requirements.

13. Location and details of special floor areas exceeding 50 pounds of live load per square foot.

14. All structural, mechanical, plumbing and electrical drawings, to be prepared by the base building consulting engineers, necessary to complete the Premises in accordance with Tenant's plans.

15. All drawings to be uniform size (30' x 46') and shall incorporate the standard project electrical and plumbing symbols and be at a scale of 1/8" = 1' or larger.

16. All drawings shall be stamped by an architect (or, where applicable, an engineer) licensed in the jurisdiction in which the Property is located and without limiting the foregoing, shall be sufficient in all respects for submission to applicable governmental authorities in connection with a building permit application.

17. Landlord's approval of the plans, drawings, specifications or other submissions in respect of any work, addition, alteration or improvement to be undertaken by or on behalf of Tenant shall create no liability or responsibility on the part of Landlord for their completeness, design sufficiency or compliance with requirements of any applicable laws, rules or regulations of any governmental or quasi-governmental agency, board or authority.

EXHIBIT F

CONTRACTOR'S INSURANCE

Building: 890 Winter Street, Waltham, MA

Tenant: _____

Premises: _____ Rentable Square Feet of Space in the Building.

The undersigned contractor or subcontractor ("**Contractor**") has been hired by the tenant or occupant (hereinafter called "**Tenant**") of the Building named above or by Tenant's contractor to perform certain work ("**Work**") for Tenant in the Premises identified above. Contractor and Tenant have requested the undersigned landlord ("**Landlord**") to grant Contractor access to the Building and its facilities in connection with the performance of the Work and Landlord agrees to grant such access to Contractor upon and subject to the following terms and conditions:

1. Contractor agrees to indemnify and save harmless the Landlord, Landlord's affiliates and their respective officers, employees, agents, members and partners and each of them, from and with respect to any claims, demands, suits, liabilities, losses and expenses, including reasonable attorneys' fees, arising out of or in connection with the Work (and/or imposed by law upon any or all of them) because of personal injuries, bodily injury (including death at any time resulting therefrom) and loss of or damage to property, whether such injuries to person or property are claimed to be due to negligence of the Contractor, Tenant, Landlord or any other party entitled to be indemnified as aforesaid except to the extent specifically prohibited by law (and any such prohibition shall not void this Agreement but shall be applied only to the minimum extent required by law).

2. Contractor shall provide and maintain at its own expense, until completion of the Work, the following insurance:

(a) Worker's Compensation (including coverage for Occupational Disease) and Employers Liability Insurance covering each and every workman employed in, about or upon the Work, as provided for in each and every statute applicable to Workmen's Compensation and Employers' Liability Insurance.

(b) Comprehensive General Liability Insurance including coverages for Protective and Contractual liability (to specifically include coverage for the indemnification clause of this Agreement) for not less than the following limits:

(c) Personal Injury: $3,000,000 per person, $5,000,000 per occurrence

(d) Property Damage: $3,000,000 per occurrence $3,000,000 aggregate

(e) Comprehensive Automobile Liability Insurance (covering all owned, non-owned and/or hired motor vehicles to be used in connection with the Work) for not less than the following limits:

(i) Bodily Injury: $1,000,000 per person, $1,000,000 per occurrence

(ii) Property Damage: $1,000,000 per occurrence

(f) Contractor shall furnish a certified from its insurance carrier or carriers to the Building office before commencing the Work, showing that it has complied with the above requirements regarding insurance and providing that the insurer will endeavor to give Landlord ten (10) days' prior written notice of the cancellation of any of the foregoing policies.

(g) Contractor shall require all of its subcontractors engaged in the Work to provide the following insurance:

(i) Comprehensive General Liability Insurance including Protective and Contractual Liability coverages with limits of liability at least equal to the limits stated in paragraph 2(b).

(ii) Comprehensive Automobile Liability Insurance (covering all owned, non-owned and/or hired motor vehicles to be used in connection with the Work) with limits of liability at least equal to the limits stated in paragraph 2(c).

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Upon the request of Landlord, Contractor shall require all of its subcontractors engaged in the Work to execute an Insurance Requirements Agreement in the same form as this Agreement.

Agreed to and executed this _____ day of _____, 20 .

LANDLORD:

Waltham Winter Street 890 LP, a Delaware limited partnership

By: Waltham Winter Street LLC, a Delaware limited liability company, its General Partner

By: Clarion Partners LLC, a New York limited liability company, its Manager

By: _____
Name:
Title:

CONTRACTOR:

_____

By: _____
Name:
Title:

Calculation of charges
by Marxbox Bauprojekt [Development] GmbH & Co.
OG
Percentage fee: 6,315.71
Date of the calculation: 12/16/2010

DUPLICATE

Vienna, on 12/16/2010

Marxbox Bauprojekt GmbH & Co. OG

LEASE AGREEMENT

Entered into by

Marxbox Bauprojekt GmbH & Co. OG
domiciled in Vienna
(FN 346428 d Commercial Court Vienna)
1021 Vienna, Messeplatz 1

referred to in the following as the *Landlord*, on the one hand,

and

ARSANIS Biosciences GmbH
domiciled in Vienna
(FN 354305 m Commercial Court Vienna)
Westbahnstrasse 32-34/1/12
1070 Vienna

referred to in the following as the *Tenant*, on the other hand,

as follows:

Preamble

The *Landlord* is the sole owner of the property EZ 4359 Land Register 01006 Landstraße, District Court Inner City Vienna, consisting of Lot No. 1449/3.

With the notice of 02/18/2009, Number MA 37-BB/48393-1/2008, the Magistrate of the City of Vienna, Municipal Department 37, Building Inspection, issued the building permit for the

construction of a seven story laboratory and office building with two basement levels in massive construction on the above-named project property (referred to in the following as *building permit*); this notice (Attachment ./1) has become final and absolute. The building is a new construction being built by the *Landlord* without the aid of public funds. The location of the building can be seen in the site plan (Attachment ./2).

The *Tenant* therefore takes note that the rental property is situated in a building that has been newly constructed without the aid of public funds on the basis of a building permit issued after 06/30/1953, so that by act of law only the provisions of §§ 14, 16b, 29 to 36, 45, 46 and 49, but not the other provisions of Sections I and II of the Tenancy Law 1981 as amended, referred to in the following as MRG (*Mietrechtsgesetz* [Tenancy Law]), apply to the Lease Agreement.

Therefore, with respect to the thus not expressly legally regulated areas of the Lease Agreement, only the provisions of the Lease Agreement, or subsidiarily those of the Austrian General Civil Code (*Allgemein Bürgerliches Gesetzbuch* ABGB), are binding for the contracting parties; the referral to individual provisions of the MRG does not mean that the MRG would become applicable to a greater extent beyond these expressly named, individual provisions of the MRG, or as whole.

I. Rental Property

1. The *Landlord* leases to the *Tenant* and the latter leases from the former the part of the 3rd upper floor that is marked in red in the contract plans (Attachment ./3) of the building 1030 Vienna, Helmut Qualtinger Gasse 2, being constructed on the property EZ 4359 Land Register 01006 Landstraße, District Court Inner City Vienna, with a dimension of ca. 698.10 m^2, a storage bay on the 2nd basement level with a dimension of ca. 25 m^2, and five garage parking spaces on the 1st basement level allocated by the Landlord (referred to together in the following as *rental property*).

2. The stated dimensions are preliminary; the actual dimension, upon which the final calculation of the rent will be based, will be determined from the as-completed drawings submitted to the building authority after completion of the rental property.

3. The obligations of the *Landlord* concerning the construction of the *rental property* while taking into account the official regulations applicable at the time of the building permit are finalized in the attached contract plans (Attachment ./3), which constitute an integral component of the Lease Agreement, or in the building and interior description (Attachment ./4), whereby fitments and/or systems, equipment and devices possibly included in Attachment ./3 - that are not also expressly named in the building and interior description (Attachment ./4) - have a purely illustrative character and do not create an obligation for the *Landlord* to provide the same. All changes or adaptations, systems, equipment and devices

needed for the operation of the *rental property* shall be performed or procured by the Tenant. The *Landlord* does, however, guarantee that the *rental property* is suitable from a structural perspective for obtaining an operational plant permit for operating a biotechnology laboratory.

4. The *Landlord* reserves the right to change or deviate from the aforementioned Attachments ./2 to ./4, if the change or deviation is minor, represents only a slight disadvantage for the *Tenant* and is objectively justified, such as in particular

   - changes or deviations based on legal or official regulations, orders or requirements,
   - changes or deviations based on static or technical requirements or structural necessity,
   - changes or deviations based on the selection of equivalent or higher quality materials, equipment, devices and the like as a result of lack of availability, technical incompatibility and the like.

5. The *Tenant* gives his explicit consent to such changes. The *Landlord* will take specific change requests of the *Tenant* (e.g. moving partition walls and architectural details), which do not require appreciable additional cost nor cause a major delay, into account as far as appropriate and possible; the relevant details are clarified with the *Landlord's* architect and recorded in an addendum to the building and interior description.

6. Only the interior space of the *rental property* is being leased, not its exterior surfaces and not the shared use parts and other general parts of the building.

7. The *Tenant* has the right,

   a) to place advertising or signs with his company name in the entrance area of the building in which the *rental property* is situated, at the locations designated for this purpose, and on the entrance door of the *rental property*, and

   b) to place an advertisement with the company logo "ARSANIS" on a side wall of the building in which the *rental property* is situated, facing the T-Center,

   for the duration of the tenancy (insofar as not otherwise specified at his own expense and risk), specifically upon prior written approval of the *Landlord* and in consultation with the architect, Municipal Departments 19 and 37 and the existence of all official permits (including the utilization tax) required for this purpose - to be applied for and obtained by the *Tenant* at his expense and risk (possibly also to be revoked at any time). The *Landlord* will deny approval only for important, objective reasons, such as for example a negative effect on the overall impression of the building.

The initial construction of a substructure for the advertisement to be placed on a side wall of the building in which the *rental property* is situated, facing the T-Center, is carried out by the *Landlord* and at his expense within two months after all official permits required for this purpose have been provided; all other structures, in particular the light box for the advertisement, are erected by the *Tenant* at his own expense and risk.

8. The *Tenant* acknowledges with approval that, even after transfer of the *rental property*, work may be performed in other properties and/or on general parts of the building and may cause disturbances resulting from noise or dirt. The Tenant acknowledges these impairments to use associated with construction work, for example resulting from noise and/or dirt, as long as these impairments do not prevent or seriously disrupt access to and provision of the *rental property* or use, i.e. the Tenant accepts the impairments typically associated with such a construction site.

II. Term of Lease

1. The tenancy starts with the transfer of the *rental property* (the transfer of the office spaces takes place within three months of the plan approval by the *Tenant,* which is, however, to occur no later than 12/15/2010; the transfer of the laboratory spaces takes place within four months of the plan approval by the *Tenant,* which is, however, to occur no later than 01/15/2011) and is finalized for an indefinite period.

2. After signing this Lease Agreement, the *Tenant* waives the right to terminate this Lease Agreement with statutory notice prior to a termination date of 04/30/2021. The *Landlord* accepts this waiver of termination.

3. In the event that the *Tenant* does not terminate this Lease Agreement with statutory notice prior to 04/30/2021, the waiver of termination will be extended without further declaration for one more year. The *Landlord* accepts this waiver of termination as well.

III. Transfer and Acceptance of the Rental Property

1. The transfer and acceptance of the *rental property* takes place as follows: with respect to the office spaces within three months of the plan approval; with respect to the laboratory spaces within four months of the plan approval. The obligation of the *Tenant* to pay the agreed upon rent, for the entire *rental property*, starts on the first of the month following the transfer of the office spaces.

2. Deficiencies that impede the further adaptation or use of the *rental property* only insignificantly have no effect on the obligation to accept the *rental property* and the payment of rent. A withdrawal of the *Tenant* from the contract requires a delay, for which the *Landlord* is responsible, of the transfer of the office spaces by at least six weeks or the transfer of the laboratory spaces by at least eight weeks.

3. The transfer of the *rental property* to the *Tenant* always requires the prior transfer of the bank guarantee in accordance with Item XV to the *Landlord*; the transfer of the bank guarantee is, however, already stipulated at the time of signing this Lease Agreement.

IV. Rent

1. The monthly rent consists of the base rent, the ancillary charges and the respective value added tax to be paid on the base rent and the ancillary charges.

2. Base rent:

i.) Spaces on the 3rd upper floor

The freely negotiated monthly base rent is €17.00/m2 (excl. VAT) with a useable area of ca. 698.10 m2.

ii.) Garage parking spaces

The freely negotiated monthly base rent is €98.50 (excl. VAT) per parking space.

iii.) Storage bay in the basement

The freely negotiated monthly base rent is €6.50/m2 (excl. VAT) with a useable area of ca. 25 m2.

Useable area in the sense of this Lease Agreement is the entire floor space of the *rental property* (without subtracting partition walls). Load-bearing walls, supports and general building service ducts as well as stairwell spaces are not counted as useable area.

The final determination of the useable area is carried out on the basis of the as-completed drawings submitted to the building authority available at transfer; each of the contracting parties reserves the right to determine the actual measurements, which will then be used.

3. Ancillary charges

The ancillary charges to be borne proportionately by the *Tenant* include all taxes, fees and charges relating to the property and the building mandated to the *Landlord* by law, regulation or official order, all operating costs in accordance with the list in §§ 21 ff. MRG as well as (regarding both content and amount) in particular the following expenses, insofar as they are not to be borne directly by the respective tenants:

- the costs of liability, fire, storm damage, glass breakage, machine failure and water pipe damage insurance and other property insurance at the reinstatement value;
- the expense of operation, care, upkeep, maintenance, repair, preservation and cleaning of the building (with the exception of the interior of rental properties) and the associated spaces, equipment and systems such as in particular the building equipment and systems for heating, ventilation, cooling, sanitation, elevators, fire protection, supply of power, water and media services, machines and the like, corridors, sluices, stairwells, exterior walls, exterior windows, roofs, technical rooms, trash rooms, lightning protection systems and green spaces, access paths, other common areas, etc.;
- the water and wastewater fees, the costs of chimney sweeping, sewer clearing, trash and refuse collection, pest control, waste disposal, sidewalk and street cleaning, snow removal and spreading, the costs of electricity for lights and power, irrigation and drainage, etc.;
- the expense of security, if any, for the building and the associated spaces, equipment and systems during the day and during the night, and the usual costs for professional management of the property and the building.

Within the context of economic viability, the *Landlord* or the building management reserves the right to hire personnel or commission third parties to perform the work or the services.

Therefore, according to the will of the contracting parties, all expenses incurred for the operation, care, upkeep, maintenance, repair, preservation and cleaning, as well as the management of the property, the building and the associated spaces, equipment and systems are included in the ancillary charges.

The fact that the *Tenant* does not make use of common systems does not release him from the obligation to pay a proportionate share of the expenses.

Until further assessment by the *Landlord*, the monthly advance payment of ancillary charges is €2.90 per m^2.

The *Landlord* has the right to increase and, in mutatis mutandis application of § 21 Par. 3 MRG, annually adapt the monthly advance payment of ancillary charges to the actual amount of the expenses incurred.

An annual lump sum accounting of the ancillary costs in mutatis mutandis application of § 21 Par. 3 MRG shall be understood as agreed upon. Should the annual accounting result in a surplus in the *Tenant's* favor, the *Landlord* shall apply this surplus amount to the next assessment or to any arrears owed by the *Tenant*; the *Tenant* shall make any additional payments no later than two weeks after the *Landlord's* assessment.

4. Apportionment of ancillary charges:

The share of the ancillary charges to be borne by the *Tenant* is generally determined by the proportion of the useable area of the *rental property* (to be calculated in the sense of this Lease Agreement) to the useable area of all rental properties in the building.

To the extent that individual consumption measurement devices for individual ancillary charges are in place, the *tenant* is obligated to pay the incurred costs (incl. energy costs, expenses for operation, care, upkeep and cleaning, etc.) based on the measured consumption for the *rental property* per se, or by apportionment to the respective *rental property* based on the share of consumption. Included are in particular

- the costs for heating, cooling and (cold) water (including wastewater that does not require treatment); this consumption is measured per rental unit by means of submeters; it is noted that the *rental property* will be connected to the district heating network;
- the costs of ventilation (incoming air and exhaust air); these are calculated proportionately according to the ratio of incoming air to the *rental property* to the overall quantity of incoming air (air adjustment key).

The operating expenses for the *rental property* itself and the cost of operating material, in particular the power and telephone costs, server cooling and additional cooling, otherwise needed by the *Tenant* to conduct business are borne by the *Tenant*. The same applies to the purchase of electricity procurement rights.

Insofar as, for certain expenditures for the *rental property*, for example for power, telecommunication (telephone, internet access, etc.), other media (TV, Telekabel [Austrian cable and internet provider], etc.), hazardous waste and special materials (e.g. nitrogen, oxygen), each including connection costs as well as operation, care, upkeep, maintenance,

repair, preservation and cleaning of the installations and systems, it is possible to contract and settle charges directly with the respective provider and/or other company, the *Tenant* commits himself to participate, to the greatest extent possible, in concluding an appropriate contract with the provider and/or other company and to settle charges directly with it.

5. Value Added Tax:

The *Landlord* opts for the obligation to pay taxes in accordance with § 6 Par. 2 UStG (*Umsatzsteuergesetz* [Valued Added Tax Act]). The *Tenant* declares himself in agreement with the exercising of this option. The value added tax payable on the rent and (proportionate) operating and ancillary charges at the appropriate statutory rate will therefore additionally be charged to the *Tenant*.

V. Rent Due Date

1. The monthly rent including all taxes, fees, ancillary costs, value added tax, etc. is due for payment in advance on the first of every month with a five-day grace period - independent of any assessment by the *Landlord* - and shall be paid to the account designated by the *Landlord* free of charges or deductions in such a way that the rent is received no later than on the due date.

2. The *Tenant* shall bear the risk for the timeliness of the rent payment.

3. Communications from the *Tenant* on payment receipts have no legal consequences. The *Tenant* acknowledges that such communications cannot be deemed to have been tacitly taken note of by the *Landlord*.

4. In the event that the *Tenant* is in arrears with the rent or other monetary claims of the *Landlord* arising out of this Lease Agreement, interest on arrears at the rate of 5% above the current base interest rate of the European Central Bank as agreed upon shall apply; however, the *Landlord* reserves the right to charge higher interest on arrears from the title of the payment of damages.

VI. Indexation

1. The agreed upon base rent is adjusted by linking to the Consumer Price Index 2005 announced by Statistik Austria [Austrian Statistical Office] or the successor index replacing it. In the event that no successor index is announced, the adjustment shall be calculated in such a way that it corresponds to the decrease/increase of the general purchasing power. The starting point for the adjustment is the index number announced for the month of the acceptance of the *rental property*.

2. The agreed upon base rent changes to the same extent that the named index changes with respect to the starting point. The base rent is adjusted once a year in January with effect for that current year. The new applicable index number becomes the new starting point. The increase/decrease of the base rent on the basis of the indexation not occurring directly after the corresponding increase in the index does not constitute a conclusive waiver of any increase/decrease.

VII. Obligations of Care, Upkeep and Maintenance

1. A handover protocol, in which any obvious deficiencies are to be recorded, shall be filled out upon transfer of the *rental property*; any deficiencies not apparent at the time of transfer shall be reported in writing within 14 days after being identified. Identified deficiencies shall be rectified by the *Landlord* within a reasonable period of time.

2. The *Tenant* commits himself to continually take care of the *rental property*, including its equipment and systems such as, e.g. the lighting, ventilation and water supply systems, and the heating and sanitary systems (as far as any of these are available), at his own expense after the transfer, have it verifiably serviced and maintained regularly by authorized tradesmen and rectify any damage immediately in such a way that the condition existing at the time of transfer is maintained and, accounting for normal wear and tear, the *rental property* is returned to the *Landlord* after the termination of the tenancy in the condition in which it was originally transferred to the *Tenant*. The *Tenant* acknowledges with approval that, due to laid cooling hoses and conduits in all concrete and screed elements in the *rental property* (in particularly in floors and ceilings), holes can be drilled after separate consultation with building services. Damage that can be attributed to obvious or hidden construction defects are not to be rectified by the *Tenant*.

3. The *Tenant* therefore does not require the *Landlord* to maintain the interior of the *rental property* in accordance with § 1096 ABGB; the interior of the *rental property* comprises the entire useable area of the rental property in the sense of this Lease Agreement (including power and water conduits as well as ventilation ducts in dividing walls and in the raised floor, EDP cabling, surfaces such as walls and floors, sanitary facilities, kitchen).

4. In the event of serious damage to the building, the *Tenant* commits himself to notify the *Landlord* of this immediately in writing.

5. If the *Tenant* does not fulfil his obligations with respect to care, upkeep and stipulated maintenance as well as damage repair, the *Landlord* can perform the required work himself, or have it performed, at the *Tenant's* risk and expense.

6. The *Tenant* shall be liable to the *Landlord* without limit for all damages and expenses incurred by the *Landlord* or third parties as a result of handling of the *rental property* or common parts of the building that is inappropriate or otherwise in violation of the agreement, or insufficient care, upkeep and stipulated maintenance by the *Tenant*, his employees, agents, visitors and generally all persons who can be associated with the *Tenant* in any way.

VIII. Changes to the Rental Property

1. Structural modifications of any kind to the *rental property* are to be announced by the *Tenant* in advance in writing and require the prior express written approval of the *Landlord*. This applies in particular to structural modifications in the form of special requests made known to the *Landlord* by the *Tenant* prior to transfer of the *rental property* and are consequently carried out in coordination with the *Landlord*. The work may be performed only by officially authorized tradesmen. The announcement to the *Landlord* shall include a detailed declaration of the type and extent of the intended work and the name of the prospective authorized tradesman. The *Tenant* shall, at his own expense and risk, ensure that any official permits are obtained in a timely manner and all relevant legal and official regulations, orders and provisions are fulfilled, as well as indemnify and hold the *Landlord* harmless with respect to any kind of injury.
2. In the event that the *Tenant* makes changes without the express written approval of the *Landlord*, the *Landlord* has the right to demand the immediate restoration of the original condition at the expense of the *Tenant*, even with the continued existence of the Lease Agreement.
3. In each case the *Tenant* shall bear all expenses connected with a modification of the *rental property* himself as well as indemnify and hold the *Landlord* harmless with respect to any expenses, damages, etc. The provisions of § 1097 second sentence ABGB are, insofar as these provisions refer to § 1037 ABGB, expressly waived.
4. If the *Landlord* has granted his express written approval to a structural modification, he cannot demand the restoration of the original condition upon termination of the Lease Agreement. Any investments connected to the rental property shall be transferred to the ownership of the *Landlord* without claim for cost reimbursement, whereby the *Tenant* waives the assertion of claims for compensation, under any title whatsoever.

IX. Limitations of Liability / Obligations to Tolerate

1. From impairments to the usability of the *rental property*, in particular by any disruptions or shut-offs of the water or energy supply, or in the case of defects or disruptions of the heating or cooling, the power, light, water and sewerage equipment or the like, the *Tenant* shall derive legal claims with respect to the compensation for damages only in the case of deliberate or grossly negligent causation on the part of the *Landlord*.

2. Any liability of the *Landlord* for damages of any kind is expressly limited to intentional wrongdoing and gross negligence.

3. The *Landlord* reserves the right to construct additions and extensions of any kind, as well as relocate, completely remove or use existing installations (not however the property that is the subject matter of the contract) for other purposes. The usability of the *rental property* may not be restricted by this activity.

4. The *Tenant* shall allow the temporary use and modification of the *rental property*, if and insofar as such an encroachment in the tenancy law is absolutely necessary for the performance of preservation, renovation, damage repair or improvement work to the general parts of the building or in another rental property.

5. The *Landlord* informs the *Tenant* that new construction, additional construction or renovation work is planned on the property that is the subject matter of the contract, or on the property adjacent to it, not only concerning the *rental property*, but also concerning adjacent building complexes. The Tenant acknowledges these impairments to use associated with construction work, for example resulting from noise and/or dirt, as long as these impairments do not prevent or very seriously disrupt access to and provision of the *rental property* or use, i.e. the Tenant accepts the impairments typically associated with such a construction site.

X. Entering the Rental Property

1. After advance notification and at reasonable intervals, the *Landlord* and persons authorized by him have the right to enter the *rental property* for objective reasons during the *Tenant's* business hours.

2. In case of imminent danger, the *Landlord* or the persons authorized by him have the right to enter the *rental property* even in the absence of the *Tenant*. If, in a case of imminent danger, the *rental property* is unattended and the *Tenant* cannot be notified within the required period of time, public authorities (police, fire department) may be involved at the expense of the *Tenant*. The fire department or the fire protection officer (the latter only in the presence of a fire warden who is an employee the Tenant, however) have the right to provide access using the general master key.

3. Upon notice of termination, dissolution or termination of the tenancy, the *Tenant* shall, within the notice period or the period to vacate the premises, in any case, however, within the last three months prior to termination until the actual return of the *rental property*, allow prospective tenants to view the premises during normal business hours after arranging a time with the *Tenant* (at most, however, three time a week).

XI. Purpose of Use / Subletting / Transferring the Rental Property to Third Parties

1. The *rental property* may be used exclusively for commercial purposes in connection with the development of pharmaceuticals, preclinical and clinical research and biotechnology as well as relevant laboratory activities (and connected or related activities). The *Tenant* shall comply with all legal and/or official regulations, orders and provisions applicable within the scope of his operation at his own expense and risk. The *Tenant* shall in particular also ensure that all waste arising from his operation is treated and disposed of in compliance with the relevant legal and official specifications, orders and provisions; if possible via a direct contract between the *Tenant* and the waste disposal company.

   All official permits required for the business operation of the *Tenant*, including the operational plant permit and supply and disposal contracts for public services, including the treatment and disposal of waste or substances and liquids/wastewater that require treatment, connection and supply of electrical power, media services etc., shall be procured or concluded by the *Tenant* at his own expense and risk, and he shall bear all associated taxes, fees and charges. The *Tenant* shall fulfill all official requirements at his own expense and comply with all relevant legal and official specifications, orders and provisions, and he shall also indemnify and hold the *Landlord* harmless in this respect. Should, however, due to the structural conditions of the *rental property*, it not be possible to obtain an operational plant permit for operating a laboratory for biotechnology, the *Tenant* has the right to rescind the contract.

2. The *Tenant* commits himself to take out business liability insurance with an appropriate scope of coverage and duly maintaining it for the duration of the term of the contract; evidence of the completion and the effective existence of this business liability insurance shall promptly be provided to the *Landlord* upon request at any time.

3. Any change to the business purpose operated by the *Tenant* in the *rental property* or to the purpose of use of the *rental property* requires the prior express written approval of the *Landlord*.

4. After the end of a lease period of two years, but no later than 03/31/2021, the *Tenant* has the right to completely or partially sublet the *rental property* or completely or partially transfer it to third parties of any kind whatsoever; in the event of such a subletting the *rental property* can, beyond the extent of Item XI.1, be used for office and/or laboratory purposes.

5. If the *Tenant* has been granted further-reaching rights not limited in Item XI.5, the subletting or other transfer of the *rental property* to third parties is permitted only with prior express written approval of the *Landlord*. For clarification it shall be noted that, even in the event of any subletting or other transfer of the *rental property* to third parties, the *Tenant* remains the sole contractual partner of the *Landlord*.

6. The use and/or subletting of the *rental property* to third parties for purposes other than those defined in the agreement is explicitly agreed upon as a reason for termination in the sense of § 30 Par. 2 Z 13 MRG; this does not affect the right of termination in accordance with other provisions.

7. The *Landlord* declares that he will not under any circumstances derive legal consequences from the intended change of the *Tenant's* ownership structure, if these changes take place within two years.

XII. Notice of Termination / Premature Cancellation of the Contract

1. Each contracting party has the right - without prejudice to the rendered waiver of termination in accordance with Item II.2 and/or II.3 - to terminate the tenancy effective to the last day of each calendar quarter, subject to a notice period of six months, in writing; termination by the *Landlord*, however, is permissible only for one of the reasons for termination described in § 30 Par. 2 MRG or agreed upon in this contract, and only by means of legal termination.

2. The *Landlord* retains the right to premature cancellation of the lease agreement in accordance with § 1118 ABGB and for the reasons agreed upon in this Item XII.3, while the *Tenant* retains the right to premature cancellation of the lease agreement in accordance with § 1117 ABGB. A premature cancellation of the lease agreement in accordance with § 1117 ABGB, however, insofar as not excluded by mandatory legal provisions, is permissible only after setting a grace period of at least four weeks, if the *Landlord* does not place the *rental property* into a condition that makes it suitable for the stipulated use.

3. The *Landlord* has - aside from the reasons standardized in § 1118 ABGB - the right to cancel this lease agreement with immediate effect without observance of notice periods and/or termination dates, if the Tenant does not meet his obligations and grossly or persistently violates the contract (despite written warning and written setting of a grace period). The *Landlord* in particular has the right to cancel the tenancy for the following reasons, which are also explicitly agreed upon as material reasons for termination in the sense of § 30 Par. 2 line 13 MRG:

   - the *Tenant* does not make the contractually agreed upon payments despite written setting of a grace period of 14 days or does not extend or fill the bank guarantee (security deposit) in accordance with Item XV within two months;
   - insolvency proceedings regarding the assets of the *Tenant* are opened and the company does not continue to operate or the opening of insolvency proceedings regarding the assets of the *Tenant* is rejected due to the lack of assets to cover costs;
   - the contractually stipulated business purpose is changed without the *Landlord's* approval;
   - the *rental property* is used for a purpose other than that stipulated by the contract;
   - the *Tenant* makes structural modifications that are subject to permission without the *Landlord's* approval;
   - the *Tenant* does not fulfill or comply with legally binding official requirements or other legal provisions regarding the *rental property* or the operation conducted therein, insofar as in each case the interests of the *Landlord* are jeopardized or impaired;
   - despite written warning and setting of a reasonable grace period, the *Tenant* behaves in an inconsiderate or otherwise grossly inappropriate manner toward the *Landlord*, other tenants or visitors and clients of the building.

XIII. Offsetting

1. The *Tenant* does not have the right to offset any counterclaims that he may raise against the *Landlord* under any title whatsoever extrajudicially and/or judicially against the rent, including all taxes, fees, ancillary charges etc., unless they are legally binding or expressly acknowledged by the *Landlord* in writing.

XIV. Return of the Rental Property

1. Upon termination of the tenancy, the *Tenant* is obligated to return the *rental property* to the *Landlord* broom-clean, clear of movables and, except for normal wear and tear, in the same condition as on the day it was transferred to the *Tenant*.

2. The *Tenant* shall remove any business signs and advertisements with the company logo at his own expense, properly remove all traces thereof and repair any resulting damage to the mounting location. In the event of a violation of this provision, after setting a reasonable grace period, the *Landlord* has the right to arrange for the removal and disposal of the advertising material without further notice at the *Tenant's* expense.

3. Movables left behind by the *Tenant* will become the property of the *Landlord* without entitlement to compensation; the *Landlord* reserves the right to have them disposed of without further action at the expense and risk of the *Tenant*.

4. All investments of the *Tenant* associated with the *rental property* that cannot be removed without damage to the substance, and/or without economic impairment, of the *rental property*, as well as installations, additions and renovations performed by the *Tenant*, become the property of the *Landlord* without compensation upon termination of the tenancy.

5. In the event of a termination of the contract for any reason whatsoever, the *Tenant* waives the assertion of compensation for any investments made.

6. By mutual agreement it shall be noted that the *rental property* is transferred to the *Tenant* without any service, work or other employment relationship of any kind. Upon termination of the tenancy, the *Tenant* shall ensure that no service, work or other employment relationships are transferred to the *Landlord* and entirely indemnify and hold the *Landlord* harmless in this respect with any and all expenditures of capital, interest, damages and costs.

XV. Security Deposit

1. The *Tenant* commits himself, upon conclusion of this Lease Agreement, to transfer to the *Landlord* a security deposit in the form of an abstract bank guarantee naming the *Landlord* as the beneficiary under the exclusion of avenues of recourse in the amount of three times the gross monthly rent at a first-class Austrian bank with at least an A rating. The *Tenant* commits himself to increase this bank guarantee to six times the gross monthly rent upon transfer of the rental property. This bank guarantee liability serves to ensure that all his obligations arising from or in connection with this Lease Agreement, including interest,

damages and expenses, are respected. For the time being this bank guarantee shall be withdrawable for five years, but it shall, at least three months prior to expiration, continually be extended for at least another five years in the amount of six times the then applicable gross monthly rent. In each case the bank guarantee shall include a provision that the right to use the bank guarantee and the right to withdraw the guarantee amount can, upon sale of the *rental property*, be ceded to the respective legal successor of the *Landlord*.

2. Instead of a bank guarantee, the *Tenant* also has the right to remit the deposit amount via a bank transfer or as a cash payment; otherwise § 16b MRG applies.

3. In the event that the *Tenant* falls into arrears with a payment obligation arising from or in connection with this Lease Agreement, the *Landlord*, without prejudice to his right to proceed in accordance with § 1118 ABGB and § 30 Par. 2 line 1 MRG, has the right to withdraw the respective outstanding amount, in which case the *Tenant* is obligated to restore the security to the original amount within 14 days, whereby in the case of failure to restore by bank guarantee, the restoration shall be made via a cash payment to the *Landlord*.

4. If the *Tenant* violates his obligation regarding the contractual extension of the bank guarantee, the bank guarantee can be used with the full, respectively withdrawable guarantee amount; in the event of failure to carry out the contractual extension of the bank guarantee the *Tenant* is nonetheless obligated to pay the deposit with a cash payment to the *Landlord*. Amounts not needed to cover existing claims shall be deposited into a bank account, and serve to secure all obligations of the *Tenant* arising from or in connection with this Lease Agreement, including interest, damages and expenses. The accruing credit interest likewise serves as a security deposit; after termination of the tenancy, however, it belongs to the *Tenant*.

5. In the event that the *Tenant* then falls into arrears with a payment obligation arising from or in connection with this Lease Agreement, the *Landlord*, without prejudice to his right to proceed in accordance with § 1118 ABGB and § 30 Par. 2 line 1 MRG, has the right to withdraw the respective outstanding amount from the bank account, in which case the *Tenant* is obligated to restore the security deposit to the original amount, plus the credit interest that has accrued in the meantime, via a cash payment to the *Landlord*.

XVI. Fees and Charges

1. All taxes, fees and charges connected to this Lease Agreement, in particular the legal fees, are borne by the *Tenant* alone. In this respect as well, the *Tenant* indemnifies and holds the *Landlord* entirely harmless.

2. For the purpose of fee assessment it shall be noted that the gross rent (base rent plus ancillary charges and value-added tax) for the *rental property* is €210,523.54 annually.

3. The establishment of the Lease Agreement occurred solely on behalf of the *Landlord*.

4. Each contracting party bears the costs of their own respective legal and tax counsel.

XVII. Other Provisions

1. In the event that the *Landlord* sells the property named in the preamble, this Lease Agreement with all the rights and obligations of the *Landlord* passes to the legal successor of the *Landlord* with the ownership; the *Landlord* commits himself to transfer or impose all of the landlord's rights and obligations arising from this Lease Agreement, including a waiver of termination as a result of sale (§ 1120 ABGB), to his legal successor in the ownership; similarly, the *Tenant* declares that he will acknowledge the transfer of all rights and obligations of the *Landlord* to the legal successor of the Landlord in the ownership, and that he will waive termination as a result of sale (§ 1120 ABGB).

2. The contracting parties waive the rescission of the present contract on the grounds of error.

3. Aside from this Lease Agreement there are no verbal side agreements. Changes and addenda to this Lease Agreement must be in writing to be valid. This also applies for a deviation from the written form requirement.

4. Any written or verbal agreements reached prior to conclusion of this Lease Agreement lose their validity upon conclusion of this contract.

5. The nullity or inefficacy of individual provisions does not affect the validity of the other contract provisions. In the event of nullity or inefficacy of individual provisions of this Lease Agreement, the agreements that are legally valid and come closest to the purpose of the null or ineffective provision are deemed to have been reached. The same applies in the event of a gap in the contract.

6. This Lease Agreement is subject to Austrian law. For all disputes arising from or in connection with this Lease Agreement, the competence that is expressly agreed upon for the *rental property* is that of the court that has jurisdiction with respect to the location, and for the dispute the court that has jurisdiction with respect to the subject-matter.

7. This Lease Agreement is executed in two copies, of which each contracting party shall receive one.

8. All attachments constitute a component of the Lease Agreement.

Attachments: **./1** Notice of 02/18/2009, Number MA 37-BB/48393-1/2008
./2 Site plan
./3 Contract plan
./4 Building and interior description

Vienna, on 11.26.2010

/s/ Wolf-Dieter Jarisch
/s/ Reinhard Schertler
/s/ Manuela Moser-Ritzinger

Marxbox Bauprojekt GmbH & Co. OG

/s/ Dr. Eszter Nagy

ARSANIS Biosciences GmbH

S01 - Lease Agreement Arsanis 101020

Calculation of charges
by Marxbox Bauprojekt [Development] GmbH & Co. OG
Percentage fee:
Date of the calculation:

Vienna, on _____

Marxbox Bauprojekt GmbH & Co. OG

CALCULATION BILLING
Tax No.: 042 / 9505
Serial No.: 112 for OP/12

Charges: *€5,300.38*

Building Management Frieda Rustler
1150 Vienna, Mariahilfer Straße 196

ADDENDUM
TO THE LEASE AGREEMENT OF 11/26/2010

Entered into by

Marxbox Bauprojekt GmbH & Co. OG
domiciled in Vienna
(FN 346428 d)
1020 Vienna, Messeplatz 1

referred to in the following as the *Landlord*, on the one hand,

and

ARSANIS Biosciences GmbH
domiciled in Vienna
(FN 354305 m)
1030 Vienna, Helmut Qualtinger Gasse 2

referred to in the following as the *Tenant*, on the other hand,

as follows:

Preamble

1. On 11/26/2010 the contracting parties concluded a Lease Agreement for a part of the 3rd upper floor of the building 1030 Vienna, Helmut Qualtinger Gasse 2 constructed on the property EZ 4359 Land Register 01006 Landstraße, District Court Inner City Vienna, with a dimension of ca. 698.10 m2, a storage bay on the 2nd basement level with a dimension of ca. 25 m2, and five garage parking spaces on the 1st basement level allocated by the *Landlord*.

2. The contracting parties have now agreed that, in addition to the above-named spaces, the *Tenant* will lease from the *Landlord* an additional space with an unconfirmed dimension of 458.98 m2 also on the 3rd upper floor of the building in question. The additional leased space—identified as "extension Arsanis"—is shown in the contract plan (Attachment ./5) that is attached and constitutes an integral component of this Addendum to the Lease Agreement.

3. Furthermore, upon completed transfer of the additional space leased with this addendum, the freely negotiated monthly base rent for all spaces on the 3rd upper floor of €17.06 (excl. ancillary charges and VAT) per m2 of useable area (determined on the basis of the Consumer Price Index number for January 2012) will be increased by an amount of €2.65 (excl. ancillary charges and VAT) per m2 of useable area; the Consumer Price Index number for January 2012 is determinative for the further calculation of the indexation of both amounts. The increase of €2.65 (excl. ancillary charges and VAT) per m2 of useable area as such does not represent an adjustment based on indexation.

4. The *Tenant* will receive a non-refundable building cost subsidy in the amount of €100,000.00 (one hundred thousand Euros) from the *Landlord* that is due upon plan approval. This building cost subsidy is earmarked specifically for the *Tenant* to commission S+B Plan & Bau GmbH (FN 129817 h of the Commercial Court Vienna), 1030 Vienna, Löwengasse 47, as the general contractor to increase the cooling capacity (installation of an additional unit) in the *rental property* in accordance with the description in Attachment ./6; expenditures for measures that go beyond the description in Attachment ./6 shall be borne by the *Tenant*.

5. This Addendum to the Lease Agreement thus supplements the agreement entered into by the parties on 11/26/2010, in particular with respect to the spaces on the 3rd upper floor additionally leased by the *Tenant* and the building cost subsidy concerning the building described in more detail above and is an integral component of the Lease Agreement of 11/26/2010. Insofar as this Addendum to the Lease Agreement of 11/26/2010 does not state an explicit modification, the (other) provisions of the Lease Agreement of 11/26/2010 remain in effect. The Lease Agreement of 11/26/2010 and this Addendum to the Lease Agreement are therefore one integrated contract.

6. This said, the parties agree to the following:

6.1 Item I.1 of the Lease Agreement is amended so that it now reads as follows:

"1. The *Landlord* leases to the *Tenant* and the latter leases from the former the part of the 3rd upper floor that is marked in red in the contract plan (Attachment ./5), and labeled as "gross rented area", of the building 1030 Vienna, Helmut

Qualtinger Gasse 2, constructed on the property EZ 4359 Land Register 01006 Landstraße, District Court Inner City Vienna, with an overall dimension of ca. 1,157.08 m2, a storage bay on the 2nd basement level with a dimension of ca. 25 m2, and five garage parking spaces on the 1st basement level allocated by the Landlord (referred to together in the following as *rental property*). The original contract plan Attachment ./3 is replaced by the contract plan Attachment ./5."

6.2 Item I.3 and Item I.4 of the Lease Agreement are amended as follows:

"3. The obligations of the *Landlord* concerning the construction of the *rental property* while taking into account the official regulations applicable at the time of the building permit are finalized in the attached contract plans (Attachment ./5), which constitute an integral component of the Lease Agreement, or in the building and interior description (Attachment ./4), the description (Attachment ./6) and the map presentation (Attachment ./7), whereby fitments and/or systems, equipment and devices possibly included in Attachment ./5—that are not also expressly named in the building and interior description (Attachment ../4)—have a purely illustrative character and do not create an obligation for the *Landlord* to provide the same. All changes or adaptations, systems, equipment and devices needed for the operation of the *rental property* shall be performed or procured by the Tenant. The *Landlord* does, however, guarantee that the *rental property* is suitable from a structural perspective for obtaining an operational plant permit for operating a biotechnology laboratory.

4. The *Landlord* reserves the right to change or deviate from the aforementioned Attachments ./2, ./4, ./5, ./6 and ./7 if the change or deviation is minor, represents only a slight disadvantage for the *Tenant* and is objectively justified, such as in particular

- **changes or deviations based on legal or official regulations, orders or requirements,**
- **changes or deviations based on static or technical requirements or structural necessity,**
- **changes or deviations based on the selection of equivalent or higher quality materials, equipment, devices and the like as a result of lack of availability, technical incompatibility and the like."**

6.3 Item II.1 of the Lease Agreement is amended as follows:

"1. The tenancy started with the transfer of the *rental property* (first part of ca. 698.10 m^2) and was finalized for an indefinite period. The extension by the second part [additional space] of ca. 458.98 m^2 becomes effective upon transfer of the additional space."

6.4 Item III.1 of the Lease Agreement is amended as follows:

"1. The transfer and acceptance of the *rental property* take place as follows: for a first part of ca. 698.10 m^2: with respect to the office spaces within three months of the plan approval; with respect to the laboratory spaces within four months of the plan approval. For a second part [additional space] of ca. 458.98 m^2: within four months of the plan approval by the *Tenant*. The obligation of the *Tenant* to pay the agreed upon rent for the respective part of the *rental property* starts on the first of the month following the respective transfer."

a. Item IV.2 of the Lease Agreement is amended as follows:

"2. <u>Base rent:</u>

i.) <u>Spaces on the 3rd upper floor</u>

The freely negotiated monthly base rent for the first part of the *rental property* is €17.00 (excl. VAT)—indexable in accordance with Item VI since transfer and thus, based on the Consumer Price Index number for January 2012, €17.06 - per m^2 useable area. Upon transfer of the second part [additional space], the monthly rent for the entire *rental property* (first and second part) increases by €2.65 (exc. VAT) per m^2 useable area; it shall be noted that these spaces (first and second part) have a total useable area of ca. 1,157.08 m^2.

ii.) <u>Garage parking spaces</u>

The freely negotiated monthly base rent is €98.50 (excl. VAT) per parking space.

iii.) <u>Storage bay in the basement</u>

The freely negotiated monthly base rent is €6.50 (excl. VAT) per m² useable area; it shall be noted that storage bay has a useable area of ca. 25 m².”

b. Item VI.1 of the Lease Agreement is amended so that it now reads as follows:

“1. The agreed upon base rent is adjusted by linking to the Consumer Price Index 2005 announced by Statistik Austria [Austrian Statistical Office] or the successor index replacing it. In the event that no successor index is announced, the adjustment shall be calculated in such a way that it corresponds to the decrease/increase of the general purchasing power. The starting point for the adjustment is generally the index number announced for the month of the acceptance of the first part of the *rental property*, for the increase referred to in Item IV.2. i) (namely for both the first and the second part of the *rental property*), however, the index number for January 2012 applies.”

c. The Lease Agreement is supplemented by the paragraph below, which reads as follows:

<u>VI.a Building Cost Subsidy</u>

The *Tenant* will receive a non-refundable building cost subsidy in the amount of €100,000.00 (one hundred thousand Euros) from the *Landlord*. The building cost subsidy is due upon plan approval. This building cost subsidy is earmarked specifically for the *Tenant* to commission S+B Plan & Bau GmbH (FN 129817 h of the Commercial Court Vienna), 1030 Vienna, Löwengasse 47, as the general contractor to increase the cooling capacity (installation of an additional unit) in the *rental property* in accordance with the description in <u>Attachment ./6</u>; expenditures for measures that go beyond the description in <u>Attachment ./6</u> shall be borne by the *Tenant*.

4. Fees incurred in connection with the finalization of this Addendum shall be borne by the *Tenant*, who in this respect indemnifies and holds the *Landlord* harmless.

5. All attachments constitute a component of the Lease Agreement.

<u>Attachments</u>: ./5 Contract plan
./6 Description additional services with respect to BAB request Arsanis
./7 Set-up map presentation to define the technical building services equipment

HKLS

Vienna, on 08.31.2012

/s/ Wolf-Dieter Jarisch
/s/ Reinhard Schertler
/s/ Manuela Moser-Ritzinger

Marxbox Bauprojekt GmbH & Co. OG

/s/ Dr. Eszter Nagy

ARSANIS Biosciences GmbH

Self-calculation of fees
by the Marxbox Bauprojekt GmbH & Co. OG
Percentage fee: €
Date of self-calculation:
Vienna, dated_____
Marxbox Bauprojekt GmbH & Co. OG

Self-calculation of fees
Tax ID: 042 / 9505
Cont. no.: 104 for: [hw:] 10/12
Fee amount: *€ 117.72*
Building administration Frieda Rustler
1150 Vienna, Mariahilfer Str. 196

SECOND AMENDMENT
OF THE LEASE AGREEMENT DATED 11/26/2010
AND THE FIRST AMENDMENT DATED 08/31/2012

entered into by

Marxbox Bauprojekt GmbH & Co. OG
with headquarters in Vienna
(FN 346428 d)
1020 Vienna, Messeplatz 1

hereinafter called *lessor* for short, on the one side,

and

ARSANIS Biosciences GmbH
with headquarters in Vienna
(FN 354305 m)
1030 Vienna, Helmut-Qualtinger-Gasse 2

hereinafter called *tenant* for short, on the other side,

as follows:

Preamble

Contract: Lease agreement dated 11/26/2010 (Attachment ./1): 3rd upper floor (698.10 m2), storage unit 2nd lower level (25 m2), 5 parking spaces in the garage.

Amendment of the lease agreement (Attachment ./2): additional area 3rd upper floor (expansion to a total of 1,157.08 m2).

Term: unlimited term, the *tenant* waives the right to cancel until 04/30/2021; unless a regular cancellation occurs by 04/30/2021 the waiver of cancellation will be automatically extended by another year.

Rent: primary monthly rent: 3rd upper floor originally € 17.00 (incl. VAT) per m2, with additional area 3rd upper floor € 19.71 (excl. VAT) per m2, 2nd lower level € 6.50 (excl. VAT) per m2, parking spaces in the garage € 98.50 (excl. VAT) per parking space.

The contractual parties have now agreed that the *tenant* rents two parking spaces in addition to the previously rented five parking spaces. This said, the contractual parties agree to the following:

Second amendment of the lease agreement dated 11/26/2010

Topic 1.1 of the lease agreement is hereby amended such that now it is worded as follows:

"1. The *lessor* rents to the *tenant* and said tenant rents from the *lessor* the portion of the 3rd upper floor (OG), marked as "gross lease area" and framed in red in the contractual plan (Attachment ./5), of the building 1030 Vienna, Helmut-Qualtinger-Gasse 2, erected on the real property EZ 4359, land registry 01006 Landstraße, District Court Inner City of Vienna, showing a total size of approx. 1,157.08 m2, a storage unit in the 2nd lower level showing a size of approx. 25.00 m2, and five parking spaces, allocated by the *lessor* in the garage in the 1st lower level, as of 09/17/2012 seven of them, (hereinafter called jointly *lease object*). The original contractual plan Attachment ./3 is replaced by the contractual plan Attachment ./5"

Topic IV.2.ii.) of the lease agreement is hereby amended such that now it is worded as follows:

"ii.) Parking spaces in the garage

The freely agreed monthly primary rent amounts to € 98.50 (excl. VAT) per parking space in the garage. For the parking spaces rented as of 09/17/2012 the freely agreed monthly primary rent amounts to € 100,00 (excl. VAT) per parking space in the garage."

The second amendment in question refers to the agreement entered into by the contractual parties and becomes an integral component of the lease agreement dated 11/26/2010, amended by the first amendment dated 08/31/2012. Unless in this second amendment no explicit changes are listed, the stipulations of the lease agreement dated 11/26/2010, amended by the first amendment dated 08/31/2012, remain effective.

Therefore, the lease agreement dated 11/26/2010, with the first amendment dated 08/31/2012 and the present second amendment, represents a contractual unit.

Any and all fees arising in the context with this second amendment being entered into shall be payable by the *tenant*, who releases the *lessor* from any and all damages and legal disputes to this regard.

This amendment shall be prepared in two copies, with each contractual party being provided with one of them.

Attachments: ./1 Lease agreement dated 11/26/2010
./2 Amendment dated 08/31/2012

Vienna, dated 09/17/2012

	/s/ Dr. Eszter Nagy
Marxbox Bauprojekt GmbH & Co. OG	ARSANIS Biosciences GmbH

Represented by:

Wüstenrot
Versicherungs-AG
/s/ V Dir. Franz Meingast /s/ Pro K. Brigette Hafner

09 Oct. 2012 **WV** Immobilien GmbH

EXISTING TENANCY AGREEMENT

PROPERTY:	Helmut Qualtinger Gasse 2, 1030 Vienna
	Oct. 29, 2014
LANDLORD:	Wüstenrot Marxbox GmbH & Co. OG
TENANT:	ARSANIS Biosciences GmbH
LEASE AGREEMENT:	11/26/2010
Space:	3rd upper floor: 698.10 m2 office and laboratory; 2nd basement level: 25 m2 storage bay
Parking spaces:	5 (on the 1st basement level)
Term:	indefinite period, Tenant's waiver of the right to terminate prior to 04/30/2021; if Tenant does not terminate with statutory notice prior to 04/30/2021, extension of the waiver of the right to terminate to 04/30/2022
Rent:	Office and Laboratory: €17.00/m2 (excl. VAT) per month, storage bay: €6.50/m2 (excl. VAT) per month, parking spaces: €98.50 (excl. VAT) per parking space per month; payment of ancillary charges: €2.90/m2 (excl. VAT) per month
1st ADDENDUM:	08/31/2012
Space:	3rd upper floor: 458.98 m2 additional
Term:	as before
Rent:	€19.71/m2 (excl. VAT) per month as of transfer of the additional space for the entire area on the 3rd upper floor
Furthermore:	building cost subsidy for the Tenant of €100,000.00
2nd ADDENDUM:	10/09/2012
Parking spaces:	2 additional (on the 1st basement level)
Term:	as before
Rent:	€100.00 (excl. VAT) per parking space per month for the additional parking spaces
3rd ADDENDUM:	
Space:	2 bicycle parking spaces (0.80 m2) in the bicycle room (ground floor)
Term:	as before
Rent:	€10.00 (excl. VAT) per parking space per month; payment of ancillary charges: €2.50/m2 (excl. VAT) per month

CALCULATION BILLING
Tax No.: 042 / 9505

Calculation of charges
by Wüstenrot Marxbox GmbH & Co. OG
Percentage fee: €9.50
Date of the calculation:

Serial No.: *126* for *10/14*

Charges: *€9.50*

Building Management Frieda Rustler
1150 Vienna, Mariahilfer Straße 196

Vienna, on _____

Wüstenrot Marxbox GmbH & Co. OG

3rd ADDENDUM

TO THE LEASE AGREEMENT OF 11/26/2010

entered into by

Wüstenrot Marxbox GmbH & Co. OG
domiciled in Vienna
(FN 346428d Regional Court Salzburg)
5033 Salzburg, Alpenstraße 61

referred to in the following as the *Landlord*, on the one hand, and

ARSANIS Biosciences GmbH
domiciled in Vienna
(FN 354305m Commercial Court Vienna)
1030 Vienna, Helmut Qualtinger Gasse 2

referred to in the following as the *Tenant*, on the other hand, as follows:

1. The contracting parties entered into a Lease Agreement (Attachment ./1) on 11/26/2010 as well as a 1st Addendum (Attachment ./2) on 08/31/2012 and a 2nd Addendum to the Lease Agreement (Attachment ./3) on 10/09/2012, which constitute integral components of this 3rd Addendum, for rented areas in the building at 1030 Vienna, Helmut Qualtinger Gasse 2.

2. The contracting parties have now agreed that the *Tenant* will additionally lease from the *Landlord* two bicycle parking spaces with a useable area per parking space of ca. 0.40 m2 in the bicycle room on the ground floor of the aforementioned building for keeping two bicycles.

3. In this context it shall explicitly be noted that this 3rd Addendum to the Lease Agreement does not grant the *Tenant* the right to use specific bicycle parking spaces. The *Tenant* is entitled to parking spaces without a definition of specific assigned spaces; he can choose from among the currently free spaces in the bicycle room.

4. This 3rd Addendum to the Lease Agreement supplements the understanding entered into by the parties with the Lease Agreement of 11/26/2010, as well as with the 1st Addendum of 08/31/2012 and the 2nd Addendum of 10/09/2012 to the Lease Agreement. The rented areas identified in the Lease Agreement of 11/26/2010, in the 1st Addendum of 08/31/2012 and in the 2nd Addendum of 10/09/2012 to the Lease Agreement and the bicycle parking spaces identified under Item 2 in this 3rd Addendum to the Lease Agreement together constitute the *rental property*.

5. The tenancy for the bicycle parking spaces begins with the transfer and acceptance of the keys to the bicycle room. The transfer and acceptance of the keys to the bicycle room will occur upon signing of this 3rd Addendum to the Lease Agreement.

6. The monthly rent for the bicycle parking spaces in accordance with Item 2 of this 3rd Addendum to the Lease Agreement is €10.00 (excl. VAT) per parking space. Pending further assessment by the *Landlord*, the monthly payment of ancillary charges for the parking spaces is €2.50 per m2 useable area.

7. Insofar as this 3rd Addendum to the Lease Agreement does not state explicit modifications, the other provisions of the Lease Agreement of 11/26/2010, the 1st Addendum of 08/31/2012 and the 2nd Addendum of 10/09/2012 to the Lease Agreement remain in effect. The Lease Agreement of 11/26/2010, the 1st Addendum of 08/31/2012, the 2nd Addendum of 10/09/2012 and this 3rd Addendum to the Lease Agreement are therefore one integrated contract.

8. Any fees incurred in connection with the finalization of this Addendum shall be borne by the *Tenant*, who in this respect indemnifies and holds the *Landlord* harmless.

9. This Addendum is executed in two copies, of which each contracting party shall receive one.

Attachments: **./1** Lease Agreement of 11/26/2010
./2 1st Addendum to the Lease Agreement of 08/31/2012
./3 2nd Addendum to the Lease Agreement of 10/09/2012

Vienna, on June 04, 2014

Wüstenrot Marxbox GmbH & Co. OG
WV Immobilien GmbH

/s/ Josef Millonigg /s/ GF Mag. Wolfgang Schantl
Wüstenrot Marxbox GmbH & Co. OG

/s/ Eszter Nagy
ARSANIS Biosciences GmbH

EXISTING TENANCY AGREEMENT

PROPERTY:	Helmut Qualtinger Gasse 2, 1030 Vienna
LANDLORD:	Wüstenrot Marxbox GmbH & Co. OG
TENANT:	ARSANIS Biosciences GmbH
LEASE AGREEMENT:	11/26/2010
Space:	3rd upper floor: 698.10 m² office and laboratory; 2nd basement level: 25 m² storage bay
Parking spaces:	5 (on the 1st basement level)
Term:	indefinite period, Tenant's waiver of the right to terminate prior to 04/30/2021; if Tenant does not terminate with statutory notice prior to 04/30/2021, extension of the waiver of the right to terminate to 04/30/2022
Rent:	Office and Laboratory: €17.00/m² (excl. VAT) per month, storage bay: €6.50/m² (excl. VAT) per month, parking spaces: €98.50 (excl. VAT) per parking space per month; payment of ancillary charges: €2.90/m² (excl. VAT) per month
1st ADDENDUM:	08/31/2012
Space:	3rd upper floor: 458.98 m² additional
Term:	as before
Rent:	€19.71/m² (excl. VAT) per month as of transfer of the additional space for the entire area on the 3rd upper floor
Furthermore:	building cost subsidy for the Tenant of €100,000.00
2nd ADDENDUM:	10/09/2012
Parking spaces:	2 additional (on the 1st basement level)
Term:	as before
Rent:	€100.00 (excl. VAT) per parking space per month for the additional parking spaces
3rd ADDENDUM:	
Space:	2 bicycle parking spaces (0.80 m²) in the bicycle room (ground floor)
Term:	as before
Rent:	€10.00 (excl. VAT) per parking space per month; payment of ancillary charges: €2.50/m² (excl. VAT) per month

[initials]

Calculation of charges
by Wüstenrot Marxbox GmbH & Co. OG
Percentage fee: €2,475.79
Date of the calculation:

Vienna, on _____

CALCULATION BILLING
Tax No.: 042 / 9505

Serial No.: *127* for *10/14*

Charges: *€2,475.79*

Building Management Frieda Rustler
1150 Vienna, Mariahilfer Straße 196

Wüstenrot Marxbox GmbH & Co. OG

4th ADDENDUM

TO THE LEASE AGREEMENT OF 11/26/2010

entered into by

Wüstenrot Marxbox GmbH & Co. OG
domiciled in Vienna
(FN 346428d Regional Court Salzburg)
5033 Salzburg, Alpenstraße 61

referred to in the following as the *Landlord*, on the one hand, and

ARSANIS Biosciences GmbH
domiciled in Vienna
(FN 354305m Commercial Court Vienna)
1030 Vienna, Helmut Qualtinger Gasse 2

referred to in the following as the *Tenant*, on the other hand, as follows:

1. The contracting parties entered into a Lease Agreement (Attachment ./1) on 11/26/2010, a 1st Addendum (Attachment ./2) on 08/31/2012, a 2nd Addendum (Attachment ./3) on 10/09/2012, and a 3rd Addendum to the Lease Agreement (Attachment ./4) on 03/31/2014, which constitute integral components of this 4th Addendum, for rented areas in the building on the property EZ 4359 Land Register 01006 Landstraße, District Court Inner City Vienna, consisting of Lot No. 1449/3, with the address 1030 Vienna, Helmut Qualtinger Gasse 2.

2. The contracting parties have now agreed that, in addition to the premises already included in accordance with Attachments ./1 to ./4, the *Tenant* will lease from the *Landlord* additional premises with an unconfirmed dimension of 277.53 m2 on the 2nd upper floor of the building identified in Item 1. The additionally leased premises are marked in red in the attached contract plan (Attachment ./5), which constitutes an integral component this 4th Addendum to the Lease Agreement.

Attachments:
./1 Lease Agreement of 11/26/2010
./2 1st Addendum to the Lease Agreement of 08/31/2012
./3 2nd Addendum to the Lease Agreement of 10/09/2012
./4 3rd Addendum to the Lease Agreement of 03/31/2014
./5 Contract plan
./6 List of equipment

Vienna, on June 04, 2014

Wüstenrot Marxbox GmbH & Co. OG
WV Immobilien GmbH

/s/ GF Mag. Wolfgang Schantl /s/ Josef Millonigg
Wüstenrot Marxbox GmbH & Co. OG

/s/ Dr. Eszter Nagy
ARSANIS Biosciences GmbH

EXISTING TENANCY AGREEMENT

PROPERTY:	Helmut Qualtinger Gasse 2, 1030 Vienna
LANDLORD:	Wüstenrot Marxbox GmbH & Co. OG
TENANT:	ARSANIS Biosciences GmbH
LEASE AGREEMENT:	11/26/2010
Space:	3rd upper floor: 698.10 m² office and laboratory; 2nd basement level: 25 m² storage bay
Parking spaces:	5 (on the 1st basement level)
Term:	indefinite period, Tenant's waiver of the right to terminate prior to 04/30/2021; if Tenant does not terminate with statutory notice prior to 04/30/2021, extension of the waiver of the right to terminate to 04/30/2022
Rent:	Office and Laboratory: €17.00/m² (excl. VAT) per month, storage bay: €6.50/m² (excl. VAT) per month, parking spaces: €98.50 (excl. VAT) per parking space per month; payment of ancillary charges: €2.90/m² (excl. VAT) per month
1st ADDENDUM:	08/31/2012
Space:	3rd upper floor: 458.98 m² additional
Term:	as before
Rent:	€19.71/m² (excl. VAT) per month as of transfer of the additional space for the entire area on the 3rd upper floor
Furthermore:	building cost subsidy for the Tenant of €100,000.00
2nd ADDENDUM:	10/09/2012
Parking spaces:	2 additional (on the 1st basement level)
Term:	as before
Rent:	€100.00 (excl. VAT) per parking space per month for the additional parking spaces; payment of ancillary charges: €2.90/m² (excl. VAT) per month
3rd ADDENDUM:	06/04/2014
Space:	2 bicycle parking spaces (0.80 m²) in the bicycle room (ground floor)
Term:	as before
Rent:	€10.00 (excl. VAT) per parking space per month; payment of ancillary charges: €2.50/m² (excl. VAT) per month

4th ADDENDUM:	06/04/2014
Space:	2nd upper floor: 277.53 m^2 additional
Term:	as before
Rent:	€17.75/m^2 (excl. VAT) per month; payment of ancillary charges: €2.90/m^2 (excl. VAT) per month
5th ADDENDUM:	
Parking spaces:	1 additional (on the 1st basement level)
Term:	as before
Rent:	€104.31 (excl. VAT) per parking space per month for the additional parking space; payment of ancillary charges: €2.90/m^2 (excl. VAT) per month

Calculation of charges
by Wüstenrot Marxbox GmbH & Co. OG
Percentage fee: €58.84
Date of the calculation:

Vienna, on _____

Wüstenrot Marxbox GmbH & Co. OG

5th ADDENDUM

TO THE LEASE AGREEMENT OF 11/26/2010

entered into by

Wüstenrot Marxbox GmbH & Co. OG
domiciled in Vienna
(FN 346428d Regional Court Salzburg)
5033 Salzburg, Alpenstraße 61

referred to in the following as the *Landlord*, on the one hand, and

ARSANIS Biosciences GmbH
domiciled in Vienna
(FN 354305m Commercial Court Vienna)
1030 Vienna, Helmut Qualtinger Gasse 2

referred to in the following as the *Tenant*, on the other hand, as follows:

1. The contracting parties entered into a Lease Agreement (Attachment ./1) on 11/26/2010, a 1st Addendum (Attachment ./2) on 08/31/2012, a 2nd Addendum (Attachment ./3) on 10/09/2012, a 3rd Addendum (Attachment ./4) on 06/04/2014 and, likewise on 06/04/2014, a 4th Addendum to the Lease Agreement (Attachment ./5), which constitute integral components of this 5th Addendum, for rented areas or parking spaces in the building on the property EZ 4359 Land Register 01006 Landstraße, District Court Inner City Vienna, consisting of Lot No. 1449/3, with the address 1030 Vienna, Helmut Qualtinger Gasse 2.

2. The contracting parties have now agreed that, in addition to the premises and parking spaces already included in accordance with Attachments ./1 to ./5, the *Tenant* will lease from the *Landlord* an additional parking space on the 1st basement level of the building identified in Item 1.

3. The tenancy for the additional parking space begins with the transfer and acceptance of the rental property in accordance with Item 2 of this 5th Addendum to the Lease Agreement.

4. The monthly rent for the additional parking space in accordance with Item 2 of this 5th Addendum to the Lease Agreement is €104.31 (excl. VAT) per parking space. Pending further assessment by the *Landlord*, the monthly payment of ancillary charges for the parking spaces is €2.90 (excl. VAT) per m^2 useable area.

5. This 5th Addendum to the Lease Agreement supplements the understanding entered into by the parties with the Lease Agreement of 11/26/2010, as well as with the 1st Addendum of 08/31/2012, the 2nd Addendum of 10/09/2012, the 3rd Addendum of 06/04/2014 and the 4th Addendum to the Lease Agreement, likewise of 06/04/2014. The rented areas identified in the Lease Agreement of 11/26/2010, in the 1st Addendum of 08/31/2012, in the 2nd Addendum of 10/09/2012, in the 3rd Addendum of 06/04/2014 and in the 4th Addendum to the Lease Agreement, likewise of 06/04/2014 and the additional parking space identified under Item 2 in this 5th Addendum to the Lease Agreement together constitute the *rental property*.

6. Insofar as this 5th Addendum to the Lease Agreement does not state explicit modifications, the other provisions of the Lease Agreement of 11/26/2010, the 1st Addendum of 08/31/2012, the 2nd Addendum of 10/09/2012, the 3rd Addendum of 06/04/2014 and the 4th Addendum, likewise of 06/04/2014, remain in effect. The Lease Agreement of 11/26/2010, the 1st Addendum of 08/31/2012, the 2nd Addendum of 10/09/2012, the 3rd Addendum of 06/04/2014, the 4th Addendum, likewise of 06/04/2014, and this 5th Addendum to the Lease Agreement are therefore one integrated contract.

7. Any fees incurred in connection with the finalization of this 5th Addendum to the Lease Agreement shall be borne by the *Tenant*, who in this respect indemnifies and holds the *Landlord* completely harmless.

8. This 5th Addendum to the Lease Agreement is executed in two copies, of which each contracting party shall receive one.

Attachments:
./1 Lease Agreement of 11/26/2010
./2 1st Addendum to the Lease Agreement of 08/31/2012
./3 2nd Addendum to the Lease Agreement of 10/09/2012
./4 3rd Addendum to the Lease Agreement of 06/04/2014
./5 4th Addendum to the Lease Agreement of 06/04/2014

Vienna, on June 30, 2014

Wüstenrot Marxbox GmbH & Co. OG
WV Immobilien GmbH

/s/ GF Mag. Wolfgang Schantl /s/ Josef Millonigg
Wüstenrot Marxbox GmbH & Co. OG

/s/ Eszter Nagy
ARSANIS Biosciences GmbH

EXISTING TENANCY AGREEMENT

PROPERTY:	Helmut Qualtinger Gasse 2, 1030 Vienna
LANDLORD:	Wüstenrot Marxbox GmbH & Co. OG
TENANT:	ARSANIS Biosciences GmbH
LEASE AGREEMENT:	11/26/2010
Space:	3rd upper floor: 698.10 m^2 office and laboratory; 2nd basement level: 25 m^2 storage bay
Parking spaces:	5 (on the 1st basement level)
Term:	indefinite period, Tenant's waiver of the right to terminate prior to 04/30/2021; if Tenant does not terminate with statutory notice prior to 04/30/2021, extension of the waiver of the right to terminate to 04/30/2022
Rent:	Office and Laboratory: €17.00/m^2 (excl. VAT) per month, storage bay: €6.50/m^2 (excl. VAT) per month, parking spaces: €98.50 (excl. VAT) per parking space per month; payment of ancillary charges: €2.90/m^2 (excl. VAT) per month
1st ADDENDUM:	08/31/2012
Space:	3rd upper floor: 458.98 m^2 additional
Term:	as before
Rent:	€19.71/m^2 (excl. VAT) per month as of transfer of the additional space for the entire area on the 3rd upper floor
Furthermore:	building cost subsidy for the Tenant of €100,000.00
2nd ADDENDUM:	10/09/2012
Parking spaces:	2 additional (on the 1st basement level)
Term:	as before
Rent:	€100.00 (excl. VAT) per parking space per month for the additional parking spaces; payment of ancillary charges: €2.90/m^2 (excl. VAT) per month
3rd ADDENDUM:	06/04/2014
Space:	2 bicycle parking spaces (0.80 m^2) in the bicycle room (ground floor)
Term:	as before
Rent:	€10.00 (excl. VAT) per parking space per month; payment of ancillary charges: €2.50/m^2 (excl. VAT) per month

4th ADDENDUM:	06/04/2014
Space:	2nd upper floor: 277.53 m2 additional
Term:	as before
Rent:	€17.75/m2 (excl. VAT) per month; payment of ancillary charges: €2.90/m2 (excl. VAT) per month
5th ADDENDUM:	
Parking spaces:	1 additional (on the 1st basement level)
Term:	as before
Rent:	€104.31 (excl. VAT) per parking space per month for the additional parking space; payment of ancillary charges: €2.90/m2 (excl. VAT) per month
6th ADDENDUM:	
Parking spaces:	1 additional (on the 1st basement level)
Term:	as before
Rent:	€104.31 (excl. VAT) per parking space per month for the additional parking space; payment of ancillary charges: €2.90/m2 (excl. VAT) per month

Calculation of charges
by Wüstenrot Marxbox GmbH & Co. OG
Percentage fee: €58.84
Date of the calculation: *08/22/2014*

Vienna, on *08/22/2014*

Wüstenrot Marxbox GmbH & Co. OG

CALCULATION BILLING
Tax No.: 042 / 9505

Serial No.: *91* for *08/14*

Charges: *€58.84*

Building Management Frieda Rustler
1150 Vienna, Mariahilfer Straße 196

6th ADDENDUM

TO THE LEASE AGREEMENT OF 11/26/2010

entered into by

Wüstenrot Marxbox GmbH & Co. OG
domiciled in Vienna
(FN 346428d Regional Court Salzburg)
5033 Salzburg, Alpenstraße 61

referred to in the following as the *Landlord*, on the one hand, and

ARSANIS Biosciences GmbH
domiciled in Vienna
(FN 354305m Commercial Court Vienna)
1030 Vienna, Helmut Qualtinger Gasse 2

referred to in the following as the *Tenant*, on the other hand, as follows:

1. The contracting parties entered into a Lease Agreement (Attachment ./1) on 11/26/2010, a 1st Addendum (Attachment ./2) on 08/31/2012, a 2nd Addendum (Attachment ./3) on 10/09/2012, a 3rd Addendum (Attachment ./4) on 06/04/2014 and, likewise on 06/04/2014, a 4th Addendum (Attachment ./5), as well as a 5th Addendum to the Lease Agreement (Attachment ./6) on 06/30/2014, which constitute integral components of this 6th Addendum, for rented areas or parking spaces in the building on the property EZ 4359, Land Register 01006 Landstraße, District Court Inner City Vienna, consisting of Lot No. 1449/3, with the address 1030 Vienna, Helmut Qualtinger Gasse 2.

2. The contracting parties have now agreed that, in addition to the premises and parking spaces already included in accordance with Attachments ./1 to ./6, the *Tenant* will lease from the *Landlord* an additional parking space on the 1st basement level of the building identified in Item 1.

3. The tenancy for the additional parking space begins with the transfer and acceptance of the rental property in accordance with Item 2 of this 6th Addendum to the Lease Agreement.

4. The monthly rent for the additional parking space in accordance with Item 2 of this 6th Addendum to the Lease Agreement is €104.31 (excl. VAT) per parking space. Pending further assessment by the *Landlord*, the monthly payment of ancillary charges for the parking spaces is €2.90 (excl. VAT) per m^2 useable area.

5. This 6th Addendum to the Lease Agreement supplements the understanding entered into by the parties with the Lease Agreement of 11/26/2010, as well as with the 1st Addendum of 08/31/2012, the 2nd Addendum of 10/09/2012, the 3rd Addendum of 06/04/2014, the 4th Addendum, likewise of 06/04/2014, and the 5th Addendum to the Lease Agreement of 06/30/2014. The rented areas identified in the Lease Agreement of 11/26/2010, in the 1st Addendum of 08/31/2012, in the 2nd Addendum of 10/09/2012, in the 3rd Addendum of 06/04/2014, in the 4th Addendum, likewise of 06/04/2014, and in the 5th Addendum to the Lease Agreement of 06/30/2014 and the additional parking space identified under Item 2 in this 6th Addendum to the Lease Agreement together constitute the *rental property*.

6. Insofar as this 6th Addendum to the Lease Agreement does not state explicit modifications, the other provisions of the Lease Agreement of 11/26/2010, the 1st Addendum of 08/31/2012, the 2nd Addendum of 10/09/2012, the 3rd Addendum of 06/04/2014, the 4th Addendum, likewise of 06/04/2014, and the 5th Addendum of 06/30/2014 remain in effect. The Lease Agreement of 11/26/2010, the 1st Addendum of 08/31/2012, the 2nd Addendum of 10/09/2012, the 3rd Addendum of 06/04/2014, the 4th Addendum, likewise of 06/04/2014, the 5th Addendum of 06/30/2014 and this 6th Addendum to the Lease Agreement are therefore one integrated contract.

7. Any fees incurred in connection with the finalization of this 6th Addendum to the Lease Agreement shall be borne by the *Tenant*, who in this respect indemnifies and holds the *Landlord* completely harmless.

8. This 6th Addendum to the Lease Agreement is executed in two copies, of which each contracting party shall receive one.

Attachments: **./1** Lease Agreement of 11/26/2010
./2 1st Addendum to the Lease Agreement of 08/31/2012
./3 2nd Addendum to the Lease Agreement of 10/09/2012
./4 3rd Addendum to the Lease Agreement of 06/04/2014
./5 4th Addendum to the Lease Agreement of 06/04/2014
./6 5th Addendum to the Lease Agreement of 06/30/2014

Vienna, on **Aug. 13, 2014**

Wüstenrot Marxbox GmbH & Co. OG
WV Immobilien GmbH

/s/ GF Mag. Wolfgang Schantl /s/ Josef Millonigg
Wüstenrot Marxbox GmbH & Co. OG

/s/ Dr. Eszter Nagy
ARSANIS Biosciences GmbH

EXISTING TENANCY AGREEMENT

PROPERTY:	Helmut Qualtinger Gasse 2, 1030 Vienna
LANDLORD:	Wüstenrot Marxbox GmbH & Co. OG
TENANT:	ARSANIS Biosciences GmbH
LEASE AGREEMENT:	11/26/2010
Space:	3rd upper floor: 698.10 m^2 office and laboratory; 2nd basement level: 25 m^2 storage bay
Parking spaces:	5 (on the 1st basement level)
Term:	indefinite period, Tenant's waiver of the right to terminate prior to 04/30/2021; if Tenant does not terminate with statutory notice prior to 04/30/2021, extension of the waiver of the right to terminate to 04/30/2022
Rent:	Office and Laboratory: €17.00/m^2 (excl. VAT) per month, storage bay: €6.50/m^2 (excl. VAT) per month, parking spaces: €98.50 (excl. VAT) per parking space per month; payment of ancillary charges: €2.90/m^2 (excl. VAT) per month
1st ADDENDUM:	08/31/2012
Space:	3rd upper floor: 458.98 m^2 additional
Term:	as before
Rent:	€19.71/m^2 (excl. VAT) per month as of transfer of the additional space for the entire area on the 3rd upper floor
Furthermore:	building cost subsidy for the Tenant of €100,000.00
2nd ADDENDUM:	10/09/2012
Parking spaces:	2 additional (on the 1st basement level)
Term:	as before
Rent:	€100.00 (excl. VAT) per parking space per month for the additional parking spaces; payment of ancillary charges: €2.90/m^2 (excl. VAT) per month
3rd ADDENDUM:	06/04/2014
Space:	2 bicycle parking spaces (0.80 m^2) in the bicycle room (ground floor)
Term:	as before
Rent:	€10.00 (excl. VAT) per parking space per month; payment of ancillary charges: €2.50/m^2 (excl. VAT) per month

4th ADDENDUM:	06/04/2014
Space:	2nd upper floor: 277.53 m2 additional
Term:	as before
Rent:	€17.75/m2 (excl. VAT) per month; payment of ancillary charges: €2.90/m2 (excl. VAT) per month
5th ADDENDUM:	06/04/2014 [sic: 06/30/2014]
Parking spaces:	1 additional (on the 1st basement level)
Term:	as before
Rent:	€104.31 (excl. VAT) per parking space per month for the additional parking space; payment of ancillary charges: €2.90/m2 (excl. VAT) per month
6th ADDENDUM:	08/13/2014
Parking spaces:	1 additional (on the 1st basement level)
Term:	as before
Rent:	€104.31 (excl. VAT) per parking space per month for the additional parking space; payment of ancillary charges: €2.90/m2 (excl. VAT) per month
7th ADDENDUM:	
Parking spaces:	1 additional (on the 1st basement level)
Term:	as before
Rent:	€104.31 (excl. VAT) per parking space per month for the additional parking space; payment of ancillary charges: €2.90/m2 (excl. VAT) per month

CALCULATION BILLING
Tax No.: 042 / 9505

Calculation of charges
by Wüstenrot Marxbox GmbH & Co. OG
Percentage fee: €58.84
Date of the calculation:

Serial No.: *33* for *10/14*

Charges: €*58.84*

Building Management Frieda Rustler
1150 Vienna, Mariahilfer Straße 196

Vienna, on _____

Wüstenrot Marxbox GmbH & Co. OG

7th ADDENDUM

TO THE LEASE AGREEMENT OF 11/26/2010

entered into by

Wüstenrot Marxbox GmbH & Co. OG
domiciled in Vienna
(FN 346428d Regional Court Salzburg)
5033 Salzburg, Alpenstraße 61

referred to in the following as the *Landlord*, on the one hand, and

ARSANIS Biosciences GmbH
domiciled in Vienna
(FN 354305m Commercial Court Vienna)
1030 Vienna, Helmut Qualtinger Gasse 2

referred to in the following as the *Tenant*, on the other hand, as follows:

1. The contracting parties entered into a Lease Agreement (Attachment ./1) on 11/26/2010, a 1st Addendum (Attachment ./2) on 08/31/2012, a 2nd Addendum (Attachment ./3) on 10/09/2012, a 3rd Addendum (Attachment ./4) and a 4th Addendum (Attachment ./5) on 06/04/2014, a 5th Addendum (Attachment ./6) on 06/30/2014 and a 6th Addendum to the Lease Agreement (Attachment ./7) on 08/13/2014, which constitute integral components of this 7th Addendum, for rented areas or parking spaces in the building on the property EZ 4359, Land Register 01006 Landstraße, District Court Inner City Vienna, consisting of Lot No. 1449/3, with the address 1030 Vienna, Helmut Qualtinger Gasse 2.

2. The contracting parties have now agreed that, in addition to the premises and parking spaces already included in accordance with Attachments ./1 to ./7, the *Tenant* will lease from the *Landlord* an additional parking space on the 1st basement level of the building identified in Item 1.

3. The tenancy for the additional parking space begins with the transfer and acceptance of the rental property in accordance with Item 2 of this 7th Addendum to the Lease Agreement.

4. The monthly rent for the additional parking space in accordance with Item 2 of this 7th Addendum to the Lease Agreement is €104.31 (excl. VAT) per parking space. Pending further assessment by the *Landlord*, the monthly payment of ancillary charges for the parking spaces is €2.90 (excl. VAT) per m^2 useable area.

5. This 7th Addendum to the Lease Agreement supplements the understanding entered into by the parties with the Lease Agreement of 11/26/2010, as well as with the 1st Addendum of 08/31/2012, the 2nd Addendum of 10/09/2012, the 3rd Addendum and the 4th Addendum of 06/04/2014, the 5th Addendum of 06/30/2014 and the 6th Addendum of 08/13/2014 to the Lease Agreement. The rented areas identified in the Lease Agreement of 11/26/2010, in the 1st Addendum of 08/31/2012, in the 2nd Addendum of 10/09/2012, in the 3rd Addendum of 06/04/2014, in the 4th Addendum, likewise of 06/04/2014, in the 5th Addendum of 06/30/2014 and in the 6th Addendum to the Lease Agreement of 08/13/2014 and the additional parking space identified under Item 2 in this 7th Addendum to the Lease Agreement together constitute the *rental property*.

6. Insofar as this 7th Addendum to the Lease Agreement does not state explicit modifications, the other provisions of the Lease Agreement of 11/26/2010, the 1st Addendum of 08/31/2012, the 2nd Addendum of 10/09/2012, the 3rd Addendum and the 4th Addendum of 06/04/2014, the 5th Addendum of 06/30/2014 and the 6th Addendum of 08/13/2014 remain in effect. The Lease Agreement of 11/26/2010, the 1st Addendum of 08/31/2012, the 2nd Addendum of 10/09/2012, the 3rd Addendum of 06/04/2014, the 4th Addendum, likewise of 06/04/2014, the 5th Addendum of 06/30/2014, the 6th Addendum of 08/13/2014 and this 7th Addendum to the Lease Agreement are therefore one integrated contract.

7. Any fees incurred in connection with the finalization of this 7th Addendum to the Lease Agreement shall be borne by the *Tenant*, who in this respect indemnifies and holds the *Landlord* completely harmless.

8. This 7th Addendum to the Lease Agreement is executed in two copies, of which each contracting party shall receive one.

Attachments:
./1 Lease Agreement of 11/26/2010
./2 1st Addendum to the Lease Agreement of 08/31/2012
./3 2nd Addendum to the Lease Agreement of 10/09/2012
./4 3rd Addendum to the Lease Agreement of 06/04/2014
./5 4th Addendum to the Lease Agreement of 06/04/2014
./6 5th Addendum to the Lease Agreement of 06/30/2014
./7 6th Addendum to the Lease Agreement of 08/13/2014

Vienna, on **Sep. 30, 2014**

Wüstenrot Marxbox GmbH & Co. OG
WV Immobilien GmbH

/s/ GF Mag. Wolfgang Schantl /s/ Josef Millonigg

Wüstenrot Marxbox GmbH & Co. OG

ARSANIS
Biosciences GmbH
MarxBox
Helmut Qualtinger Gasse 2
1030 Vienna

/s/ Dr. Eszter Nagy

ARSANIS Biosciences GmbH

Exhibit 10.18

Confidential Materials omitted and filed separately with the
Securities and Exchange Commission. Double asterisks denote omissions.

CONFIDENTIAL
EXECUTION COPY

COLLABORATION AGREEMENT

THIS COLLABORATION AGREEMENT (the "**Agreement**") is made as of the date the later- signing party signs this Agreement ("**Signing Date**"), to have effect retroactive to May 1, 2011 (the "**Effective Date**"), by and between **ADIMAB**, **LLC**, a Delaware limited liability company having an address at 16 Cavendish Court, Lebanon, NH 03766 ("**Adimab**") and **ARSANIS**, **INC**., a Delaware corporation having an address at 16 Cavendish Court, Lebanon, NH 03766 (together with Arsanis Biosciences GmbH, an Austrian entity having an address at Helmut-Qualtinger-Gasse 2, Vienna, A-1030, Austria, collectively "**Arsanis**").

BACKGROUND

1. Adimab is the leader in yeast-based, fully human antibody discovery using its proprietary core technology platform.

2. Arsanis is a newly formed biotechnology company focused on and having great expertise in infectious disease-related biological targets.

3. The Parties wish to collaborate to have Arsanis select infectious disease-related biological targets; Adimab discover antibodies directed against the selected targets; and Arsanis determine the activity of the antibodies delivered by Adimab and have the option to license certain of these antibodies for development and commercialization as biopharmaceutical product(s), all as more particularly set forth in this Agreement.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants set forth below, and for other good and valuable consideration, the receipt of which is hereby acknowledged, Adimab and Arsanis hereby agree as follows:

ARTICLE 1

DEFINITIONS.

The following initially capitalized terms have the following meanings (and derivative forms of them shall be interpreted accordingly):

1.1 "Accounting Standards" means United States generally accepted accounting principles, or International Financial Reporting Standards, whichever is used by the applicable Party in preparing its audited financial statements, in either case, consistently applied.

1.2 "**Adimab Change of Control**" shall have the same meaning as in the definition of Arsanis Trade Sale, applying such definition *mutatis mutandis* to Adimab in the same way that it applies to Arsanis.

1.3 "**Adimab Materials**" means any tangible biological or chemical materials (including all [**] and other [**] in the form of tangible biological or chemical materials) provided by Adimab to Arsanis under a Research Program, [**].

1.4 "**Adimab Platform/Background Patents**" means all Patents [**] the [**] that [**], not [**] the [**] on the basis of the [**] in which [**] under the [**].

1.5 "**Adimab Platform/Core Technology**" means [**] and [**] that [**] and [**] in the [**] and [**] of [**] of the [**].

1.6 "**Adimab Platform/Core Technology Improvement**" means all [**] and [**] (and Patents claiming them) [**], including any and all [**] or [**] to Adimab Platform/Core Technology as it is practiced by Adimab as of the Effective Date. Antibody Sequence Coverage shall not be deemed Adimab Platform/Core Technology Improvements. Adimab Platform/Core Technology Improvements do not include Broad Non-CDR Antibody Inventions (which, to avoid doubt, in accordance with the definition thereof, do not encompass any Program Inventions of which Adimab is an inventor in whole or in part).

1.7 "**Adimab Program Antibody Know-How**" means all Know-How Controlled by Adimab [**] that [**] for Arsanis [**] or [**] Program Antibodies as provided for in a Research Plan, (b) [**], or (c) [**]. The Adimab Program Antibody Know-How excludes [**] that is used [**] or [**] than the [**] of the foregoing sentence, but explicitly includes — to the extent actually disclosed by Adimab to Arsanis under this Agreement, and without implying any such disclosure obligation — any Know-How necessary for Arsanis to modify or create derivative forms of a Program Antibody as contemplated by the definition of "Product". The Parties do not intend for Arsanis to obtain under this Agreement the ability or right to practice the Adimab Platform/Core Technology for antibody discovery purposes.

1.8 "**Adimab Program Antibody Patents**" means any and all Program Antibody Patents the invention of which is an Adimab Program Invention.

1.9 "**Adimab Program Inventions**" means all Program Inventions for which Adimab (or its Affiliate) has (meaning that it employs or has engaged as a consultant) at least one (1) person who would be a properly named inventor on the U.S. Patent claiming such invention, other than Joint Program Inventions. Inventorship for purposes of this definition, and all intellectual property-related definitions in this Agreement, shall be determined in accordance with United States patent law,

1.10 "**Affiliate**" means, as to a given entity, another entity that, directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with a such first entity. For purposes of this definition, "control" means the ownership of fifty percent (50%) or more of the voting securities entitled to elect the directors or management of the entity, or the actual power to elect or direct the management of the entity. An Affiliate of Arsanis shall mean an entity that is an Affiliate of either (or both) of the entities collectively defined as

Arsanis (i.e., that is an Affiliate of either or both of Arsanis, Inc. and Arsanis Biosciences GmbH). Adimab and Arsanis shall not be deemed to be Affiliates of each other, nor shall Affiliates of Arsanis be deemed to be Affiliates of Adimab (due to a common control relationship), or **vice versa.** Moreover, notwithstanding anything in this Agreement to the contrary, any venture capital fund, private equity fund or other investor who is not primarily an operating biopharmaceutical, pharmaceutical, diagnostics, or medical device research and development and/or marketing company (a "**Non-affiliate Investor**") shall not be considered an Affiliate of Arsanis, and any person or entity that directly or indirectly controls or is controlled by a Non-affiliate Investor (except for any entity directly or indirectly controlled by Arsanis, controlling Arsanis, or under common control with Arsanis, in each case other than through Non-affiliate Investor(s)) shall not be considered an Affiliate of Arsanis solely by reason of being controlled by the same Non-affiliate Investors. The foregoing sentence shall apply *mutatis mutandis* to Adimab.

1.11 "**Antibody Sequence Coverage**" means a Program Patent with respect to which all of the following clauses (a) through (c) apply: (a) includes independent claim(s) to the composition of matter of a Program Antibody, which claims recite as a claim limitation the sequence, in whole or in part, of the Program Antibody's CDR (whether in amino acid or nucleic acid format), whether or not including a homology range or permitted level of substitution or variance (or specific substitutions, variations or positions for placement of substitutions or variations) from, to or within such sequence; (b) may also include other independent claim(s) reciting such a claim limitation and directed to the use or formulation of a Program Antibody; and (c) does not include any independent claim(s) not described by (a) or (b). Adimab shall be entitled to require separate filings in order to separate claims that standing alone would be Antibody Sequence Coverage from other claims that standing alone would be either Adimab Platform/Core Technology Improvements, Epitope Patents or Patents on Broad Non-CDR Antibody Inventions.

1.12 "**Arsanis Materials**" means any tangible biological or chemical materials (including antigen samples and other Know-How in the form of tangible biological or chemical materials) provided by Arsanis to Adimab under any Research Program.

1.13 "**Arsanis Program Antibody Patent**" means any Program Antibody Patent the invention of which is an Arsanis Program Invention.

1.14 "**Arsanis Program Inventions**" means all Program Inventions for which Arsanis (or its Affiliate) has (meaning that it employs or has engaged as a consultant) at least one (1) person who would be a properly named inventor on the U.S. Patent claiming such invention, other than Joint Program Inventions. Inventorship for purposes of this definition, and all intellectual property-related definitions in this Agreement, shall be determined in accordance with United States patent law.

1.15 "Arsanis Trade Sale" means any transaction, or series of related transactions, that is, or are, (x) an "Event" as defined in the Certificate of Incorporation of Arsanis as it exists as of the signing date, as reproduced in Exhibit G, except that no vote of any shareholder or class of shareholders shall be required for any transaction or series of transactions to qualify as an "Event;" or (y) other sale of Arsanis or an Affiliate holding rights under or to this Agreement to

any Third Party(ies), regardless of the form of the transaction(s), and including sale of stock and sale of majority "control" (as described in the definition of Affiliate), whether or not involving the issuance of new shares, unless: (a) the business of Arsanis immediately prior to such transaction(s) is the primary business of Arsanis or the surviving entity immediately after such transaction(s); and (b) Arsanis or the surviving entity, immediately after such transaction(s), is controlled (as "control" is defined in the definition of Affiliate), directly or indirectly, through zero, one or more intermediaries, exclusively by any one or more venture capital funds, private equity funds or other investors each of whom is not primarily an operating biopharmaceutical, pharmaceutical, diagnostics, or medical device research and development and/or marketing company and is not controlled (as "control" is defined in the definition of Affiliate) by such an operating company. Notwithstanding anything express or implied in this definition, if Arsanis becomes Affiliated with any top-[**] (based on annual sales) pharmaceutical or top-[**] (based on annual sales) biopharmaceutical company, regardless of the form of the transaction(s) and which entity is the surviving entity, this shall be an Arsanis Trade Sale for purposes of this Agreement.

Notwithstanding anything express or implied in this definition, Arsanis Trade Sale excludes Subsidiary Trade Sales.

1.16 "**Broad Non-CDR Antibody Invention**" means any Arsanis Program Invention that (a) that has general application to antibodies regardless of CDR or relates solely to the constant region of antibodies, (b) is not in any way specific to the CDR of any Program Antibody or Program-Benefited Antibody, and (c) is not claimed in a Patent claim that recites the sequence of all or any portion of such CDR in an independent claim, whether or not including a homology range or permitted level of substitution or variance (or specific substitutions, variations or positions for placement of substitutions or variations) from, to or within such sequence.

As non-limiting examples, the following inventions would qualify as Broad Non-CDR Antibody Inventions if they were Arsanis Program Inventions: Fc modifications; chemistry or sequences for conjugating antibody constant regions to toxins or other drugs; sites, amino acid sequences and methods for creating fusion proteins of antibodies with other proteins, diagnostic assays (the non-pretextual independent claims of which are not limited by CDR in the manner described in clause (c) of the foregoing paragraph) and identification of biomarkers (the non- pretextual independent claims of which are not limited by CDR in the manner described in clause (c) of the foregoing paragraph).

Subject to the confidentiality and sequence non-disclosure provisions of this Agreement, a Patent claiming Broad Non-CDR Antibody Inventions may recite a Program Antibody or Program-Benefited Antibody as an example, and this fact alone shall not cause the claimed invention not to be a Broad Non-CDR Antibody Invention, as long as it meets the requirements of (a) - (c) in the first sentence of this definition.

1.17 "**Business Day**" means a day that is not a Saturday, Sunday or public holiday in Vienna, Austria or Lebanon, New Hampshire, USA.

1.18 "**CDR**" means the complementarity-determining region of an antibody.

1.19 "**Collaboration**" means each Party's activities under or in connection with a Research Program at any time during the Collaboration Term.

1.20 "**Collaboration Term**" means the period starting on the Effective Date and continuing until the later of (a) expiration of the Tail Period or (b) completion of any Research Program activities continuing thereafter.

1.21 "**Combination Product**" means:

(a) a pharmaceutical composition that contains or is comprised of one or more Licensed Antibody(ies), and additionally contains or is comprised of one or more clinically active therapeutic or prophylactic ingredients that are not Licensed Antibody(ies) ("**Drug Combination**");

(b) a therapeutic or prophylactic Product (whether or not a Drug Combination) that is delivered by a proprietary, patented delivery device licensed from a Third Party, where the therapeutic or prophylactic Product and the patented delivery device are sold together for a single sales price (**"Drug-Device Combination"**); or

(c) a diagnostic Product that contains or is comprised of one or more Licensed Antibody(ies), and additionally contains or is comprised of one or more other antibodies that are not Licensed Antibody(ies) and/or also includes one or more other patented technology(ies)that is or are royalty-bearing to any Third Party.

1.22 "**Commercially Reasonable Efforts**" has the meaning given in Section 3.4(a).

1.23 "**Confidential Information**" has the meaning given in Section 6.1.

1.24 "**Control**" means, with respect to any Know-How or Patent, [**]other than pursuant to this Agreement[**] of the [**] or other right as provided for in this Agreement without violating the terms of any written agreement with any Third Party.

1.25 "**Cover**" means, with respect to a particular item and a particular Patent, that such Patent claims or covers, in any of the countries of manufacture, use, and/or sale, [**] of [**] of [**] or [**] or [**] or [**] of [**] of [**] of the [**] and/or [**] or [**].

1.26 "**Epitope Patent**" means any Patent owned or Controlled by Arsanis or its Affiliate that is directed exclusively to any invention that relates to any epitope of a Target, including by being a method specifically involving such epitope (including any therapeutic, prophylactic or diagnostic use of such epitope), which invention is a Program Invention or is invented using (a) Program Know-How as to such epitope or (b) Program Antibodies or Program-Benefited Antibodies that bind to such epitope. Epitope Patents include Patents directed to inventions expressed in terms of claiming antibodies that bind to the applicable epitope, based on their binding characteristics defined functionally or by reference to their interaction with the epitope, rather than specifically by binding sequence. Epitope Patents exclude Antibody Sequence Coverage.

1.27 "**Field**" means all therapeutic, prophylactic and diagnostic uses in humans.

1.28 "**First Commercial Sale**" means, with respect to a Product in any country, the first sale, transfer or disposition for value or for end use or consumption of such Product in such country after Marketing Authorization has been received in such country.

1.29 "**Full Time Equivalent**" or "**FTE**" means the equivalent of a full-time scientist's working days over a twelve (12) month period (taking account of normal vacations, sick days and holidays not being considered working days), which equates to a total of [**] hours per twelve (12) month period of scientific work performed by a fully qualified Adimab employee or consultant directly in the Collaboration. To provide an FTE over a given time period that is less than a year means to provide the proportionate share (corresponding to the proportion that such time period bears to a full year) during such time period of a full year's FTE. In no event shall the work over the course of a year of one individual person account for more than one (1) FTE year.

1.30 "**FTE Rate**" means [**] dollars ($[**]) per FTE (or [**] dollars ($[**]) on a quarterly basis).

1.31 "**Joint Inventions**" means any and all Program Inventions for which Adimab (or its Affiliate) and Arsanis (or its Affiliate) each have (meaning that each employs or has engaged as a consultant) at least one (1) person who would be a properly named inventor on the U.S. patent claiming such invention. Inventorship for purposes of this definition, and all intellectual property-related definitions in this Agreement, shall be determined in accordance with United States patent law.

1.32 "**Joint Program Antibody Patent**" means any Program Antibody Patent the invention of which is a Joint Invention.

1.33 "**Joint Serendipitous Inventions**" means all Joint Inventions other than those claimed by Joint Program Antibody Patents or constituting Adimab Platform/Core Technology Improvements or inventions claimed in Antibody Sequence Coverage or Epitope Patents.

1.34 "**Know-How**" means all technical information and know-how, including inventions, discoveries, trade secrets, specifications, instructions, processes, formulae, materials (including cell lines, vectors, plasmids, nucleic acids and the like), methods, protocols, expertise and other technology applicable to formulations, compositions or products or to their manufacture, development, registration, use or marketing or to methods of assaying or testing them or processes for their manufacture, formulations containing them or compositions incorporating or comprising them, and including all biological, chemical, pharmacological, biochemical, toxicological, pharmaceutical, physical and analytical, safety, quality control, manufacturing, preclinical and clinical data, instructions, processes, formula, and expertise.

1.35 "**Licensed Antibody**" has the meaning given in Section 3.2.

1.36 "**Licensed Program Antibody Patents**" means those Program Antibody Patents that Cover Licensed Antibodies.

1.37 "**Major Market**" means any of the [**].

1.38 "**Marketing Authorization**" means all approvals from the relevant Regulatory Authority necessary to market and sell a product (including a Product) in any country, including a Biologics License Application (BLA) in the U.S.

1.39 "**Multi-Product Deal**" means a Program Transaction in which rights are granted to one or more Licensed Antibodies and/or Products, and one or more antibodies, drugs and/or products that (a) are not Licensed Antibodies and/or Products, (b) are not (and are not based on) Program-Benefited Antibodies, and (c) are directed against or involve one or more Targets that are not Unrelated Targets with respect to the particular Program Transaction. A Multi-Product Deal may or may not also be a Multi-Target Deal.

1.40 "**Multi-Product Deal Program Transaction Revenue**" means, in a Multi- Product Deal, the portion of the Program Transaction Revenue for that Multi-Product Deal that is allocated and designated as Multi-Product Deal Program Transaction Revenue as provided in Section 4.3(c) (including via its reference to Section 10.2(b)).

1.41 "**Multi-Target Deal**" means a Program Transaction that includes rights to products the only antibodies in which are antibodies to targets considered Unrelated Targets with respect to such Program Transaction (and are not Licensed Antibodies or Program-Benefited Antibodies), in addition to including rights to Products. A Program Transaction shall not be considered a Multi-Target Deal solely because it includes a Combination Product for which one active ingredient is targeted to a target that is considered an Unrelated Target in that Program Transaction. Instead, the intent of the Parties in the "Multi-Target Deal" definition is to capture the situation where Arsanis or its Affiliate grants rights to multiple programs to the same counterparty, and at least one of the programs does not relate to Targets or does not include Program Antibodies or Program-Benefited Antibodies.

1.42 "**Multi-Target Deal Program Transaction Revenue**" means, for a Multi-Target Deal, the portion of the Program Transaction Revenue for that Multi-Target Deal that is allocated and designated as Multi-Target Deal Program Transaction Revenue as provided in Section 4.3(d) (including via its reference to Section 10.2(b)).

1.43 "**Net Sales**" means the gross amount invoiced by Arsanis or its Affiliates, or their Program Transaction counterparties (or their Affiliates) in Program Transactions for which the Royalty Election is made, for the sale, transfer or other disposition of Product to other Third Parties (in final form for end use or in whatever form is sold to Third Parties who are not Program Transaction counterparties (or their Affiliates)), less any of the following applicable deductions to the extent actually granted and included in the invoiced amounts:

[**].

Even if there is overlap between any of deductions [**], each individual item shall only be deducted once in each Net Sales calculation.

Net Sales calculated as described above shall be adjusted for Combination Products, as provided in Section 4.5(c). The same adjustment shall be applied to product bundles (in the countries where bundling is permitted under anti-trust law, if any).

Net Sales excludes amounts from sales or other dispositions of Product between Arsanis and any of its Affiliates, and Program Transaction counterparties (and their Affiliates), solely to the extent that such entity purchasing a Product either (a) resells such Product to another Third Party not Affiliated with any of them and such resale is included in Net Sales, or (b) the quantities are for use to be provided free to patients in a Product clinical trial.

1.44 "**Option**" means, for each Target, Arsanis' option for that Target as described in Section 3.2.

1.45 "**Option Evaluation Period**" means, with respect to a Target and the Program Antibodies to such Target, the period commencing with the first day of the applicable Option Term and ending on the earlier of (a) the date of Option exercise or (b) the expiration the Option Term.

1.46 "**Option Term**" means, for each Target, the time period beginning at the end of the Research Term for that Target, and continuing for [**] months thereafter.

1.47 "**Party**" means Adimab or Arsanis.

1.48 "**Patent**" means any patent application or patent anywhere in the world, including all of the following kinds: provisional, utility, divisional, continuation, continuation-in-part, and substitution applications; and utility, re-issue, re-examination, renewal and extended patents, and patents of addition, and any Supplementary Protection Certificates, restoration of patent terms and other similar rights.

1.49 "**Payment Patent**" means any (a) Licensed Program Antibody Patent (to avoid doubt, these by definition are not directed to Broad Non-CDR Antibody Invention(s)), and (b) Epitope Patents.

1.50 "**Product**" means any device, biologic or drug (or investigational device, biologic or drug) for use in the Field that [**], or (b) [**] or [**], (ii) [**], (iii) [**], and (iv) [**].

Products include Combination Products, however, this inclusion shall not be read to provide a license for any antibody or other active ingredient or component in a Combination Product that is not a Licensed Antibody ("**Unlicensed Other Ingredient**"), under independent intellectual property (including Patents and Know-How) of Adimab or its Affiliate Covering or with respect to the Unlicensed Other Ingredient on a stand-alone basis apart from its inclusion in the Combination Product. The same principle shall apply to exclude proprietary devices and diagnostic methods of Adimab and its Affiliates that do not constitute Adimab Platform/Background Patents and are not Program Inventions.

1.51 "**Program Antibody**" means each antibody [**] and [**] to Arsanis under a Research Program. For this purpose, [**] may occur through [**] of a Program Antibody refers interchangeably, and throughout this Agreement, to the [**].

1.52 "**Program Antibody Patents**" means Program Patents that [**] a Program Antibody or product containing a Program Antibody; [**] do not [**]; and [**] are not Epitope Patents.

1.53 "**Program-Benefited Antibody**" has the meaning given in Section 3.5(a).

1.54 "**Program Inventions**" means any patentable invention that is conceived and/or first reduced to practice in whole or in part by employees, contractors or agents of either Party or of both Parties in the course of the Collaboration or the evaluation of a Program Antibody during the applicable Option Evaluation Period.

1.55 "**Program Know-How**" means all Know-How made, developed, invented or discovered by employees, contractors or agents of either Party or of both Parties in the course of the Collaboration or the evaluation of a Program Antibody during the applicable Option Evaluation Period, excluding Program Inventions claimed in any Program Patent that has published or issued,

1.56 "**Program Patent**" means any Patent claiming a Program Invention.

1.57 "**Program Trade Sale Proceeds**" has the meaning given in Section 4.3(b).

1.58 "**Program Transaction**" means any and all agreements, transactions or arrangements that include a grant by Arsanis or its Affiliate(s) to any Third Party of rights of any kind with respect to any Payment Patent(s), Licensed Antibody(ies) and/or Product(s), regardless of the form of transaction, including asset sales, assignments, licenses, covenants not to sue, grants of distribution rights, Subsidiary Trade Sales and options for any of the foregoing. Program Transactions exclude, however, (a) an Arsanis Trade Sale and any such transactions entered into by Arsanis or its successor after, and that do not form any part of (i.e. do not form part of a series of transactions constituting), an Arsanis Trade Sale, and (b) agreements with contract manufacturing organizations (CMOs), contract research organizations (CROs), academic research organizations (AROs) and other contractors, or academic, non-profit or governmental entities, in each case where (1) the agreement counterparty is performing services for or collaborating with Arsanis or its Affiliates and the counterparty and its Affiliates are not granted any commercialization rights of any kind with respect to any Payment Patent(s), Licensed Antibody(ies) and/or Product(s) (including options for commercial rights) (whether pursuant to the same or under a different agreement) and (2) no revenue will be received by Arsanis or any of its Affiliates.

If multiple related or reasonably contemporaneous agreements, transactions or arrangements with any given Third Party (or set of related or affiliated Third Parties) are entered into by Arsanis or its Affiliate (or any combination of them), and one such agreement, transaction or arrangement would alone be a Program Transaction, then all such related or reasonably contemporaneous agreements, transactions or arrangements shall together be considered a single Program Transaction. As a non-limiting example, if Arsanis were to enter into one agreement with a Third Party for a commercialization license for a Licensed Antibody under Licensed Program Antibody Patents, another agreement with that Third Party with respect to clinical data generated by or for Arsanis with respect to a Licensed Antibody Covered by such Patents, a further agreement with such Third Party for other antibodies or small molecules acting via the same Target, and another agreement with an affiliate of that Third Party for Target-related intellectual property on that same Target, then all four agreements together constitute a single Program Transaction for purposes of this Agreement, including for purposes of the definition of Program Transaction Revenue associated with such Program Transaction. As another non-limiting example, this includes a Multi-Product Deal (but there is a special Program Transaction Revenue determination for Multi-Product Deals, set forth in Section 4.3(c)).

1.59 "**Program Transaction Revenue**" means all consideration (including monetary and non-monetary consideration in all forms other than not-readily-monetizable covenants that are customary in out-licensing deals in which the out-licensor is not obtaining rights to any unrelated intellectual property or products of the licensee, as further described in the last paragraph of this definition) actually received by Arsanis or its Affiliate or shareholders in either of them, from any Third Party in connection with a Program Transaction, excluding only:

(a) research and development reimbursement for research and development to be performed after the date of the Program Transaction, accounted for at reasonable and customary rates, on a full time equivalent basis (any excess over a reasonable and customary FTE rate is included in Program Transaction Revenue) or in the form of external costs billed through on a pass-through basis with no markup;

(b) reimbursement of patent expenses on a pass-through basis with no markup (to avoid doubt, this explicitly excludes payments to Adimab under Article 4);

(c) payments for equity of Arsanis to the extent at fair market value (the amount of any premium is included in Program Transaction Revenue);

(d) proceeds of repayable loans that are not forgiven (if later forgiven, the amount of the forgiven debt is included in Program Transaction Revenue);

(e) payments for supply of Product to the extent at Arsanis' (or its Affiliate's) fully burdened manufacturing cost (any excess over the fully burdened cost is included in Program Transaction Revenue); and

(f) research and development funding from governmental or non-profit entities to the extent required to be spent on research and development occurring after the date the Program Transaction is signed.

Other than in the case of a Multi-Target Deal or a Multi-Product Deal (which shall be handled as provided for in Section 4.3(c) or (d), as applicable), there shall be no adjustment, proportionality or scaling of any kind to or of Program Transaction Revenue for the inclusion, in addition to Program Know-How or Licensed Program Antibody Patents, of other intellectual property or rights in the Program Transaction (e.g., clinical data or trademarks in addition to Licensed Program Antibody Patents); *provided*, *however*, that in the case of a Combination Product, the allocation of Program Transaction Revenue shall be subject to further potential adjustment under Section 4.3(e).

If Arsanis receives Program Transaction Revenue in a form other than immediately available funds (for example, in equity of a Third Party), then Adimab shall receive its share of the Program Transaction Revenue in the same forms and in the same proportions as does Arsanis (i.e., Adimab will receive its share in the same mix of immediately available funds and in-kind consideration as Arsanis), or if the Parties agree on a case-by-case basis that such an in-kind

distribution is not practical, then Arsanis shall pay Adimab's share, calculated based on the fair market value of such in-kind consideration, in cash or wire transfer of immediately available funds. If the Parties do not agree that the in-kind distribution is not practical, then Adimab shall have the right to decline and forgo its share of in-kind consideration on a case-by-case basis. For clarity, if Program Transaction Revenue is subject to increase by contingent payments related to future events and/or release of escrowed amounts, such increased amounts shall be included as Program Transaction Revenue only as and when such payments are received by Arsanis (or its Affiliate or shareholders in Arsanis or its Affiliates).

The following types of consideration in a Program Transaction are not considered and shall be deemed excluded from Program Transaction Revenue: covenants of diligent development and commercialization; representations and warranties; confidentiality and non-use commitments; customary indemnification provisions; reversionary rights to the licensed products in case of agreement termination (in whole or in part); grantbacks of intellectual property with respect to the licensed product, for a retained territory or otherwise; operational commitments (e.g., to provide reports, to participate in joint committees, etc.); and similarly non-monetizable covenants that are customary in out-licensing transactions in which the out-licensor is not obtaining rights to any unrelated intellectual property or products of the licensee – and to avoid doubt explicitly excluding product quids.

1.60 "**Regulatory Authority**" means the FDA or any counterpart of the FDA outside the United States.

1.61 "**Research Committee**" has the meaning given in Section 2.1(a).

1.62 "**Research Overview**" means the diagram attached at Exhibit B.

1.63 "**Research Plan**" means the research plan set forth in Exhibit C, or any research plan providing for a program of research that the Research Committee may finalize and the Parties approve in writing as provided for in Section 2.2. It is anticipated that there may ultimately be [**] Research Plans under the Collaboration, but the final number of Research Plans is not currently known. The Research Plan of Exhibit C is "Research Plan 1." All subsequent Research Plans will be numbered consecutively. All Research Plans shall comply with the applicable requirements stated in Section 2.2.

1.64 "**Research Program**" means a program of research conducted under this Agreement in accordance with a Research Plan. Research Program 1 is the program of research under Research Plan 1. Each Research Program shall have the same number as the Research Plan to which it corresponds.

1.65 "**Research Term**" means, for each Research Program, the period beginning when Arsanis first delivers Arsanis Materials under such Research Program to Adimab, and ending when Adimab completes the activities called for under the Research Plan for that Research Program.

1.66 "**Revenue Election**" has the meaning given in Section 4.3(a).

1.67 "**Royalty Election**" has the meaning given in Section 4.3(a).

1.68 "**Royalty Term**" has the meaning given in Section 4.5(b),

1.69 "**Senior Executives Discussions**" has the meaning given in Section 10.2(a).

1.70 "**Start Date**" means the date that Adimab designates in writing to Arsanis as the date upon which the Adimab campaign team will start the first Research Program under this Agreement. Adimab shall provide this written designation to Arsanis within [**] weeks after the Signing Date.

1.71 "**Subsidiary Trade Sale**" means, with regard to any subsidiary Affiliate of Arsanis that does not hold or have the right to obtain all or substantially all of the Undesignated Rights under this Agreement, any transaction, or series of related transactions, that would constitute an Arsanis Trade Sale if the name of the subsidiary Affiliate was substituted for the name of Arsanis in the definition of Arsanis Trade Sale.

1.72 "**Success Criteria**" shall mean, for each Research Program, the criteria set forth in the applicable Research Plan for the characteristics that are being sought in the Program Antibodies to the corresponding Target, as a group. Success Criteria may be defined with respect to a population of antibodies, such that some specified number (less than all) of the Program Antibodies delivered by Adimab may be required to meet different criteria, and in that case if the population of Program Antibodies collectively meet those criteria (by the minimum numbers of individual antibodies meeting different of the articulated criteria set forth in the applicable Research Plan), then the Success Criteria shall be deemed met.

1.73 "**Tail Period**" means the [**] months beginning at the end of the Target Nomination Period.

1.74 "**Target**" means the disease-related biological target of interest to Arsanis that is specifically identified in Research Plan 1, or the disease-related biological target of interest to Arsanis that is specifically identified in any subsequent Research Plan. Different epitopes on or serotypes of the same molecule that is a biological target of interest will not be deemed to be different Targets, and Target shall be defined by reference to entire molecules rather than individual serotypes/epitopes (although activities may be focused on specific serotype/epitopes).

1.75 "**Target Nomination Period**" means the period beginning on the Start Date and ending on December 31, 2012.

1.76 "**Third Party**" means an entity other than a Party or the Affiliate of a Party.

1.77 "**Undesignated Rights**" means those commercial rights in and to a Licensed Antibody (and/or the Products comprised of such Licensed Antibody) as to which a Revenue Election or Royalty Election has *not* previously been made (e.g., with respect to particular jurisdictions, indications and/or fields of use).

1.78 "**Unrelated Target**" means, in any given Program Transaction, any biological target (a) that is *not* a Target, or (b) that *is* a Target, but for which Target no Licensed Antibodies, Program-Benefited Antibodies or Epitope Patents are included in the given Program Transaction.

1.79 References in the body of this Agreement to "Sections" refer to the sections of this Agreement. The terms "include," "includes," "including" and derivative forms of them shall be deemed followed by the phrase "without limitation" regardless of whether such phrase appears there (and with no implication being drawn from its inconsistent inclusion or non-inclusion).

1.80 To avoid doubt, the term "antibody" as used everywhere else in this Agreement includes both full-length antibodies, fragments thereof, and chemically modified versions thereof (including pegylated versions and regardless of whether containing amino acid substitutions), all of the foregoing whether naturally occurring, artificially produced, raised in an artificial system, or created through modification of an antibody produced in any of the foregoing ways or otherwise.

ARTICLE 2

PROGRAM.

2.1 Scientific Research Committee.

(a) Research Committee. Promptly after the Signing Date, the Parties shall form a steering committee consisting of [**] representatives from each Party (the "**Research Committee**"). Adimab's initial members of the Research Committee shall be [**]. Arsanis' initial such members shall be [**]. Either Party may change its Research Committee members upon written notice to the other Party.

(b) Meetings. The Research Committee shall hold its first meeting within [**] days after the Signing Date. Thereafter, it shall meet from time to time promptly after the date of a written request by either Party, and in any event no less frequently than [**] during the Collaboration Term. The Research Committee may meet in person or by teleconference or videoconference. Each Party shall designate one of its Research Committee members as co-chair. The co-chairs shall be responsible to circulate a written agenda in advance of each Research Committee meeting. The co-chairs shall be responsible to circulate, finalize and agree in writing on minutes of each meeting within [**] days after the meeting date. Each Party shall be entitled to have a reasonable number of its employees and consultants who are not Research Committee members attend Research Committee meetings from time to time; *provided*, that such employees and consultants are subject to written confidentiality and non-use obligations that are no less stringent than the confidentiality obligations and restrictions on use set forth in Article 6.

(c) Responsibilities. The Research Committee's role is to (i) facilitate communication regarding progress and results under the Collaboration and as to individual Research Programs; (ii) review and discuss reports provided by each Party; (iii) be the working group that will prepare and finalize new proposed research plans for approval by each Party; (iv) prioritize among Research Programs (including terminating or postponing Research Programs); (v) discuss and approve any research to be performed by or in collaboration with a Third Party that is primarily in the commercial antibody discovery business (as described in Section 2.8(c)), if approved by Adimab in its sole discretion; (vi) recommend to Arsanis additional research activities not described in a Research Plan that Arsanis may, in its sole discretion, authorize Adimab to perform in the event that there is additional capacity in the Adimab FTE commitment described in Section 2.4 that is not being utilized; and (vii) perform such other activities as the Parties agree in writing shall be the responsibility of the Research Committee.

(d) Decision-Making. Day-to-day Research Program management and implementation shall be the responsibility of the Parties' respective technical teams as regards each Party's Research Program responsibilities. The Research Committee shall have the limited authority to (i) amend each Research Plan in a manner not substantially affecting resources required to perform such Research Plan or Success Criteria or altering timing for performance in a way that consumes fewer FTEs than scheduled unless Adimab consents in writing in its sole discretion or receives no less than [**] days notice prior to the FTE reduction (in the latter case, subject always to and without altering the minimum FTE funding requirements in Section 4.2), and (ii) prioritize among Research Programs (including terminating or delaying Research Programs, subject always to the same notice requirements prior to reducing FTEs as set forth in subsection (i) and subject always to and without altering the minimum FTE funding requirements in Section 4.2). Except for the limited authority set forth in the foregoing sentence, the Research Committee shall not have any decision-making authority and the Research Committee shall have no power to amend or waive compliance with this Agreement or any Research Plan. Decisions within the purview of the Research Committee shall be made by the Research Committee by consensus, with the representatives of each Party collectively having one vote on behalf of such Party. For each meeting of the Research Committee, at least one (1) representative of each Party shall constitute a quorum. If the Research Committee is unable to reach a consensus with respect to a dispute within its purview (to avoid doubt, general contractual disputes and disputes as to any decisions reserved to a Party shall not be deemed to be within the Research Committee's purview), then the dispute resolution provisions of Section 10.2(a) shall apply; *provided*, *however*, that (x) disputes regarding new research plans shall be resolved as set forth in Sections 2.2(e) and (1); (y) [**] shall have final decision-making authority regarding the prioritization of Research Programs (including terminating or postponing Research Programs (subject to the notice and FTE funding qualifications described in clauses (i) and (ii) above in this paragraph); and (z) other than a dispute as to whether each Party has acted in good faith and in accordance with this Agreement in its participation in the Research Committee, disputes of the Research Committee not resolved by the Senior Executives Discussions under Section 10.2(a) shall not be justiciable and (absent such a failure to act in good faith and in accordance with this Agreement) shall not be litigated, and the disputed Research Committee decision not falling within (x) or (y) and not resolved under (z) shall simply not be taken.

2.2 Addition of New Targets and Research Plans/Programs.

(a) One Target/Program at Signing But Likelihood of More. The Parties wish to engage in the Collaboration, consisting of multiple Research Programs. The complete details have been agreed as to only one Research Plan and Research Program as of signing, and only the Target for this first Research Program has been determined. However, it is anticipated that additional Targets will be added by Arsanis to the Collaboration, consistent with the Research Overview and the procedures provided in this Section. For clarity, Arsanis may select additional Targets that are not listed in the Research Overview.

(b) Selection/Notice by Arsanis. During the Target Nomination Period, Arsanis shall have the right to select and designate new biological targets that it wishes to add to the Collaboration as Targets, by written notice to Adimab. Such written notice may be (but is not required to be) included in one of Arsanis' regular reports under Section 2.5(b) or in a written request for a Research Committee meeting. Adimab has no right to reject proposed Targets.

(c) Questionnaire and Drafting Process. Promptly after Arsanis' notice, Arsanis shall fill out and send to Adimab the Research Program Questionnaire (the form of which is attached as Exhibit D), as well as a draft research plan (or, if the notice does not include a draft research plan, then Adimab shall provide the first draft of the research plan based on the input from the Research Program Questionnaire). Promptly after Adimab receives the completed Research Program Questionnaire and draft research plan from Arsanis (within [**] days), Adimab shall review the Research Program Questionnaire and draft research plan and shall provide Arsanis with any comments or questions, which will form the basis for a Research Committee meeting. If the Research Committee approves the general research plan concept, the Research Committee shall designate a working group consisting of the technical teams of both Parties that shall finalize the Research Plan within a period of no longer than [**] weeks. The Parties shall work together collaboratively (through the Research Committee and otherwise) to revise and reach consensus on the plan.

(d) Required Content in Each Proposed Research Plan. Each proposed research plan shall comply with all of the following:

(i) The plan shall clearly identify the Target for which Arsanis provided its notice, in a manner consistent with the definition of Target.

(ii) The plan shall clearly identify Success Criteria for the applicable Target. If applicable, it shall additionally distinguish the criteria that serve contractually as requirements to meet the Success Criteria for purposes of this Agreement, from other criteria (if any) that are desired characteristics but are not required to be met in order for the Success Criteria to be achieved in the applicable Research Program for purposes of this Agreement (i.e., required versus preferred characteristics).

(iii) The plan shall describe the Arsanis Materials to be provided.

(iv) The plan shall describe the Adimab deliverables in reasonable detail.

(v) The plan shall describe a timeline for (w) delivery of the Arsanis Materials to Adimab, (x) commencement of Adimab's work under the plan, (y) delivery by Adimab of Adimab's deliverables under the plan, and (z) if applicable, any "optional" research activities of Adimab under the plan, described below.

(vi) The plan shall describe any research to be performed by or in collaboration with a Third Party that is approved as described in Section 2.8(c).

The plan may also include additional research activities that Arsanis may, in its sole discretion, authorize Adimab to perform in the event that there is additional capacity in the Adimab FTE commitment described in Section 2.4 that is not being utilized. Such additional research activities shall be identified as "optional" in the Research Plan, and shall only be performed by Adimab if so authorized by Arsanis in writing. For example, if a Research Plan stage is delayed because required Arsanis Materials are not available, Arsanis may authorize Adimab to undertake some or all of the "optional" research activities described in one or more Research Plans.

(e) Process Timeline and Approval Process. The process at the Research Committee level is intended to take about [**] days. Once consensus has been reached at the Research Committee level, the proposed research plan, along with a written estimate of the FTEs required to perform Adimab's responsibilities under each stage of the plan, shall be sent by the Research Committee for formal approval within each Party. Each Party shall respond in writing with its approval of the plan, or with any concerns, within [**] days. Neither Party shall unreasonably withhold, delay or condition its approval to a proposed plan that is consistent with the standards above (at either the Research Committee consensus or the approval-by-the-Parties stage). If a Party does not approve the proposed final plan, it shall provide a reason in writing and the Research Committee shall seek in good faith to find a solution, revise the plan, and resubmit for formal approval within [**] days. The plan shall become a Research Plan under this Agreement, and if applicable, the target that it identifies shall become a Target under this Agreement, when an officer for each Party signs an approval letter approving the final plan.

(i) Escalation in Case of Failure to Reach Consensus. If the Research Committee is unable to reach consensus on a new research plan (either initially or after an initial plan is sent for approval but rejected by either Party), then either Party may refer the matter for further discussions by an officer or director of each Party, who is not an officer or director of and does not have (or represent a fund that has) an equity or debt interest in the other Party, directly or indirectly. Each Party shall be entitled to select its representative and shall make such representative reasonably available for discussions and seek in good faith to resolve the dispute over a period not longer than [**] days. In the absence of consensus, the proposed plan shall not be a Research Plan under this Agreement, but a Party shall be entitled to proceed to further escalation and dispute resolution under Section 10.2(a) regarding the issue of whether the other Party has unreasonably withheld, delayed or conditioned its approval of the proposed research plan as a Research Plan.

2.3 Research Program Performance. Each Party shall use its reasonable efforts to carry out the Research Program activities assigned to such Party in each Research Plan, on the applicable timeline set forth in such Research Plan. Adimab shall deliver to Arsanis the Program Antibodies and all other deliverables described in each Research Plan in accordance with the timetable set forth therein, but no later than the end of the applicable Research Term, unless an Arsanis re-prioritization of Research Programs results in a different timeline. Adimab's performance obligations under each Research Plan shall be contingent upon Arsanis providing the Arsanis Materials set forth in such Research Plan and the FTE funding as provided in this Agreement, and shall expire at the end of the Research Term. Arsanis' performance obligations relating to testing of Program Antibodies under a Research Plan are contingent upon Adimab providing the Program Antibodies as detailed in the Research Plan that collectively meet the applicable Success Criteria.

2.4 Collaboration FTE Commitments.

(a) FTE Commitment. Throughout the Target Nomination Period Adimab will make available to dedicate to the Collaboration a minimum of one (1) campaign team consisting of [**] FTEs (to avoid doubt, individual scientific personnel may rotate on and off the campaign team and any given FTE may consist of the time of more than one person (for non-limiting example, two half-time people)). During the Target Nomination Period Adimab will devote such FTEs to performing Research Programs to the extent there are Research Programs (and applicable Arsanis Materials received to enable Adimab performance). During the Target Nomination Period more than [**] FTEs may be performing activities under the Research Programs at any given time, however, the total number of FTEs performing such activities shall not exceed [**] FTEs on average in any [**] month period without the prior written consent of both Parties. No later than [**] months prior to the expiration of the Target Nomination Period, Arsanis shall notify Adimab in writing of those Research Programs that Arsanis elects (in its sole discretion) to pursue during the Tail Period (or any portion thereof) and Adimab will provide Arsanis with a schedule of the FTE usage required by Adimab to complete such Research Programs. During the Tail Period Adimab will devote the number of FTEs required to complete such Research Programs, however, Adimab's aggregate FTE commitment during the Tail Period shall not exceed [**] FTEs per year over such period taken as a whole unless agreed by the Parties in writing. Adimab shall not be required during the Target Nomination Period or during the Tail Period to devote any FTEs to performing Research Programs, other than FTEs funded by Arsanis under Section 4.2.

(b) Funding. Arsanis is responsible to fund the FTEs devoted by Adimab to the Collaboration as set forth in Section 4.2.

(c) Exclusive Use of Campaign Manager. During the applicable Research Term, and for a period of [**] thereafter, the person whom Adimab has designated as the "Campaign Manager" for a given Research Program shall not perform, or supervise the performance of, research relating to the corresponding Target using Adimab Platform/Core Technology for Adimab or its Affiliates (whether for their own account or on behalf of any Third Party). It is understood and agreed that if such a person is no longer in Adimab's or its Affiliate's employ, then such person's activities for another employer are beyond the scope of (and are not Adimab's responsibility to prevent under) the foregoing sentence.

2.5 Records and Reports.

(a) Records. Each Party shall maintain scientific records, in sufficient detail and in good scientific manner appropriate for patent and regulatory purposes, which shall fully and properly reflect all work done and results achieved in the performance of the Collaboration. All such records and the information disclosed therein shall be maintained in confidence in accordance with Article 6 to the extent reflecting Confidential Information of the other Party. Adimab shall not be required to disclose [**] to Arsanis, even if reflected in such records.

(b) Reports By Adimab. At the junctures specified in each Research Plan, Adimab shall provide written reports to Arsanis of the Program Antibodies Adimab has identified under that Research Plan, and any information with respect to them that such Research Plan provides for Adimab to disclose. Adimab shall not be required to disclose any [**] to Arsanis.

(c) Reports By Arsanis. During the Research Term at the junctures set forth in the Research Plan, and then [**] throughout the term of the applicable Option and for so long as Arsanis or any of its Affiliates, successors, licensees or sublicensees continue to generate or test any Program-Benefited Antibodies, Arsanis shall provide written reports to Adimab. Arsanis' reports shall provide any Program Know-How developed by Arsanis in the applicable Research Program that Arsanis is required to provide under the Research Plan, and shall disclose all Program-Benefited Antibodies since the date of the last report. Such reports and their contents are Confidential Information of Arsanis (except to the extent that Arsanis includes any Adimab Confidential Information in the reports).

2.6 Use of Adimab Materials. Arsanis shall not use Adimab Materials in any way outside of the Research Program or other than pursuant to the licenses granted under this Agreement while such licenses are in effect. Among other things, this means that, except under the applicable Research Program as outlined in the applicable Research Plan or pursuant to such licenses, Arsanis shall not: (a) provide Adimab Materials to any Third Party (except permitted Third Party contractors and collaborators as described in Section 2.8), (b) sequence or modify the Adimab Materials, or (c) use sequence information regarding, or quantities of, Program Antibodies or Adimab Materials for any purpose other than to research, develop and commercialize Program-Benefited Antibodies pursuant to Section 3.5.

Adimab retains title to the Adimab Materials, including all quantities of Program Antibodies that it provides under the Collaboration. Unless Arsanis exercises an Option with respect to such Program Antibodies, such quantities of Program Antibodies are for use solely in assessing whether to exercise the Options. Such quantities shall not be [**]; *provided*, *however*, that Arsanis may use such quantities to compare the performance of Program Antibodies in various assays against other Program Antibodies, and against benchmark research antibodies, benchmark commercial antibodies or any other benchmark agent, including small molecules and biological agents, all of which prior to the comparison to Program Antibodies have previously been identified as having activity against, binding to, agonizing, antagonizing or inhibiting the applicable Target (*provided*, that negative controls already identified as such are permitted to be used). Unless Arsanis exercises the applicable Option, on expiry of the applicable Option Term, or earlier termination of this Agreement, Arsanis shall return to Adimab or destroy the remaining quantities of Program Antibodies provided by Adimab for each Target, if Adimab requests in writing. Without limiting the generality of the foregoing, Arsanis shall not provide Program Antibodies to Third Parties who are in the commercial antibody discovery business, except as provided in Section 2.8(b) or the last sentence of Section 2.8(c).

2.7 Use of Arsanis Materials. Adimab shall not use Arsanis Materials in any way other than to perform Adimab's obligations under a Research Program or pursuant to the license granted under this Agreement while such license is in effect. Adimab shall not transfer the Arsanis Materials to any Third Parties or outside of Adimab.

Arsanis retains title to the Arsanis Materials, including all quantities of antigens that it provides under the Collaboration. Upon expiration of the Research Term for each Research Program, or earlier termination of this Agreement, Adimab shall return to Arsanis or, if requested by Arsanis in writing, destroy the remaining quantities of Arsanis Materials provided for use in such Research Program.

2.8 Third Party Contractors and Collaborations.

(a) Contractors. Arsanis may utilize the services of Third Parties that are not in the commercial antibody discovery business to perform its obligations under the Collaboration and to perform research in order to evaluate Program Antibodies in order to determine whether to exercise one or more Options under this Agreement, Arsanis' agreement with any such Third Party shall be consistent with the applicable terms of this Agreement (including Section 2.6), provide Adimab the same rights under this Agreement as if Arsanis had done the work itself, and include confidentiality and non-use provisions that are no less stringent than those set forth in Article 6 of this Agreement.

(b) Collaborators. The Parties agree that it may be necessary or useful for Arsanis to enter into collaborations with Third Parties that are academic or non-profit institutions and not fee-for-service contractors (as described in Section 2.8(a) above), are not primarily in the commercial antibody discovery business, and provide Know-How and other intellectual property that are necessary or useful for Arsanis to perform its obligations under the Collaboration and to evaluate Program Antibodies in order to determine whether to exercise one or more Options under this Agreement. Arsanis' agreement with any such Third Party shall contain (i) restrictions on the use of Adimab Materials consistent with Section 2.6 (including the prohibition on using Program Antibodies in screening), (ii) confidentiality and non-use provisions that are no less stringent than those set forth in Article 6 of this Agreement, and (iii) provisions that ensure that any and all data and results arising out of the Third Party collaboration may be provided to Adimab as and to the extent contemplated under this Agreement. Arsanis shall use commercially reasonable efforts to ensure that it obtains the right to assign, license or sublicense to Adimab any intellectual property rights arising out of the Third Party collaboration that constitutes an Adimab Platform/Core Technology Improvement, or, if it believes it will not be practicable to obtain such right to assign, license or sublicense to Adimab, then Arsanis shall not disclose or transfer to the applicable Third Party (x) any Adimab Confidential Information other than Program Antibody sequences or (y) any Adimab Materials other than Program Antibody samples.

(c) Commercial Antibody Discovery Businesses. In the event that a research arrangement is contemplated by Arsanis, that would be with a Third Party that is in the commercial antibody discovery business but not a collaborator as described in Section 2.8(b) above, in connection with the Collaboration or to evaluate Program Antibodies in order to determine whether to exercise one or more Options under this Agreement, the Research Committee shall discuss the matter. If the Research Committee agrees to recommend to Adimab approval of such research arrangement, then Arsanis shall request Adimab's approval of such research arrangement in writing and Adimab shall either approve or veto such research arrangement within [**] days after such written request. If Adimab in its sole discretion approves of such research arrangement in writing, with or without specific terms and restrictions as a condition of Adimab's approval, and Arsanis once notified in writing of any such condition continues to wish in its sole discretion to proceed with the research arrangement, then the

Research Plan shall be amended by mutual agreement of the Parties to include such research arrangement (together with any such conditions). However, this Section 2.8(c) shall not apply to prohibit Arsanis from providing Program Antibody samples to contract research organizations for use solely in testing that does not involve using the Program Antibodies in screening for the activity or interaction of other antibodies via or with the applicable Target, even if in unrelated work for Third Parties the contract research organization may perform antibody discovery activities; *provided* that the arrangements with the contract research organization are otherwise fully in compliance with Section 2.8(a).

2.9 Non-Exploitation of Program Antibodies by Adimab (Unless Independently Discovered) At All Times. Unless independently rediscovered in full compliance with Section 2.4(c) and without the use of (a) Arsanis Materials, (b) Confidential Information of Arsanis (subject to Section 6.2(e) regarding independent development of such information), or (c) Program Inventions or Program Know-How (other than Adimab Platform/Core Technology Improvements and subject to Section 6.2(e)), Adimab and its Affiliates shall not (i) provide the Program Antibodies or their sequences to any Third Party at any time, or (ii) use the Program Antibodies or their sequences to research, develop, manufacture or commercialize biologic or drug products in the Field for Adimab, its Affiliates or for any Third Parties. This clause is in no way intended to limit Adimab's ability to transfer (including licensing) its Adimab Platform/Core Technology (including antibody libraries) to other entities or for those entities to use the Adimab Platform Technology (including antibody libraries). Adimab is not under any circumstances required by this Agreement to remove or screen out any antibodies (or coding sequences) from its antibody (or coding sequence) libraries. Adimab may independently regenerate such coding sequences without use or reference to the Program Inventions and/or Program Know-How, other than any Adimab Platform/Core Technology Improvements (which nothing in this Agreement shall be read to restrict Adimab from using). In the case of independent rediscovery as provided in the first sentence of this Section, Adimab shall be unrestricted in its use of and ability to provide the applicable independently rediscovered and/or independently regenerated antibodies to others.

ARTICLE 3

LICENSES; OPTION; DEVELOPMENT & COMMERCIALIZATION

3.1 Mutual Research Program Licenses.

(a) To Arsanis. Adimab and its Affiliates hereby grant Arsanis a non-exclusive license under the Adimab Platform/Background Patents, Adimab Program Patents, Adimab Program Antibody Know-How and Program Know-How made by Adimab, for Arsanis to perform Arsanis' responsibilities as provided for in the Research Plan as part of the Research Program during the Research Term, and for Arsanis to perform research (but excluding human clinical trials) of the Program Antibodies to each Target during the Option Term for that Target in order to evaluate whether to exercise the Option with respect to that Target and one (1) or more of such Program Antibodies directed to that Target. The foregoing license excludes the right to discover antibodies and excludes the right to use Program Antibodies to screen for other antibodies' activity vis-à-vis the Target (such exclusion including the right to use the Program Antibodies as a control to test, screen for or design other antibodies), except that Arsanis may

use such quantities to compare the performance of Program Antibodies in various assays against other Program Antibodies, and against benchmark research antibodies, benchmark commercial antibodies or any other benchmark agent, including small molecules and biological agents, all of which prior to the comparison to Program Antibodies have previously been identified as having activity against, binding to, agonizing, antagonizing or inhibiting the applicable Target (*provided* that negative controls already identified as such are permitted to be used). The foregoing license is subject to Arsanis' compliance with the restrictions on use of Adimab Materials set forth in Section 2.6.

(b) To Adimab. Arsanis and its Affiliates hereby grant to Adimab a non-exclusive license under all Patents and Know-How Controlled by Arsanis (or its Affiliate) and relating in any way to the Target for each Research Program (including any that so relate by claiming antibodies directed to that Target or a mechanism of action via that Target) or any Arsanis Materials, for Adimab to perform Adimab's responsibilities as provided for in the applicable Research Plan as part of the applicable Research Program during the applicable Research Term. The foregoing license is subject to Adimab's compliance with the restrictions on use of Arsanis Materials set forth in Section 2.7.

3.2 Arsanis Option. Adimab hereby grants Arsanis the exclusive option to obtain the licenses of Section 3.3 and assignment of corresponding Antibody Sequence Coverage for the corresponding Licensed Antibodies, exercisable in relation to each Target by Arsanis in its sole discretion upon written notice to Adimab on or before the expiry of the Option Term for such Target. Arsanis shall, in its written notice to exercise the Option, specify up to [**] Program Antibodies as the "**Licensed Antibodies**" for that Target. Once the Licensed Antibodies have been identified through such Option Exercise notice, the assignment to Arsanis of the Antibody Sequence Coverage on such Licensed Antibodies shall become effective.

3.3 Development/Commercialization License. Adimab and its Affiliates hereby grant to Arsanis for each Target, effective on Option exercise for that Target, a worldwide, royalty-bearing, sublicenseable (solely as provided in this Section) license under the relevant Adimab Platform/Background Patents, Licensed Program Antibody Patents, Adimab Program Antibody Know-How and Program Know-How made by Adimab, in the Field, to research, develop, make, have made, use, sell, offer to sell, import and export Licensed Antibodies to such Target and Products based on Licensed Antibodies to such Target during the term of this Agreement. Such license shall be exclusive (even as to Adimab, except as regards the retained library rights of Section 5.2(c)) under the Licensed Program Antibody Patents) and subject to Section 6.2(e) shall be exclusive even as to Adimab under the Adimab Program Antibody Know-How. Such license shall be non-exclusive under the Adimab Platform/Background Patents. Such license shall be sublicensable through one (1) or more tiers of sublicensees without the need to obtain consent; *provided*, that the sublicense agreement (a) is consistent with and subject to this Agreement, contains provisions that enable Arsanis to comply with its reporting obligations under this Agreement (e.g., reporting and audit provisions), (b) requires the sublicensee(s) at each tier to indemnify Adimab on the same basis as provided for in Article 8 (and the sublicense shall provide that Adimab is a third-party beneficiary of such indemnification obligation) and (c) shall provide that if Arsanis makes the Royalty Election under this Agreement with respect to the sublicense, then (i) such sublicense shall contain royalty payment obligations of the sublicensee that are sufficient to cover the royalty payment obligations pursuant to Section

4.5 to Adimab of [**] percent ([**]%) of Net Sales made within the scope of such sublicense and (ii) Adimab shall be an intended third-party beneficiary of such royalty payment obligations of the sublicensee under such sublicense (without imposing any greater obligation on the sublicensee than imposed on Arsanis under this Agreement) and of the indemnification obligation required under clause (b). The requirements of the foregoing sentence as to sublicensees shall also apply to all Program Transaction counterparties.

3.4 Diligent Development and Commercialization.

(a) Diligent Efforts. "**Commercially Reasonable Efforts**" means, with respect to a Product, the level of efforts required to carry out a task in a diligent and sustained manner without undue interruption, pause or delay; which level is at least commensurate with the level of efforts that a similarly situated biopharmaceutical company would devote to a product of similar market potential at a similar stage in development or product life, taking into account the following factors: issues of safety and efficacy; the competitiveness of alternative products; the patent or other proprietary position of the Product; pricing and reimbursement; product profile, difficulty in and costs of developing or manufacturing the Product, competitiveness of the Product and alternative Third Party products in the marketplace; the regulatory structure involved in developing and commercializing the product; the potential profitability of the Product marketed or to be marketed; and all other relevant scientific, technical and commercial factors. Commercially Reasonable Efforts shall be determined on a country-by-country basis, and it is anticipated that the level of effort will change over time reflecting changes in the status of the Product and the market involved. Arsanis shall, for each Target for which the Option is exercised, devote Commercially Reasonable Efforts to preclinically and clinically develop, seek Marketing Authorization for, and launch and actively commercialize at least one (1) Product containing a Licensed Antibody to such Target, for the Major Markets.

(b) Reports. [**], Arsanis will provide Adimab with a written report summarizing Product progress in development and commercialization, and Arsanis' and its Affiliates' significant activities in that regard, on a Target-by-Target basis. If requested by Adimab, Arsanis shall meet with Adimab to discuss such report at least [**]. Arsanis shall make the following personnel available for such meetings: the [**] (or equivalent) for Product development, and another person at [**] or above. These meetings are not required of Third Party sublicensees or Program Transaction counterparties of Arsanis or its Affiliates, or of Arsanis with respect to any Target for which all rights of Arsanis under this Agreement with respect to Licensed Antibodies to such Target have been out-licensed or transferred to Third Parties.

3.5 Commitments Regarding Program-Benefited Antibodies.

(a) Program-Benefited Antibodies. The Parties intend that if Arsanis or its Affiliates pursue any antibody that benefits from the antibody discovery work performed by Adimab under this Agreement, they shall do so under this Agreement paying fees to Adimab as provided in Article 4 (and complying with all other provisions of Article 4, including notice requirements, in the same way as such provisions apply to Program Antibodies). This Agreement gives Arsanis and its Affiliates the right to modify the Licensed Antibodies, by including modified versions of them and derivatives of them in the definition of "Product"

provided above. Arsanis and its Affiliates shall also be entitled to use sequence-related information obtained under this Agreement to research, develop and commercialize antibody products in the Field that are not Products. However, the Parties intend that Arsanis and its Affiliates shall not ever develop or commercialize an antibody product using, or that is based on, (a) a Program Antibody, (b) a derivative or modified version (as described above in this Section 3.5 or in the definition of Product) of a Program Antibody, or (c) sequence information as to any Program Antibody or the nucleic acid coding for it (each of the foregoing in this sentence, a "**Program-Benefited Antibody**"), without exercising the applicable Option and paying Adimab fees pursuant to Article 4 with respect to such Program-Benefited Antibody and/or product containing such Program-Benefited Antibody as if such Program-Benefited Antibody were deemed a Licensed Antibody and such Program-Benefited Antibody product were deemed a Product under this Agreement. A Program-Benefited Antibody shall not include any antibody that is independently discovered or developed without the use of (i) Adimab Materials, (ii) Confidential Information of Adimab (subject to Section 6.2(e) regarding independent development of such information), (iii) sequence information as to Program Antibodies unless published by Adimab or its Affiliate (and excluding publications of patents prosecuted under this Agreement by Arsanis, whether or not consented to by Adimab) or any Third Party that did not obtain such sequence information directly or indirectly from Arsanis or its Affiliates (with indirect receipt including the situation in which a Third Party obtains the sequence from a publication of a patent application filed by or scientific article of Arsanis or its Affiliate), (iv) Adimab Program Antibody Inventions, (v) Program Know-How made or developed by Adimab (subject to Section 6.2(e)), or (vi) Joint Program Antibody Inventions (i.e., if any of (i)-(vi) is used, the antibody is a Program-Benefited Antibody). For clarity, an antibody product will not be deemed a Program-Benefited Antibody solely through the application or use of a Broad Non-CDR Antibody Invention in the discovery, research, development, manufacture or commercialization of such antibody product. Arsanis shall comply with its regular reporting obligations as to Program-Benefited Antibodies as in Section 2.5(c). An antibody product will not be deemed a Program-Benefited Antibody solely because covered by an Epitope Patent; *provided* that Arsanis makes the payments to Adimab provided for in this Agreement in relation to transactions involving Epitope Patents.

Notwithstanding the definition of "**Program-Benefited Antibody**" stated in the foregoing paragraph, the following shall not be deemed Program-Benefited Antibodies for any purpose under this Agreement: (x) antibodies first discovered after the date of an Arsanis Trade Sale for which the Revenue Election was made if there were substantial Undesignated Rights at the time of the Arsanis Trade Sale; and (y) antibodies first discovered more than [**] years after the date of an Arsanis Trade Sale.

(b) Covenant Not to Sue. Except as provided in the last sentence of this Section, so long as Arsanis and its Affiliates are in compliance with Section 3.5(a) with respect to a Program-Benefited Antibody, Adimab shall not, directly or indirectly, assert any claim against Arsanis or its Affiliates, successors in interest, acquirers (whether of Arsanis or of all or substantially all of the assets of Arsanis relating to the subject matter of this Agreement), licensees, or sublicensees, distributors or end users, with respect to the research, development, manufacture, sale, offering for sale, import or export of any product containing such Program-Benefited Antibody, for infringement of any Licensed Program Antibody Patents and/or Adimab Platform/Background Patents or misappropriation of Adimab Program Know-How with respect

to Licensed Antibody(ies). The foregoing covenant shall be binding on all of Adimab's Affiliates and successors in interest under this Agreement, and any exclusive licensees, exclusive sublicensees, and assignees of any Licensed Program Antibody Patents, Adimab Platform/Background Patents and Adimab Program Know-How regarding Licensed Antibody(ies), and Adimab shall as a condition of assigning this Agreement, or providing the applicable exclusive license, exclusive sublicense or assignment, obtain a contractual commitment from the applicable entity receiving rights to comply with such covenant. Such covenant does not apply to any Patent other than a Licensed Program Antibody Patent or Adimab Platform/Background Patent. For purposes of this Section 3.5(b), Adimab Platform/Background Patents and Licensed Program Antibody Patents shall be interpreted as if the Program-Benefited Antibodies were Licensed Antibodies. The covenant of this Section 3.5(b) shall not apply to activities after a termination of this Agreement in its entirety or surrounding the Target to which the Program-Benefited Antibody relates, in each case for Arsanis uncured material breach. This Section 3.5(b) shall not be read to allow, or prevent a suit by Adimab with respect to, Arsanis's practice of Adimab Platform/Core Technology for antibody discovery purposes.

ARTICLE 4

FINANCIAL TERMS.

4.1 Technology Access Fee. Arsanis shall pay Adimab a technology access fee equal to [**] dollars ($[**]), within [**] Business Days after the Signing Date.

4.2 Research Funding.

(a) Funding Amounts. Arsanis shall pay Adimab for the FTEs actually performing scientific work in each Research Program under the Collaboration during the Collaboration Term at the FTE Rate; *provided*, *however*, that Arsanis will not be responsible to fund any Adimab FTEs in excess of an average of [**] per month during any [**]-month period of the Collaboration Term without Arsanis' prior written consent. Adimab acknowledges and agrees that the FTE Rate reflects Adimab's fully-loaded costs and expenses in performing its Research Program obligations under the Collaboration, and that Adimab is solely responsible for its internal and external costs and expenses in performing its obligations thereunder (*provided* that Adimab shall not be required to devote FTEs to the Research Programs which FTEs are not funded by Arsanis under this Section). During all accounting periods of the Target Nomination Period, Arsanis is required to pay Adimab for a minimum of [**] FTEs in such accounting period, even if Arsanis does not provide Targets such that there are Target Research Programs for such FTEs to work on or authorize Adimab to perform any "optional" research activities under a Research Plan as described in the last paragraph of Section 2.2(d).

(b) Invoicing and Payments. Payments under this Section shall be due quarterly in advance based on scheduled FTE usage, subject to true-up each quarter at the end of the quarter. If Arsanis has paid for more FTEs than are actually used in any calendar quarter, then any such overpayment shall be promptly refunded to Arsanis or deducted from future calendar quarter advance payments under this Section, in Arsanis' sole discretion, At least [**] days prior to the Start Date, and at least [**] days prior to the commencement of each calendar

quarter during the Collaboration Term thereafter, Adimab shall deliver to Arsanis a detailed invoice stating the number of FTEs that are scheduled to perform activities under the Collaboration during such calendar quarter. The first advance payment under this Section 4.2 shall be on or prior to the Start Date (or [**] days after receipt of the applicable invoice, if later) and shall be calculated on the scheduled FTE usage for the period commencing on the Start Date and ending on September 30, 2011. Thereafter, each quarterly advance payment will be due on or prior to the first Business Day of each calendar quarter during the Collaboration Term (or [**] days after receipt of the applicable invoice, if later) and shall be calculated on the scheduled FTE usage for the upcoming calendar quarter. Within [**] days after the end of each calendar quarter during the Collaboration Term Adimab shall deliver to Arsanis a detailed invoice stating the number of FTEs that actually performed activities under the Collaboration during the prior calendar quarter, the amount of any advance payments made by Arsanis (or credits due to Arsanis) in respect of such activities, and any true-up amount due. All payments shall be due within [**] days of Arsanis' receipt of the invoice.

4.3 Election Between Program Transaction Revenue Payments and Royalty Payments.

(a) General Case. Within [**] days after a Program Transaction is entered into, Arsanis shall inform Adimab in writing whether Arsanis elects to pay a share of Program Transaction Revenue with respect to such Program Transaction as in Section 4.4, or instead elects to pay a Net Sales royalty on Products sold pursuant to rights included in such Program Transaction as in Section 4.5. Arsanis is entitled to make such election on a Program Transaction-by-Program Transaction basis. If Arsanis elects the former, then it has made the "**Revenue Election**" with respect to the particular Program Transaction and shall simultaneously with such notice disclose to Adimab a copy of all documents governing such Program Transaction, but shall be entitled to redact from the copy shared with Adimab reasonable amounts of information not relevant to the determination of Program Transaction Revenue or any allocation thereof pursuant to Section 4.3(c), (d) or (e) hereunder or confirmation that the agreements comply with this Agreement (e.g., the requirement that sublicensees provide appropriate indemnification of Adimab). If Arsanis elects the latter, then it has made the "**Royalty Election**" with respect to the particular Program Transaction, and shall disclose simultaneously with such notice a copy of all documents governing such Program Transaction, but shall in this case be entitled to redact from the copy shared with Adimab reasonable amounts of information not relevant to the calculation of royalties hereunder or confirmation that the agreements comply with this Agreement (e.g., the requirement that sublicensees provide appropriate indemnification of Adimab). All Program Transaction documents provided by Arsanis to Adimab and the terms and information contained therein shall be Confidential Information of Arsanis subject to the provisions of Article 6.

If Arsanis fails timely to elect either the Revenue Election or the Royalty Election, then the Royalty Election shall automatically be deemed made for that Program Transaction. Once Arsanis makes either the Revenue Election or the Royalty Election with respect to a particular Program Transaction (or the Royalty Election is deemed made as provided for in the immediately preceding sentence), this election is irrevocable as to the particular Program Transaction. If no election under this Section has been made as of the date of First Commercial Sale of any given Product in any given country, then the Royalty Election shall automatically be

made as to such Product in such country (and the Revenue Election shall not be an option as to such Product in such country). Moreover, at any time that is prior to the closing of an Arsanis Trade Sale, upon written notice to Adimab, Arsanis may make an irrevocable Royalty Election with respect to a Product in any jurisdiction, indication and/or field of use as to which no Revenue Election has previously been made; *provided*, *however*, that Arsanis' right to do so prior to an Adimab Change of Control shall not be read to imply any right for Arsanis to require revenue allocation or baseball arbitration in connection with an Arsanis Trade Sale occurring prior to an Adimab Change of Control, even if Arsanis makes Royalty Elections under this sentence prior to such time.

(b) Arsanis Trade Sale. Unless the Parties agree otherwise in writing prior to the closing of an Arsanis Trade Sale, then for all Undesignated Rights transferred pursuant to such Arsanis Trade Sale, the "Royalty Election" shall automatically be made.

At any time prior to an Arsanis Trade Sale Arsanis may notify Adimab in writing of its desire to elect to pay Adimab [**] percent ([**]%) of the proceeds of an Arsanis Trade Sale that are agreed by the Parties to be reasonably attributable to Undesignated Rights and/or Epitope Patents, in lieu of the Royalty Election automatically applying with respect to such Undesignated Rights. Adimab and Arsanis shall each be reasonably available to negotiate in good faith such allocation of Arsanis Trade Sale proceeds within [**] days after the date of such Arsanis notice.

If despite good faith efforts the Parties are unable to agree upon such allocation within such [**] day period, and:

(i) Adimab has *not* undergone an Adimab Change of Control, then Arsanis shall either (1) accept the Royalty Election as applied to all Undesignated Rights at the time of the Arsanis Trade Sale, or (2) choose instead to deem the Arsanis Trade Sale a Program Transaction and pay to Adimab [**] percent ([**]%) of all associated Program Transaction Revenue; Arsanis shall notify Adimab in writing within [**] days after the Arsanis Trade Sale which alternative Arsanis has elected; or

(ii) Adimab *has* undergone an Adimab Change of Control, then Arsanis may request that a Third Party determine an amount to be allocated to Program Transaction Revenue for the particular Arsanis Trade Sale, by baseball arbitration pursuant to Section 10.2(b). Any allocation determined by such baseball arbitration shall only be valid as to an Arsanis Trade Sale transaction on the terms disclosed in writing by Arsanis to Adimab and the Arbitrator pursuant to such baseball arbitration; if an Arsanis Trade Sale ultimately occurs on different terms, then the allocation must either be agreed by the Parties or re-arbitrated by baseball arbitration in accordance with Section 10.2(b).

The amount allocated by written agreement of the Parties or by such arbitration after an Adimab Change of Control shall be the "**Program Trade Sale Proceeds**." If the Parties did not reach written agreement, and Adimab has not at that time undergone an Adimab Change of Control prior to the Arsanis Trade Sale, then Program Trade Sale Proceeds shall be equal to all Program Transaction Revenue associated with the Arsanis Trade Sale, treating the Arsanis Trade Sale as a Program Transaction.

After an Arsanis Trade Sale, Revenue Elections for pre-existing (prior to the Arsanis Trade Sale) Program Transactions with a Third Party will continue to apply only for so long as such rights remain with the Third Party (and if such rights ultimately revert to Arsanis or its successor then they shall be subject to the Royalty Election) and there shall be no offset of payments already made to Adimab in respect of such pre-existing Program Transaction against royalties due to Arsanis under such Royalty Election, Furthermore, if the counterparty to the Arsanis Trade Sale was (or its Affiliate was) a counterparty to a Program Transaction for which a Revenue Election or Royalty Election was previously made, and such Program Transaction is terminated or amended in connection with the Arsanis Trade Sale prior to an Adimab Change of Control, then Arsanis shall be required to make the same election for the Arsanis Trade Sale as was made for such Program Transaction unless Adimab agrees otherwise in writing in its sole discretion. To avoid doubt, the foregoing sentence does not apply to similar situations occurring after an Adimab Change of Control.

For clarity, if the proceeds of an Arsanis Trade Sale are subject to increase by contingent payments related to future events and/or release of escrowed amounts, such increased amounts shall be included as proceeds of an Arsanis Trade Sale only as and when such payments are received by Arsanis, its Affiliate(s), or shareholder(s) or former shar eh older (s) of any of them (but in this last case only if they are receiving payments due to their shareholding prior to the Arsanis Trade Sale).

Once the Royalty Election applies to any rights under this Section 4.3(b), it is irrevocable. To avoid doubt, this means that if the surviving or acquiring entity later licenses rights to Licensed Antibodies transferred pursuant to the Arsanis Trade Sale to a Third Party, the Royalty Election shall continue to apply to such Licensed Antibodies, and the surviving or acquiring entity will not have the opportunity to elect otherwise under Section 4.3(a).

(c) Multi-Product Deals. (i) At any time during the term of this Agreement Arsanis may, in its sole discretion, notify Adimab in writing that it is interested in making a Revenue Election with respect to a particular proposed Multi-Product Deal. Arsanis will promptly provide Adimab the relevant Program Transaction documents as described in Section 4.3(a) and Adimab and Arsanis will negotiate and endeavor to agree in good faith the allocation of Program Transaction Revenue to Multi-Product Deal Program Transaction Revenue in such Multi-Product Deal within [**] days after the date of such Arsanis notice. If despite good faith efforts the Parties are unable to agree upon such allocation within such [**] day period, and Adimab has undergone an Adimab Change of Control prior to the Multi-Product Deal, then Arsanis may request that a Third Party determine such allocation by baseball arbitration pursuant to Section 10.2(b). If despite good faith efforts the Parties are unable to agree upon such allocation within such [**] day period, and Adimab has *not* undergone an Adimab Change of Control prior to the Multi-Product Deal, then Arsanis shall not have any right to refer the matter for dispute resolution or baseball arbitration under Section 10.2(b), and there shall be no reduction or adjustment to Program Transaction Revenue for other products in the applicable Multi-Product Deal (if Arsanis makes the Revenue Election for such Program Transaction).

(ii) For each Program Transaction that is part of a Multi-Product Deal, the Royalty Election shall be deemed made automatically if Arsanis does not (in its discretion) within [**] days after the date of such Program Transaction notify Adimab in writing that Arsanis makes the Revenue Election with respect thereto and either (A) confirm (accurately) its agreement to an allocation of Program Transaction Revenue to Multi-Product Deal Program Transaction Revenue with respect to such Multi-Product Deal (which shall be mere confirmation of an allocation previously negotiated in good faith and agreed to in writing by the Parties or (if the matter initially arose after an Adimab Change of Control) determined by the arbitrator pursuant to Section 10.2(b) (in those cases where arbitration is available because Adimab has undergone an Adimab Change of Control prior to the Multi-Product Deal), and the notice shall only be effective if merely confirmatory), or (B) if the Parties have not previously agreed on such allocation or submitted the allocation dispute to arbitration pursuant to Section 10.2(b) below, and Adimab has previously undergone an Adimab Change of Control, then request that a Third Party determine such allocation by baseball arbitration as set forth in Section 10.2(b). If Adimab has not undergone an Adimab Change of Control prior to the Multi-Product Deal, then Arsanis shall not have any right to refer the matter for dispute resolution or baseball arbitration under Section 10.2(b), and there shall be [**] to Program Transaction Revenue in the applicable Multi-Product Deal based on Multi-Product Deal status (i.e., Multi-Product Deal Program Transaction Revenue for the particular Multi-Product Deal shall be equal to [**]% of the Program Transaction Revenue associated with such Multi-Product Deal).

(d) Multi-Target Deals. Section 4.3(c) shall apply *mutatis mutandis* to Multi-Target Deals in order to allocate Program Transaction Revenue to Multi-Target Deal Revenue.

(e) Program Revenue Transactions Involving Combination Products. If the lead and/or any actively developed backup Product candidate or Product in a Program Transaction is a Combination Product, then Section 4.3(c) shall apply *mutatis mutandis* to allow for proportional reduction of Program Transaction Revenue by mutual written agreement of the Parties, or, if (and only if) Adimab has undergone an Adimab Change of Control prior to the applicable Program Transaction, by baseball arbitration under Section 10.2(b).

(f) Program Transactions Involving Only Epitope Patents. For Program Transactions that are only Program Transactions because of the inclusion of Epitope Patents in the transaction (i.e., that do not otherwise include Licensed Antibodies, Program-Benefited Antibodies or intellectual property arising out of the Collaboration or with respect to the foregoing other than Epitope Patents and Broad Non-CDR Antibody Inventions) (an "**Epitope- IP-Only Transaction**," but only if both (i) not entered into contemporaneously with, and (ii) regardless of timing, not entered into with the same counterparty as, any other transaction that itself would be a Program Transaction relating to the same Target; "same counterparty as" for the purpose of this Section 4.3(f) shall refer to the contracting entity and all Affiliates of such contracting entity), Arsanis may pay to Adimab an amount equal to [**] Dollars ($[**]); such payment being due within [**] days after such Epitope- IP-Only Transaction ("**Epitope IP Compensation**"), and if Arsanis does so, then Arsanis shall not owe any share of Program Transaction Revenue with respect to such Epitope-IP-Only Transaction, and shall not owe any Net Sales royalties with respect to Net Sales within the scope of such Epitope-IP-Only Transaction, Notwithstanding anything express or implied in the foregoing, paying the Epitope IP Compensation shall not result in any reduction in Program Transaction Revenue payable in case of another Program Transaction relating to the same Target with the same counterparty (including an Affiliate of the contracting entity). If Arsanis does not timely pay the Epitope IP

Compensation for any Epitope-IP-Only Transaction, then such Epitope-IP-Only Transaction shall be treated as any other Program Transaction for purposes of this Agreement and there shall be no reduction of any kind to Program Transaction Revenue associated therewith if Arsanis makes the Revenue Election with respect to such Program Transaction. To avoid doubt, if a Program Transaction includes Epitope Patents (including the situation in which an Epitope Patent transaction is deemed part of a Program Transaction because entered into contemporaneously with, or regardless of timing, with the same counterparty (with counterparty having the same meaning as provided above) and relating to the same Target as, other elements of the Program Transaction), there shall be no adjustment or reduction of Program Transaction Revenue in relation to the Epitope Patents.

4.4 Program Transaction Revenue Payments. Arsanis shall pay to Adimab [**] percent ([**]%) of all Program Transaction Revenue in connection with Program Transactions for which the Revenue Election is made (other than Multi-Product Deals or Multi-Target Deals); [**] percent ([**]%) of Multi-Product Deal Program Transaction Revenue for all Multi-Product Deals for which the Revenue Election is made; and [**] percent ([**]%) of Multi-Target Deal Program Transaction Revenue for all Multi-Target Deals for which the Revenue Election is made. Each of the foregoing shall be subject to adjustment (if any) under Section 4.3(e) in the Combination Product circumstances in which it applies. The amounts due under this Section shall be payable on an ongoing basis within [**] days after the calendar month in which Program Transaction Revenue, Multi-Target Deal Program Transaction Revenue or Multi-Product Deal Program Transaction Revenue, as the case may be, is received.

4.5 Royalty Payments. If the Royalty Election applies, then:

(a) Royalty Rate for Products. Arsanis shall pay Adimab royalties at the rate of [**] percent ([**]%) of Net Sales of each Product during the applicable Royalty Term, determined on a country-by-country and Product-by-Product basis in accordance with Section 4.5(b).

(b) Royalty Term. "Royalty Term" means, on a Product-by-Product and country-by-country basis, the time from the First Commercial Sale of such Product in such country until the twelve (12) year anniversary of the First Commercial Sale of such Product in such country.

(c) Combination Products Adjustment. If Arsanis, its Affiliate, their successors or the Product marketer of any of them under a Program Transaction for which the Royalty Election has been made sells a Combination Product, then Net Sales for such Combination Product shall be calculated as (i) [**] percent ([**]%) of actual Net Sales if neither (ii) nor (iii) applies; (ii) the percentage of Net Sales (or formula to calculate such percentage) mutually agreed in writing by the Parties in advance of First Commercial Sale, if the Parties mutually agree in writing to such percentage (or formula to calculate such percentage); and (iii) if the Parties have failed to agree on such percentage in writing within [**] days after Arsanis in writing requests discussions, and Adimab has prior to such time undergone an Adimab Change of Control, then the percentage of Net Sales determined in baseball arbitration under Section 10.2(b). Arsanis shall have no right to refer the matter for dispute resolution or baseball arbitration under Section 10.2(b) unless Adimab has undergone an Adimab Change of Control prior to the First Commercial Sale of the applicable Product in the applicable country.

(d) Adjustment for Compulsory License. If a compulsory license is granted to a Third Party with respect to any Product in any country in the Territory with a royalty rate lower than the applicable royalty rate set forth in this Section 4.5, and this results in a sublicense by Arsanis or its Affiliate to the compulsory licensee in a country and with respect to a Product for which the Royalty Election has been made, then the royalty rate to be paid by Arsanis on Net Sales in that country by the compulsory licensee will be reduced to the rate paid by the compulsory licensee. The royalty rate on Net Sales of such Product by entities other than the compulsory licensee in such country shall be unaffected by the compulsory license.

(e) Other Royalty Provisions. Only one royalty will be due with respect to the same unit of Product, even if such Product unit is comprised of more than one Licensed Antibody or any modified or derivative forms thereof. No royalties will accrue on the sale or other disposition of the Product by Arsanis or its Affiliates, licensees or sublicensees for use in a clinical study sponsored or funded by Arsanis or its Affiliates, licensees or sublicensees or on the disposition of a Product in reasonable quantities by Arsanis or its Affiliates, licensees or sublicensees as free samples (for promotion or otherwise) or as charitable donations (for example, to non-profit institutions or government agencies for no monetary consideration for a non-commercial purpose).

4.6 Payment Timings. All Net Sales royalties due under Section 4.5 shall be paid quarterly, on a country-by-country basis, within [**] days after the end of the relevant calendar quarter for which royalties are due.

4.7 Royalty Payment Reports. With respect to each calendar quarter, within [**] days after the end of the calendar quarter, Arsanis shall provide to Adimab a written report stating the number and description of all Products sold during the relevant calendar quarter; the gross sales associated with such sales; and the calculation of Net Sales on such sales, including the amount of any deduction provided for in the definition of Net Sales in Article 1. The report shall provide all such information on a country-by-country and Product-by-Product basis. If applicable Arsanis shall also include in these reports a statement of all Program Transaction Revenue share payments due for the quarter, showing the calculation of the total consideration received in connection with Program Transactions for which the Revenue Election has been made, any and all deductions in accordance with the definition of Program Transaction Revenue (with supporting detail), net Program Transaction Revenue, and Adimab's share. Program Trade Sale Proceeds from Arsanis Trade Sales, and the calculation of such Program Trade Sale Proceeds, shall similarly be included in these reports.

4.8 Payment Method. All payments due under this Agreement to Adimab shall be made by bank wire transfer in immediately available funds to an account designated by Adimab. All payments hereunder shall be made in the legal currency of the United States of America, and all references to "**$**" or "**dollars**" shall refer to United States dollars (i.e., the legal currency of the United States).

4.9 Taxes. Arsanis shall be responsible to pay and may withhold from payments made to Adimab under this Agreement any taxes required to be withheld by Arsanis under applicable law. Accordingly, if any such taxes are levied on such payments due hereunder ("**Withholding Taxes**"), Arsanis shall (a) deduct the Withholding Taxes from the payment amount, (b) pay all applicable Withholding Taxes to the proper taxing authority, and (c) send evidence of the obligation together with proof of tax payment to Adimab within [**] days following that tax payment.

4.10 Records; Inspection.

(a) Each Party and its relevant Affiliates, licensees and sublicensees ("**Related Parties**") shall keep and maintain (in conformity with the Accounting Standards), for a period of [**] calendar years following the end of each calendar year during the term of this Agreement, complete and accurate records to enable amounts payable under this Agreement to be determined. Each Party (the "**Auditing Party**") shall have the right, [**] and [**] with respect to the records for any given accounting period, to have an independent, certified public accounting firm reasonably acceptable to the other Party (the "**Audited Party**") review any such records in the location(s) where such records are maintained by the Audited Party or any of its relevant Related Parties upon reasonable notice (which shall be no less than [**] days prior written notice) and during regular business hours for the sole purpose of verifying the basis and accuracy of payments under this Agreement within the [**] most recent calendar years as of the date of the request for review. Prior to any review, the independent certified public accounting firm shall have entered into a written agreement with the Audited Party or its relevant Related Parties limiting the use of such records to verification of the accuracy of payments due under this Agreement and prohibiting the disclosure of any information contained in such records to a Third Party for any purpose and to the Auditing Party for a purpose other than as set forth in this Section 4.10. The report of such accounting firm shall be limited to a certificate stating whether any report made or invoice or payment submitted by the Audited Party during such period is accurate or inaccurate and the actual amounts owed by or due under this Agreement to the Auditing Party for such period. After review of the certified public accounting firm's report, the Audited Party shall promptly pay any understated amounts due to the Auditing Party, together with any interest owed thereon pursuant to Section 4.14. Any overpayment made by a Party shall be fully creditable against amounts payable in subsequent payment periods or promptly refunded, at the overpaid Party's election. Any review or audit by an independent certified public accounting firm under this Section 4.10 is to be made at the expense of the Auditing Party, except that if the results of the review reveal that the Audited Party has underpaid (or in the case where Adimab is the Audited Party, overbilled) by [**] percent ([**]%) or more for the period under review, then the reasonable costs of such audit shall be paid promptly by the Audited Party.

(b) The Parties agree that, as between Adimab and Arsanis, (x) all information provided in a royalty payment report, all records kept by Arsanis or any relevant Related Party of Arsanis under Section 4.10, and any information provided by the independent certified public accounting firm to Adimab arc Confidential Information of Arsanis, and (y) *vice versa* for Adimab regarding the records kept by it and its Related Parties and the information reported by the independent certified public accounting firm to Arsanis.

(c) Notwithstanding subsection (a), any audit of Adimab FTE records shall occur within [**] after the end of the calendar year to which the records relate or shall be deemed irrevocably waived.

4.11 Licensee/Sublicensee Reports, **Records and Audits**. If Arsanis grants any Product licenses or sublicenses, the agreements for such licenses and sublicenses shall include an obligation for the sublicensee to (a) maintain records adequate to document and verify the proper payments (including milestones and royalties) to be paid to Adimab; (b) provide reports with sufficient information to allow such verification; and (c) allow Adimab (or Arsanis if requested by Adimab) to verify the payments due (however, such audit right is not required to be any stronger than that of Section 4.10).

4.12 Foreign Exchange. If any currency conversion shall be required in connection with the calculation of amounts payable hereunder, such conversion shall be made using the rate of exchange (a) used by Arsanis (or the selling entity) for its own financial reporting purposes in its worldwide accounting system (which shall be consistent with Accounting Standards) prevailing on the third to the last Business Day of the month preceding the month in which such sales are recorded, if Arsanis (or the selling entity) is a public company; or (b) if Arsanis is not a public company, then shall be determined the same way except that the rates shall be the average of the purchase and sale rates for U.S. Dollars for such day as reported by *The Wall Street Journal*, Eastern Edition. With any payment in relation to which a currency conversion is performed to calculate the amount of payment due, Arsanis shall provide to Adimab a true, accurate and complete copy of the exchange rates used in the calculation.

4.13 Non-refundable, **non-creditable payments**. Each payment that is required under this Agreement is non-refundable and non-creditable.

4.14 Late Payments. Any amount owed by a Party to the other Party under this Agreement that is not paid within the applicable time period set forth herein will accrue interest at the rate of [**] percent ([**]%) per month compounded monthly, or, if lower, the highest rate permitted under applicable law.

ARTICLE 5

INTELLECTUAL PROPERTY

5.1 Program Patent Ownership. Other than (a) Program Patents that claim Adimab Platform/Core Technology Improvements, (b) Antibody Sequence Coverage, and (c) Epitope Patents, Program Patents shall be owned based on inventorship. Adimab shall solely own, regardless of inventorship, all Program Patents that claim Adimab Platform/Core Technology Improvements and, until and unless Arsanis exercises the Option for a given Target, the Antibody Sequence Coverage on all Program Antibodies to such Target *{provided, however,* that Arsanis shall not practice the Antibody Sequence Coverage in activities that are outside the scope of the license to Arsanis in Section 3.3). Arsanis shall solely own, regardless of inventorship, the Epitope Patents, Patents on Broad Non-CDR Antibody Inventions, and from and after the date that Arsanis exercises the Option for a given Target, the Antibody Sequence Coverage on the Licensed Antibodies to such Target (but, to be clear, not the Antibody Sequence

Coverage on the other Program Antibodies to such Target). Program Know-How that constitutes Adimab Platform/Core Technology Improvements shall be owned by Adimab and all other Program Know-How shall be owned by the Party that created it. Notwithstanding Arsanis' ownership of the Epitope Patents and the Patents on Broad Non-CDR Antibody Inventions (these are owned by Arsanis under the foregoing in this Section because by definition these are Arsanis sole inventions), and without modifying the definition of Epitope Patents or Patents of Broad Non-CDR Antibody Inventions in case independent claims are filed that would take a given Patent outside the definitions of the foregoing terms, Arsanis (and those deriving rights from Arsanis) shall not include in any Patent on a Broad Non-CDR Antibody Invention or Epitope Patent any independent claim that is Program Antibody CDR-specific (i.e., that is described by clause (a) of the definition of Antibody Sequence Coverage), without Adimab's advance written withholdable consent, but shall—subject to the non-disclosure requirements of Section 5.4(b)(ii) — be entitled to include dependent Program Antibody CDR-specific claims.

5.2 Implementation.

(a) Assignments. Each Party hereby assigns to the other Party Program Inventions, associated Patents, and Program Know-How as necessary to achieve ownership as provided in Section 5.1. Each assigning Party shall execute and deliver all documents and instruments reasonably requested by the other Party to evidence or record such assignment or to file for, perfect or enforce the assigned rights. Each assigning Party hereby appoints the other Party as attorney-in-fact solely to execute and deliver the foregoing documents and instruments if such other Party after making reasonable inquiry does not obtain them from the assigning Party. Each Party (and its Affiliates) shall perform its activities under this Agreement through personnel who have made a similar assignment and appointment to and of such Party or its Affiliate. Each assigning Party shall make its relevant personnel (and their assignments and signatures on such documents and instruments) reasonably available to the other Party for assistance in accordance with this Article at no charge.

(b) Provisions Relating to Program Antibody Patents; **Joint Ownership Implementation**.

(i) Program Antibody Patents. Subject to Adimab's rights under Section 5.2(c), neither Party is entitled to practice or license any Program Antibody Patent that is not a Licensed Program Antibody Patent without consent of and without a duty of accounting to the other Party; except that (x) Adimab may practice such Program Antibody Patents within the scope of its license under Section 3.1(b) and (y) Arsanis may practice such Program Antibody Patents within the scope of its license under Section 3.1(a).

(ii) Licensed Program Antibody Patents. Subject to Adimab's rights under Section 5.2(c) and the financial obligations set forth in this Agreement, neither Party is entitled to practice or license any Licensed Program Antibody Patent without consent of and without a duty of accounting to the other Party; except that Arsanis is free to practice or license all Licensed Program Antibody Patents within the scope of its license for the applicable Licensed Antibodies and Products under Section 3.3 while such license is in effect with respect to such Licensed Antibodies and Products.

(iii) Joint Serendipitous Inventions. As regards Joint Serendipitous Inventions and the Program Patents to the extent claiming them, each Party is entitled to practice and license them without consent of and without a duty of accounting to the other Party in accordance with the co-ownership rights of co-inventors under U.S. law. Each Party hereby grants all permissions, consents and waivers with respect to, and all licenses under, the Joint Serendipitous Inventions and the Program Patents claiming them, as necessary to achieve throughout the world the nature of joint ownership rights of the foregoing as described in the foregoing sentence. To avoid doubt, this Section does not imply any permission, consent or waiver with respect to, or license under, any Patent or item of Know-How other than the Joint Serendipitous Inventions and the Program Patents to the extent claiming them.

(c) Reserved Rights for Adimab Antibody Library. Without limiting any licenses or other rights granted to Arsanis under this Agreement with respect to any Program Antibodies, it is understood and agreed that Adimab is not required to physically remove from its libraries, or to prevent from being included in future libraries, any Program Antibodies whatsoever, and, accordingly, Arsanis hereby recognizes that Adimab reserves a non-exclusive, worldwide, royalty-free, freely sublicenseable right under Program Antibody Patents: (i) for Program Antibodies to be included in antibody library(ies) transferred or licensed by Adimab to Third Parties, even recognizing that in such transactions Adimab may transfer physical possession of, knowingly or unknowingly, samples of Program Antibodies (other than samples of Program Antibodies generated under this Agreement) in conjunction with an antibody library to a Third Party as part of such transactions (and without implying any license from Arsanis to cover clinical development or commercialization of the Licensed Antibodies of this Agreement by library licensees); and (ii) to conduct any activity with respect to Program Antibodies and Program-Benefited Antibodies that are not Licensed Antibodies; *provided*, that Adimab complies with, and arrives at such non-Licensed Antibodies in a manner fully compliant with, Adimab's covenants and obligations in this Agreement with respect to the independent discovery of antibodies by Adimab.

5.3 Disclosure. During the term of the Agreement, each Party shall promptly disclose to the other Party the making, conception or reduction to practice of any Program Inventions that would be Covered by Program Antibody Patents, or in Arsanis' case that are Adimab Platform/Core Technology Improvements (which, to avoid doubt, are assigned to Adimab by this Agreement) or in Adimab's case that are Program Inventions that would properly be claimed in an Epitope Patent (which, to avoid doubt, are assigned to Arsanis by this Agreement). Such disclosure shall occur as soon as possible, but in any case within [**] days after the Party determines such Program Inventions have been invented. To avoid doubt, this Section shall not be read to require Adimab to disclose Program Inventions constituting Adimab Platform/Core Technology Improvements to Arsanis or to require Arsanis to disclose Program Inventions constituting Broad Non-CDR Antibody Inventions to Adimab.

5.4 Patent Prosecution and Maintenance.

(a) Adimab Platform/Core Technology and Epitope Patents. Adimab shall have the sole right (but not the obligation) to file, prosecute, maintain, defend and enforce all Program Patents that claim Adimab Platform/Core Technology Improvements and all Adimab Platform/Background Patents, all at its own expense. Arsanis shall have the sole right (but not the obligation) to file, prosecute, maintain, defend and enforce all Epitope Patents and Patents on Broad Non-CDR Antibody Inventions, all at its own expense.

(b) Program Antibody Patents.

(i) Arsanis shall have the sole right (but not the obligation) to file and prosecute all Program Antibody Patents, all at Arsanis' expense, including the costs of all foreign and PCT filings. Adimab will have the opportunity to review and comment upon any patent applications and correspondence related to preparing and prosecuting such Program Antibody Patents. Arsanis shall incorporate Adimab's reasonable comments and shall confer and reasonably discuss with Adimab any concerns Arsanis has with Adimab's comments and seek to resolve the concerns by mutual agreement. Arsanis shall give Adimab no less than [**] days to comment on each draft filing or patent office correspondence in connection with the foregoing prosecution. If additional documentation is required in order for Arsanis to exercise its rights under this paragraph, then the Parties' respective patent counsel shall reasonably cooperate as to the form of such additional documentation and Adimab shall provide such required additional documentation (which may include a power of attorney).

(ii) Prior to applicable Option exercise, Arsanis shall not file any Program Antibody Patent that cannot be prevented from publishing, but shall have the right to file Patents on Broad Non-CDR Antibody Inventions and Epitope Patents regardless of whether or not they can be prevented from publishing; *provided*, in the case of Patents on Broad Non-CDR Antibody Inventions and Epitope Patents, that if they cannot be prevented from publishing, they do not disclose Program Antibody sequences. If Arsanis pursuant to the foregoing sentence files any Patents on Broad Non-CDR Antibody Inventions or any Epitope Patents that in either case contain Program Antibody sequences, then until and unless Arsanis exercises the applicable Option, Arsanis shall timely prevent such Patents from publishing, and after Option exercise Arsanis shall only allow them to publish to the extent that the Program Antibody sequences that they contain are Licensed Antibody sequences.

(iii) If the Option Term for a Target expires without Arsanis exercising the applicable Option, then to the extent any claims in any Program Antibody Patents Cover Program Antibodies to such Target (and no other Program Antibodies that may become Licensed Antibodies), such claims shall be abandoned, Arsanis shall no longer have the right to file, prosecute or maintain such claims, and without Arsanis' prior written consent Adimab may not use any Confidential Information or Program Know-How of Arsanis, or any Arsanis Program Inventions, or (unless independently developed) any Program Know-How of Adimab, to seek any claims in any Patents directed to Program Antibodies.

(c) Licensed Program Antibody Patents. If Arsanis exercises the Option as to any Target then the following applies to all Licensed Program Antibody Patents that Cover Program Antibodies to such Target:

(i) Arsanis will use Commercially Reasonable Efforts to prepare, file and prosecute the Licensed Program Antibody Patents. Arsanis shall not be entitled, in the Licensed Program Antibody Patents, to seek claims directed to Program Antibodies other than Licensed Antibodies. Adimab will have the opportunity to review and comment upon any patent

applications and correspondence related to preparing and prosecuting such Licensed Program Antibody Patents. Arsanis shall use Commercially Reasonable Efforts to prepare and prosecute with the goal of obtaining issued valid coverage for the Licensed Antibodies through the Licensed Program Antibody Patents to the extent reasonably possible to obtain. Arsanis shall incorporate Adimab's comments to the extent they are reasonable and reasonably consistent with such goal and shall confer and reasonably discuss with Adimab any concerns Arsanis has with Adimab's comments and seek to resolve the concerns by mutual agreement. Arsanis shall give Adimab no less than [**] days to comment on each draft filing or patent office correspondence in connection with the foregoing prosecution.

(ii) Arsanis shall cause to be filed and shall maintain at least one (1) Licensed Program Antibody Patent in the Major Markets and all other countries where consistent with Commercially Reasonable Efforts to do so.

(iii) It is understood and agreed that searching for, identification and evaluation of Third Party Patents that may apply to any Program Antibodies based on sequence, Target or the like is the responsibility of Arsanis and Adimab shall have no responsibility for the foregoing nor liability if any such Third Party Patents exist. However, Adimab shall be fully responsible and liable for any breach of any representation and warranty by it with respect to Third Party Patents as set forth in Article 7, without implying any representation or warranty not set forth in such Article 7.

(d) Serendipitous Program Inventions.

(i) Adimab Program Inventions. As between the Parties, Adimab shall have the sole right, at its sole expense and in its sole discretion, to prepare, file, prosecute, enforce and maintain (including conducting or participating in interferences and oppositions) all Program Patents claiming Adimab Program Inventions but not falling within the Program Antibody Patents, the Adimab Platform/Core Technology Improvements or Epitope Patents (which, to avoid doubt, are all addressed above).

(ii) Arsanis Program Inventions. As between the Parties, Arsanis shall be responsible, at its sole expense and in its sole discretion, to prepare, file, prosecute, enforce and maintain (including conducting or participating in interferences and oppositions) all Program Patents claiming Arsanis Program Inventions, but not falling within the Program Antibody Patents, Adimab Platform/Core Technology Improvements or Epitope Patents (which, to avoid doubt, are all addressed above).

(iii) Serendipitous Joint Program Inventions. The Parties shall mutually agree which of them shall be responsible for either using its in-house patent attorneys or through mutually agreed upon outside counsel to prepare, file, prosecute, enforce and maintain Program Patents on Joint Serendipitous Inventions, and how the costs of such activities will be shared.

5.5 Patent Term Restoration. The Parties shall cooperate with each other, including by providing necessary information and assistance as the other Party may reasonably request, to obtain patent term restoration or supplemental protection certificates or their equivalents in any country where applicable to Licensed Program Antibody Patents. After Option exercise, if elections with respect to obtaining such patent term restoration are to be made with respect to Licensed Program Antibody Patents and the Parties do not agree, [**].

5.6 Cooperation of the Parties. At the reasonable request of the responsible (as provided for in this Article 5) Party, the other Party agrees to cooperate fully in the preparation, filing, prosecution, enforcement and maintenance of any Program Patents under this Agreement. Such cooperation includes executing all papers and instruments (or causing its personnel to do so) reasonably useful to enable the other Party to apply for and to prosecute patent applications in any country; and promptly informing the other Party of any matters coming to such Party's attention that may affect the preparation, filing, prosecution, enforcement or maintenance of any such Patents.

5.7 Infringement of Patents by Third Parties.

(a) Notification. Each Party shall promptly notify the other Party in writing if the notifying Party reasonably believes that any Licensed Program Antibody Patent is being or has been infringed or misappropriated by a Third Party (such infringement, together with any that may be imminently threatened to occur by any potential generic version of a Product arising under the implementing procedures of 35 U.S.C. 271(e)(2) or ex-U.S. equivalent, "**Infringement**", and "**Infringe**" shall be interpreted accordingly).

(b) License-Competitive Infringement of Licensed Program Antibody Patents.

(i) First Right. Arsanis shall have the first right, but not the obligation, to enforce the Licensed Program Antibody Patents against Infringement through [**] ("**License-Competitive Infringement**"). Arsanis shall reasonably consider Adimab's comments on any such enforcement activities. Except as provided in subsection (d) or in Section 5.8, Arsanis shall bear all costs and expenses for enforcement under this Section 5.7(b)(i) (including the reasonable costs of Adimab's cooperation as required under subsection (d)).

(ii) Back-up Right for License-Competitive Infringement of Licensed Program Antibody Patents. If Arsanis does not bring action to prevent or abate License-Competitive Infringement within [**] after notification thereof to or by Arsanis pursuant to Section 5.7(a), then Adimab shall have the right, but not the obligation, to bring, at its own expense, an appropriate action against any person or entity engaged in such License-Competitive Infringement directly or contributorily. [**].

(iii) Proceeds. Recoveries on suits under this Section 5.7(b) will be handled as provided in Section 5.8.

(c) Non-License-Competitive Infringement. With respect to any Infringement of Licensed Program Antibody Patents anywhere in the world to the extent relevant to the development, making, using, selling or offering for sale of products containing Program Antibodies or Program-Benefited Antibodies that are in each case not Licensed Antibodies and involving a competing product (and provided that Adimab complies with, and arrives at such non-Licensed Antibodies in a manner fully compliant with, Adimab's covenants and obligations

in this Agreement with respect to the independent discovery of antibodies by Adimab), Adimab shall have the exclusive right (but not the obligation) to prevent or abate such Infringement, and as between the Parties shall bear all related expenses and retain all related recoveries. In that case, Adimab shall notify Arsanis of such Infringement and keep Arsanis reasonably informed with respect to the disposition of any action taken in connection with them.

(d) Participation of the other Party with Respect to Infringement Suits. If a Party brings an action against Infringement under this Section 5.7, the other Party shall be entitled to separate representation in such matter by counsel of its own choice and at its own expense, and such Party shall cooperate fully with the Party bringing such action including by being joined as a party plaintiff if necessary to obtain standing for such action (all at the expense on a pass-through basis of the prosecuting Party).

(e) Settlement. Adimab shall not settle a claim brought under this Section 5.7 involving Licensed Program Antibody Patents in a manner that would limit or restrict the ability of Arsanis to develop, make or sell Products for use in the Field, or impair the exclusivity of Arsanis' license rights, under this Agreement, in each case without the prior written consent of Arsanis (which consent shall not be unreasonably withheld, conditioned or delayed). Arsanis shall not settle a claim brought under this Section 5.7 involving Licensed Program Antibody Patents in a manner that would limit or restrict the ability of Adimab to sell, practice, license and fully enjoy the benefits of Adimab's rights in and to the Licensed Program Antibody Patents as provided in this Agreement or that shortens the life of the Licensed Program Antibody Patents or that would narrow their scope, in each case without the prior written consent of Adimab (which consent shall not be unreasonably withheld, conditioned or delayed).

5.8 Allocation of Proceeds. If monetary damages are recovered from any Third Party in an action brought by a Party under Section 5.7(b), such recovery shall be allocated first to the reimbursement of any costs and expenses incurred by the Party controlling such litigation (including, for this purpose, a reasonable allocation of expenses of internal counsel or other personnel acting in such capacity (i.e., coordination of litigation matters and the like)), to the extent not previously reimbursed, and then the same costs and expenses of the non-controlling Party, and any remaining amounts shall be split as follows:

(i) if any portion of any such remaining amounts represents recoveries in relation to Infringement other than License-Competitive Infringement, such portion shall be allocated to Adimab.

(ii) if Arsanis exercised its first right to bring the suit, then the rest of the remaining recovery shall be allocated [**] percent ([**]%) to Adimab and [**] percent ([**]%) to Arsanis; and

(iii) if instead Adimab exercised its back-up right to enforce, then the rest of the remaining recovery shall be allocated [**] percent ([**]%) to Adimab and [**] percent ([**]%) to Arsanis.

5.9 Patent Challenges. [**] the [**] or [**] or [**], then: [**]; and [**] shall [**] basis [**] for [**] in connection with [**].

ARTICLE 6

CONFIDENTIALITY; PUBLICITY.

6.1 General. Any and all information disclosed or submitted in writing or in other tangible form — or if disclosed orally, that is indicated to be confidential at the time of disclosure and confirmed in writing as such within [**] days after initial disclosure — to one Party by the other Party under this Agreement or that certain Mutual Confidential Disclosure Agreement between them dated 8 March 2011, or disclosed between the Parties in the course of negotiating this Agreement or the term sheet for this Agreement whether or not reduced to writing if disclosed orally, is the "**Confidential Information**" of the disclosing Party. In addition, information embodied in Adimab Materials is Adimab's Confidential Information, and information embodied in the Arsanis Materials is Arsanis' Confidential Information. Sequence data (whether as to amino acid sequence or nucleic acid sequence) as to Program Antibodies shall be deemed the Confidential Information of Adimab, except that (a) sequence data and data generated in the Collaboration by Adimab relating to Program Antibodies shall also be the Confidential Information of Arsanis prior to the expiration of the Option Term for the Target to which such Program Antibodies are directed and (b) sequence data and data generated in the Collaboration by Adimab relating to Licensed Antibodies shall be the Confidential Information of Arsanis and not the Confidential Information of Adimab. Each Party shall receive and maintain the other Party's Confidential Information in strict confidence. Neither Party shall disclose any Confidential Information of the other Party to any Third Party. Neither Party shall use the Confidential Information of the other Party for any purpose other than as required to perform its obligations or in the reasonable exercise of its rights hereunder. Each Party may disclose the other Party's Confidential Information to the receiving Party's directors, employees, consultants and contractors requiring access thereto for the purposes of this Agreement, *provided, however*, that prior to making any such disclosures, each such person shall be bound by written agreement to maintain Confidential Information in confidence and not to use such information for any purpose other than in accordance with the terms and conditions of this Agreement. [**] (the "**Purpose**"). Each Party agrees to take all steps necessary to ensure that the other Party's Confidential Information shall be maintained in confidence including such steps as it takes to prevent the disclosure of its own proprietary and confidential information of like character. Each Party agrees that this Agreement shall be binding upon its Affiliates, and upon the employees and contractors involved in the Research Program of such Party and its Affiliates. Each Party shall take all steps necessary to ensure that its Affiliates and employees and contractors shall comply with the terms and conditions of this Agreement. The foregoing obligations of confidentiality and non-use shall survive, and remain in effect for a period of [**] years from, the termination or expiration of this Agreement in accordance with Article 9.

6.2 Exclusions from Nondisclosure Obligation. The nondisclosure and nonuse obligations in Section 6.1 shall not apply to any Confidential Information to the extent that the receiving Party can establish by competent written proof that it:

(a) at the time of disclosure is publicly known;

(b) after disclosure, becomes publicly known by publication or otherwise, except by breach of this Agreement by such Party;

(c) was in such Party's possession in documentary form at the time of disclosure hereunder;

(d) is received by such Party from a Third Party who has the lawful right to disclose the Confidential Information and who shall not have obtained the Confidential Information either directly or indirectly from the disclosing Party; or

(e) is independently developed by such Party (i.e., without reference to Confidential Information of the disclosing Party).

6.3 Required Disclosures. If either Party is required to disclose any Confidential Information of the other Party, pursuant to a governmental law, regulation or order, an order of a court of competent jurisdiction; if strictly necessary to defend litigation (meaning that the defense would not be possible if the information were not disclosed); if necessary to prosecute a litigation under Section 5.7 or between the Parties to establish their rights under this Agreement; or to comply with the rules of the U.S. Securities and Exchange Commission or any stock exchange or listing entity, then the receiving Party may do so; *provided*, that the receiving Party shall (i) give advance written notice to the disclosing Party, (ii) make a reasonable effort to assist the disclosing Party to obtain a protective order requiring that the Confidential Information so disclosed be used only for the purposes for which the law or regulation required, and (iii) use and disclose the Confidential Information solely to the extent required by the law, regulation, order, or rule.

6.4 Terms of Agreement. The terms of this Agreement are the Confidential Information of both Parties. However, (a) each Party shall be entitled to disclose the terms of this Agreement to bona fide actual or prospective acquirers, underwriters, investors, lenders or other financing sources (and counsel for the foregoing), (b) Arsanis shall be entitled to disclose the terms of this Agreement to bona fide actual or prospective Program Transaction counterparties (and counsel for the foregoing), and (c) Adimab shall be entitled to disclose the terms of this Agreement, but excluding financial terms, the Exhibits to this Agreement and any Research Plan, to actual and prospective Adimab Platform/Core Technology licensees and/or acquirors (and counsel for the foregoing) who, in the case of each of clauses (a)—(c), are obligated to keep such information confidential and not to use it other than for the Purpose (with "Purpose" being as defined in Section 6.1, both as written there and as applied *mutatis mutandis* to Adimab as applicable). Moreover, each Party shall be entitled to disclose the terms of this Agreement to legal, financial and investment banking advisors to the Party, under legally binding obligations of confidentiality and non-use outside of their representation and/or advice to the Party. In addition, if legally required, a copy of this Agreement may be filed by either Party with the SEC (or relevant ex-U.S. counterpart). In that case, the filing Party will if requested by the other Party diligently seek confidential treatment for terms of this Agreement for which confidential treatment is reasonably available, and shall provide the non-filing Party reasonable advance notice of the terms proposed for redactions and a reasonable opportunity to request that the filing Party make additional redactions to the extent confidential treatment is reasonably available under the law.

6.5 Return of Confidential Information. Promptly after the termination or expiration of this Agreement for any reason, each Party shall return to the other Party all tangible manifestations of such other Party's Confidential Information at that time in the possession of the receiving Party.

6.6 Publicity. The Parties have agreed to the joint press release regarding this Agreement attached as Exhibit E and shall release it after the signing of this Agreement on a timeline mutually agreed by the Parties. Each Party understands that this Agreement is likely to be of significant interest to investors, analysts and others and, therefore, that either Party has the right to make announcements of events or developments with respect to this Agreement that are material to such Party. The Parties agree that any such announcement will not contain Confidential Information or, if disclosure of Confidential Information is required by law or regulation or the rules of the U.S. Securities and Exchange Commission, any stock exchange or listing entity, will make reasonable efforts to minimize such disclosure and obtain confidential treatment for any such information that is disclosed to a government agency. Each Party agrees to provide the other Party with a copy of any public announcement as soon as reasonably practicable prior to its scheduled release. Except in the case of extraordinary circumstances, each Party will provide the other with an advance copy of any announcement at least [**] days prior to its scheduled release. Each Party has the right to expeditiously review and recommend changes to any announcement regarding this Agreement, provided that such right of review and recommendation will only apply for the first time that specific information is disclosed and will not apply to the subsequent disclosure of substantially similar information that has been previously disclosed. The Parties recognize the importance of announcing when antibodies discovered using the Adimab platform enter the clinic, and that Adimab shall entitled to disclose when Licensed Antibodies under this Agreement enter the clinic, in press releases mutually agreed by the Parties. Arsanis shall not unreasonably withhold its consent to the manner in which Adimab proposes to make disclosures that Licensed Antibodies have entered the clinic. Arsanis recognizes that Adimab at times has a practice of grouping announcements as to accomplishments in relation to multiple of its collaborations together into a single press release, and, if Arsanis-related accomplishments are being included in such a broader press release, Arsanis shall only have the right to approve the wording of those portions of the release that relate to Arsanis.

6.7 Certain Data. Notwithstanding this Article 6, without disclosing Arsanis' identity, the identity, nature or class of any Target (other than the specific Target descriptions set forth on Exhibit F), or the potential indications or class of indications, Adimab shall be entitled to disclose the following Program Antibody attributes: [**].

6.8 Publication. Arsanis may publish or present the results of the Collaboration and/or the results of evaluation of Licensed Antibodies (including during the applicable Option Terms), in each case solely with respect to Licensed Antibodies and/or their Target(s), subject to the prior review and approval by Adimab for patentability and protection of Adimab's Confidential Information as provided in this Section 6.8 and without disclosing sequence information that is Adimab's Confidential Information (and subject to Section 6.2) unless approved of in advance in writing by Adimab in its sole discretion. Arsanis will provide to Adimab the opportunity to review any proposed abstracts, manuscripts or summaries of presentations that cover such results. Adimab will designate a person or persons who will be responsible for reviewing such publications. Such designated person will respond in writing promptly and in no event later than [**] days after receipt of the proposed material with either

approval of the proposed material or a specific statement of concern, based upon either the need to seek patent protection or delete Adimab Confidential Information or concern regarding competitive disadvantage arising from the proposal. In the event of concern, Arsanis agrees not to submit such publication or to make such presentation that contains such information until Adimab is given a reasonable period of time (not to exceed [**] days) to seek patent protection for any material in such publication or presentation that it believes is patentable and that it has the right to patent, or to resolve any other issues, and Arsanis will remove from such proposed publication any Confidential Information of Adimab as requested by Adimab.

ARTICLE 7

REPRESENTATIONS AND WARRANTIES.

7.1 Mutual. Each of Adimab and Arsanis hereby represents and warrants to the other of them that the representing and warranting Party is duly organized in its jurisdiction of incorporation; that the representing and warranting Party has the full power and authority to enter into this Agreement; that this Agreement is binding upon the representing and warranting Party; that this Agreement has been duly authorized by all requisite corporate action within the representing and warranting Party; and that the execution, delivery and performance by the representing and warranting Party of this Agreement and its compliance with the terms and conditions hereof does not and shall not conflict with or result in a breach of any of the terms and conditions of or constitute a default under (a) any agreement or other instrument binding or affecting it or its Affiliate or the property of either of them, (b) the provisions of its bylaws or other governing documents or (c) any order, writ, injunction or decree of any governmental authority entered against it or by which any of its property is bound.

7.2 Adimab. Adimab hereby represents, warrants and covenants to Arsanis that:

Confidential Materials omitted and filed separately with the Securities and Exchange Commission. A total of 2 pages were omitted. [**].

7.3 Arsanis Covenant. [**] to [**] and [**] of [**], and the [**] as [**] in the [**] or [**] and [**], and [**] and [**] for the [**] in the [**] and [**] with [**].

7.4 DISCLAIMER OF WARRANTIES. OTHER THAN THE EXPRESS WARRANTIES OF SECTIONS 7.1, 7.2 AND 7.3, EACH PARTY DISCLAIMS ALL WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR THAT ANY PRODUCTS DEVELOPED UNDER THIS AGREEMENT ARE FREE FROM THE RIGHTFUL CLAIM OF ANY THIRD PARTY, BY WAY OF INFRINGEMENT OR THE LIKE, OR THAT ANY PROGRAM PATENTS WILL ISSUE OR BE VALID OR ENFORCEABLE, OR THAT THE DEVELOPMENT, MANUFACTURE OR COMMERCIALIZATION OF ANY PRODUCT PURSUANT TO THIS AGREEMENT WILL BE SUCCESSFUL.

ARTICLE 8

INDEMNIFICATION

8.1 By Adimab. Adimab hereby agrees to indemnify, defend and hold harmless (collectively, "**Indemnify**") Arsanis, its Affiliates and its and their directors, officers, agents and employees (collectively, "**Arsanis Indemnitees**") from and against any and all liability, loss, damage or expense (including without limitation reasonable attorneys fees) (collectively, "**Losses**") they may suffer as the result of Third Party claims, demands and actions (collectively, "**Third-Party Claims**") to the extent arising out of or relating to both (x) activities under this Agreement or a grant or exercise of rights granted under this Agreement and (y) any of (a) any material breach of any of Adimab's obligations under this Agreement or any breach (whether or not material) of a representation, warranty or covenant made by Adimab under Article 7; (b) the negligence or intentional misconduct of Adimab Indemnitees; or (c) research, testing, development, manufacture, use, sale, distribution, licensing and/or commercialization of any Program Antibodies and/or Products (or Program-Benefited Antibodies or products incorporating them) by Adimab, its Affiliates or any entity(ies) deriving rights from any of them after a reversion, transfer or grant of rights with respect to the foregoing from Arsanis under Article 9 or pursuant to the exercise of Adimab's rights under Sections 2.9 and/or 5.2(c); except in each case to the extent of any Losses (i) [**].

8.2 By Arsanis. Arsanis hereby agrees that it, its Affiliates and all Program Transaction counterparties shall Indemnify Adimab, its Affiliates and its and their directors, officers, agents and employees (collectively, "**Adimab Indemnitees**") from and against any and all Losses they may suffer as the result of Third-Party Claims to the extent arising out of or relating to both (x) activities under this Agreement or a grant or exercise of rights granted under this Agreement (but in the case of (c)–(g) excluding the grant or exercise of Adimab's rights under Sections 2.9, 5.2(c) or 9.6) and (y) any of (a) any material breach of any of Arsanis' obligations under this Agreement or any breach (whether or not material) of a representation, warranty or covenant made by Arsanis under Article 7; (b) the negligence or intentional misconduct of Arsanis Indemnitees; (c) research, testing, development, manufacture, use, sale, distribution, licensing and/or commercialization of Licensed Antibodies and/or Products (or Program-Benefited Antibodies or products incorporating them) by or for Arsanis, its Affiliate or any entity deriving rights from any of them; (d) Target-related intellectual property (including Patents directed to antibodies based on their interaction with any Target); (e) Target-related or Arsanis Materials-related contractual obligations of Arsanis and its Affiliates; (f) intellectual property applying to any Program Antibody or Program-Benefited Antibody based on its sequence or other characteristics (it being understood and agreed in accordance with Section 5.4(c)(vi) that Adimab does not perform intellectual property searches on Program Antibodies (including sequence-based searches) and this is the responsibility of Arsanis); or (g) intellectual property relevant to any "optional" (as described in the last paragraph of Section 2.2(d)) activities identified in the Research Plan(s) (including any and all antibody humanization-related Patents but excluding Adimab's activities relating to affinity maturation or evolution of cross-reactivity); except in each case to the extent of any Losses (i) [**].

As regards Third Parties deriving rights from Arsanis or its Affiliate under this Agreement, it shall be sufficient that each such Third Party provide the foregoing indemnification solely with respect to the activities and scope of rights that are within the particular Third Party's scope of rights received from Arsanis or its Affiliate, not the activities of others independently deriving rights from Arsanis or its Affiliate.

8.3 Procedures. Each of the foregoing agreements to Indemnify is conditioned on the relevant Adimab Indemnitees or Arsanis Indemnitees (a) providing prompt written notice of any Third-Party Claim giving rise to an indemnification obligation hereunder, (b) permitting the indemnifying Party to assume full responsibility to investigate, prepare for and defend against any such Third-Party Claim, (c) providing reasonable assistance in the defense of such claim at the indemnifying Party's reasonable expense, and (d) not compromising or settling such Third-Party Claim without the indemnifying Party's advance written consent. If the Parties cannot agree as to the application of the foregoing Sections 8.1 and 8.2, each may conduct separate defenses of the Third-Party Claim, and each Party reserves the right to claim indemnity from the other in accordance with this Article 8 upon the resolution of the underlying Third-Party Claim.

8.4 Limitation of Liability. EXCEPT TO THE EXTENT SUCH PARTY MAY BE REQUIRED TO INDEMNIFY THE OTHER PARTY UNDER THIS ARTICLE 8 (INDEMNIFICATION) OR AS REGARDS A BREACH OF A PARTY'S RESPONSIBILITIES PURSUANT TO ARTICLE 6 (CONFIDENTIALITY; PUBLICITY), NEITHER PARTY NOR ITS RESPECTIVE AFFILIATES SHALL BE LIABLE FOR ANY SPECIAL, INDIRECT, EXEMPLARY, CONSEQUENTIAL OR PUNITIVE DAMAGES ARISING OUT OF OR RELATED TO THIS AGREEMENT OR THE EXERCISE OF ITS RIGHTS HEREUNDER, WHETHER IN CONTRACT, WARRANTY, TORT, STRICT LIABILITY OR OTHERWISE.

ARTICLE 9

TERM.

9.1 Term. The term of this Agreement shall commence on the Effective Date and shall expire upon (a) the expiration of the last Option (if it expires unexercised), or (b) if later, on a country-by-country basis on the expiration of the last Royalty Term for a Product in the particular country, in each case, unless earlier terminated by a Party as set forth below in this Article 9. On expiration under (b) in the particular country, the license of Section 3.3 for the corresponding Product and its Licensed Antibody shall automatically convert to be perpetual, irrevocable, non-exclusive and fully-paid in such country.

9.2 Material Breach.

(a) Either Party may terminate this Agreement for the material breach of this Agreement by the other Party, if such breach remains uncured [**] days following notice from the nonbreaching Party to the breaching Party specifying such breach; *provided*, *however*, that if cure of such breach cannot reasonably be effected within such [**] day period, the breaching party may deliver to the nonbreaching Party a plan reasonably calculated to cure such breach within a timeframe that is reasonably prompt in light of the circumstances then prevailing but in no event longer than an additional [**] days. Following delivery of such a plan, the breaching Party will carry out the plan and cure the breach. If there is a good faith dispute as to the existence or cure of a breach or default pursuant to this Section 9.2, all applicable cure periods will be tolled during the existence of such good faith dispute and no termination for a breach which is disputed in good faith will become effective until such dispute is resolved.

(b) For Targets for which the Option has been exercised, the foregoing Section 9.2(a) applies on a Target basis if there is a material adverse effect of the breach on the rights and obligations under this Agreement with respect to such Target (and its associated Patents, Licensed Antibodies, and Products). Furthermore, if Arsanis is the breaching Party and the material adverse effect of the breach is limited to a given Target for which the corresponding Option has been exercised, then the termination shall be effective only as to the Target to which the uncured material breach relates (and its related Patents, Licensed Antibodies and Products). If the material breach has, or is reasonably likely to have, a material adverse effect only on the development, manufacture or commercialization of a Product in a particular jurisdiction or jurisdictions, then this Agreement shall not terminate with respect to such Product and associated Target in the Territory outside of such jurisdiction or jurisdictions, and the foregoing obligations shall only apply to the terminated jurisdiction or jurisdictions.

9.3 Elective Termination. Effective no sooner than the end of the Tail Period, Arsanis may terminate this Agreement in its entirety on three (3) months prior written notice to Adimab. Arsanis may also terminate this Agreement as to all Licensed Antibodies to a particular Target and all Products based on the terminated Licensed Antibodies by three (3) months prior written notice to Adimab. Such right to terminate on a Target basis shall be exercisable one (1) or more times (at different times for different Targets).

9.4 Survival in All Cases. Termination of this Agreement shall be without prejudice to or limitation on any other remedies available to nor any accrued obligations of either Party. In addition, Sections 2.4(c) (except that Section 2.4(c) shall not survive termination by Adimab under Section 9.2 for Arsanis' uncured material breach), 2.5(a), 2.6, 2.7, 4.3 through 4.14 (with respect to payment obligations outstanding as the effective date of termination or expiration; and in the case of Section 4.3(f) payment obligations for Epitope-Only Transactions after the date of termination or expiration shall continue to accrue for the life of the Epitope Patents), 5.1, 5.2(a), 5.2(b)(iii), 5.2(c), 5.4(a) and (d)(iii), 7.3, and 7.4 and Articles 1 (to the extent the definitions in such Article are relevant to other surviving provisions of this Agreement or a covenant is contained in such Article), 6, 8, 9 and 10 shall survive any expiration or termination of this Agreement.

9.5 Certain Consequences of Termination. If this Agreement expires or terminates in its entirety (other than an expiration under Section 9.1 following an Option exercise after all Royalty Terms have expired or a termination by Arsanis pursuant to Section 9.2 for Adimab's material breach ("**Full Payment Term Expiration**")), or in part (e.g., only in certain jurisdictions or only in connection with certain Targets), Arsanis hereby covenants that unless Arsanis agrees in writing to pay Adimab payments as set forth in Article 4 with respect to products containing a Program-Benefited Antibody as if such products were Products (and as to related transactions as if they were Program Transactions), Arsanis and its Affiliates shall not (a) develop or commercialize such Program-Benefited Antibody or product containing such Program-Benefited Antibody, (b) license or otherwise grant rights to any entity to do the foregoing, or (c) practice, license or assign to a Third Party, option to a Third Party or covenant not to sue a Third Party under Licensed Program Antibody Patents with respect to such Program-

Benefited Antibody. In the event that Arsanis agrees to pay Adimab payments as set forth in Article 4 with respect to products containing a Program-Benefited Antibody as if such products were Products (and as to related transactions as if they were Program Transactions), then Adimab shall agree to a covenant not to sue Arsanis with respect to such products and transactions as set forth in Section 3.5(b). Other than after a Full Payment Term Expiration, if Arsanis has elected under Section 5.1 to include Program Antibody CDR-specific dependent claim(s) in any Epitope Patent or Patent on a Broad Non-CDR Antibody Invention (i.e., a patent claim that would be described by clause (a) of the definition of Antibody Sequence Coverage but for being a dependent claim (whereas such clause (a) requires an independent claim)), then Arsanis shall not include such dependent claim(s) in any license granted under such Epitope Patent or Patent on a Broad Non-CDR Antibody Invention.

9.6 Additional Effects of Termination for Arsanis Fault or Arsanis Elective Termination. If Adimab terminates this Agreement for Arsanis' uncured material breach, or Arsanis terminates this Agreement at-will under Section 9.3, then, as to all Targets (and associated Patents, Licensed Antibodies and Products) in the jurisdiction(s) for which this Agreement has terminated: Arsanis and its Affiliates (a) hereby assign to Adimab, effective upon such termination, all right, title and interest in and to the Program Patents (other than Program Patents claiming Broad Non-CDR Antibody Inventions and Epitope Patents, provided that Arsanis, effective upon such termination, hereby grants to Adimab an exclusive, royalty-free, worldwide perpetual license under such Patents claiming Broad Non-CDR Antibody Inventions and Epitope Patents, to make, have made, use, sell offer to sell, import and export Program Antibodies, Products, Program-Benefitted Antibodies researched, developed or commercialized by Arsanis or its Affiliate prior to the time of termination, and pharmaceutical compositions containing the foregoing), Program Know-How, and all data with respect to the terminated Licensed Antibodies that are Controlled by Arsanis and its Affiliates; (b) shall transfer all producing cell lines for such Licensed Antibodies to Adimab (under conditions intended to ensure their viability) along with copies of master batch records and SOPs (if existing) for production of such antibodies; and (c) shall transfer all filings with Regulatory Authorities with respect to such Licensed Antibodies to Adimab if Adimab requests in writing. If Adimab engages in a Program Transaction (analogously defined) with respect to any of the rights transferred to it under this Section, or it or its Affiliate markets any Licensed Antibody or Product the rights to which returned to Adimab under this Section 9.6, in each case other than pursuant to any Program Transaction to which Adimab becomes a party under Section 9.8, then Article 4 (but excluding Sections 4.1-4.2) shall apply *mutatis mutandis* to require Adimab to make payments to Arsanis in the same amounts and in relation to the same elections, revenues and sales as such Article (excluding such Sections) provides for Arsanis to pay Adimab. Beyond these payments, Adimab shall not owe any monies to Arsanis in respect of Adimab's rights under this Section 9.6. Notwithstanding the first sentence of this Section, clauses (a), (b) and (c) of this Section are subject to the terms of any then-in-effect Program Transactions.

9.7 Additional Effects of Termination for Adimab Fault. If Arsanis elects to terminate this Agreement pursuant to Section 9.2(a), then (a) any unexercised and unexpired Options shall survive, and the "Option Term" for each of these Options shall continue unaffected by the termination; (b) the licenses and rights granted to Arsanis under Sections 2.6 and 3.1 shall survive termination until the time that in the case of Section 3.1 they would have otherwise expired (and Arsanis' rights under Section 2.8 shall survive to the extent necessary or useful to

the determination whether to exercise any continuing Options); (c) the licenses granted under Section 3.3 shall survive with respect to each Target the Option for which was exercised by Arsanis prior to and after the effective date of termination; *provided*, that Arsanis complies with its diligence obligations under Section 3.4(a) with respect to such Target and pays all amounts due to Adimab pursuant to Article 4 that would otherwise be applicable to Licensed Antibodies and/or Products directed to such Target; provided that Arsanis may elect, in its sole discretion upon written notice to Adimab, to either (i) reduce such amounts by the amount of all damages attributable to Adimab's breach of this Agreement (as mutually agreed by the Parties or determined by a court or arbitrator of competent jurisdiction) or (ii) change all references to "[**] percent ([**]%)" in Section 4.4 to "[**] percent ([**]%)" and the royalty rate referred to in Sections 3.3(c)(i) and 4.5 to [**] percent ([**]%), and apply, as a credit against any future payments Arsanis is required to make to Adimab under this Agreement, up to one hundred percent (100%) of the amount ("Arsanis True-up Amount") equal to [**] percent ([**]%) of the total amount paid to Adimab under this Agreement with respect to the terminated Target(s) (and their associated Patents, Licensed Antibodies, and Products) prior to the effective date of such termination until such Arsanis True-up Amount has been applied in full; (d) Arsanis' obligation to disclose data to Adimab pursuant to Section 6.7 shall terminate; and (e) Sections 2.9, 5.2(b)(i), 5.2(b)(ii), 5.3, 5.4(b), (d)(i) and (d)(ii), 5.5, 5.6, 5.7, 5.8, 7.1, 7.2, and 7.4 shall survive.

9.8 Survival of Sublicenses. In the event that the licenses granted to Arsanis under this Agreement are terminated, any granted sublicenses to Program Transaction counterparties (to avoid doubt, granted to Third Parties, not Arsanis Affiliates) will remain in full force and effect; *provided*, that the sublicensee is not then in breach of its Program Transaction agreement and the Program Transaction counterparty agrees to be bound to Adimab as a licensor under the terms and conditions of the Program Transaction agreement (including payment obligations), without imposing any greater obligation on Adimab than imposed on Adimab under this Agreement. Adimab will enter into appropriate agreements or amendments to the Program Transaction agreement to substitute itself for Arsanis as the licensor thereunder. Regardless of any prior Royalty Election or Revenue Election made by Arsanis, upon the effective date of such termination the Revenue Election shall apply to any Program Transaction to which Adimab becomes a party under this Section, and the provisions of Sections 4.3(c), (d), and (e) and Section 4.4 shall apply *mutatis mutandis* to require Adimab to make payments to Arsanis with respect to such Program Transaction in the same amounts and in relation to the same revenues and sales as such Sections of the Agreement provide for Arsanis to pay Adimab with respect to Program Transactions subject to the Revenue Election; provided, however, that Adimab may apply, as a credit against any future payments Adimab is required to make to Arsanis under this Agreement, up to one hundred percent (100%) of the amount ("Adimab True-up Amount") equal to (i) [**] percent ([**]%) of the total amount of any Program Transaction Revenue, Multi-Product Deal Program Transaction Revenue or Multi-Target Deal Program Transaction Revenue, as the case may be, received by Arsanis in respect of such Program Transaction under this Agreement prior to the effective date of termination, less (ii) the total amount of any payments received by Adimab in respect of such Program Transaction under this Agreement prior to the effective date of termination, until such Adimab True-up Amount has been applied in full. To avoid doubt, Adimab is not required to assume any greater obligations to the Program Transaction counterparty than Adimab's obligations to Arsanis under this Agreement, other than the obligation to provide a sublicense under the license to Adimab of Section 9.6 under any Patents on Broad Non-CDR Antibody Inventions and Epitope Patents.

9.9 Bankruptcy. All licenses and rights to licenses granted under or pursuant to this Agreement by Adimab to Arsanis are, and will otherwise be deemed to be, for purposes of Section 365(n) of the United States Bankruptcy Code (the "**Bankruptcy Code**"), licenses of rights to "intellectual property" as defined under Section 101(35A) of the Bankruptcy Code. The Parties agree that Arsanis, as a licensee of such rights under this Agreement, will retain and may fully exercise all of its rights and elections under the Bankruptcy Code. The parties further agree that that upon commencement of a bankruptcy proceeding by or against Adimab under the Bankruptcy Code, Arsanis will be entitled to a complete duplicate of, or complete access to (as Arsanis deems appropriate), all such intellectual property and all embodiments of such intellectual property. Such intellectual property and all embodiments of such intellectual property will be promptly delivered to Arsanis (a) upon any such commencement of a bankruptcy proceeding and upon written request by Arsanis, unless Adimab elects to continue to perform all of its obligations under this Agreement, or (b) if not delivered under (a) above, upon the rejection of this Agreement by or on behalf of Adimab and upon written request by the Arsanis. Adimab (in any capacity, including debtor-in-possession) and its successors and assigns (including any trustee) agrees not to interfere with the exercise by Arsanis or its Affiliates of its rights and licenses to such intellectual property and such embodiments of intellectual property in accordance with this Agreement, and agrees to assist Arsanis and its Affiliates in obtaining such intellectual property and such embodiments of intellectual property in the possession or control of Third Parties as reasonably necessary or desirable for Arsanis to exercise such rights and licenses in accordance with this Agreement. The foregoing provisions are without prejudice to any rights Arsanis may have arising under the Bankruptcy Code or other applicable law. Notwithstanding the foregoing in this Section 9.9, nothing in this Section 9.9 shall be read to entitle Arsanis to obtain disclosure of or access to Adimab Platform/Core Technology (including Adimab Platform/Core Technology Improvements), whether or not as an "embodiment," "update," or otherwise, at any time, and Arsanis shall not under any circumstances notwithstanding anything express or implied in this Agreement be entitled to disclosure of Adimab Platform/Core Technology (including Adimab Platform/Core Technology Improvements).

ARTICLE 10

MISCELLANEOUS.

10.1 Independent Contractors. The Parties shall perform their obligations under this Agreement as independent contractors. Nothing contained in this Agreement shall be construed to be inconsistent with such relationship or status. This Agreement and the Parties' relationship in connection with it shall not constitute, create or in any way be interpreted as a joint venture, fiduciary relationship, partnership or agency of any kind.

10.2 Dispute Resolution.

(a) Escalation. Either Party may refer any dispute in connection with this Agreement to senior executives of the Parties (for Adimab, an Officer or Board member who is not an Officer, Board member or stockholder in Arsanis or representing a fund that is a stockholder in Arsanis and for Arsanis, an Officer or Board member who is not an Officer, Board member or stockholder in Adimab or representing a fund that is a stockholder in Adimab) for

good-faith discussions over a period of not less than [**] days (the "**Senior Executives Discussions**"). Each Party will make its executives reasonably available for such discussions. If the Parties are unable to resolve the dispute through the Senior Executives Discussions within such [**] days, then either Party may proceed to seek a judicial resolution of the matter, except that in the case of a dispute or failure to agree over an allocation of Program Transaction Revenue that is provided in this Agreement *not* to be subject to baseball arbitration under Section 10.2(b) due to Adimab *not* having undergone a Change of Control by the applicable time for the matter to be referable to such baseball arbitration ("**Adimab-Reserved Allocation Decisions**"), notwithstanding anything express or implied in this Agreement, at law or in equity, the Adimab- Reserved Allocation Decisions shall not be referable for judicial resolution either, under any circumstance (including in the case of an allegation by Arsanis that Adimab has failed to negotiate in good faith).

(b) Baseball Arbitration for Selected Financial Allocations. Disputes over the allocation of value described in Sections 4.3 and 4.5(c) as referable for baseball arbitration under this Section shall be resolved by arbitration as provided in this Section 10.2(b). To avoid doubt, only certain allocation disputes are referable to this Section 10.2(b), and these are only those allocation disputes as to allocation decisions first arising after an Adimab Change of Control as described more particularly in Section 4.3 or 4.5(c). In the absence of such an Adimab Change of Control at the applicable time the allocation decision first arises (as described more particularly in Section 4.3 or Section 4.5(c)), Arsanis shall have no right to require baseball arbitration under this Section, notwithstanding anything express or implied in this Agreement, at law or in equity.

(i) The Parties shall jointly engage an arbitrator through JAMS (or its successor) (the "**Arbitrator**"). JAMS shall appoint the Arbitrator if the Parties do not agree on which one to select within [**] days. The Parties agree that the arbitrator shall be a lawyer with at least fifteen (15) years experience or a former judge of a court of general jurisdiction, and shall be experienced in matters regarding issues of a similar nature, and shall be neutral, independent, disinterested, and impartial.

(ii) If JAMS has any rules specific to baseball arbitration at the time a Party requests the baseball arbitration, then those rules shall apply. If JAMS does not have any such specific rules, then the most applicable procedural rules of JAMS shall apply. In each case, the applicable rules shall be modified to the extent in conflict with this Section 10.2(b). The place of arbitration shall be New York, New York or such other place as the parties may mutually agree.

(iii) In the case of a dispute under Section 4.3 or 4.5(c), Arsanis shall disclose to the Arbitrator and to Adimab (if it has not already done so) the texts of all documents governing the Multi-Target Deal, Multi-Product Deal or the Arsanis Trade Sale, as the case may be. Within [**] days after such disclosure, each Party shall make its detailed proposal as to its calculation of Multi-Product Deal Program Transaction Revenue, Multi-Target Deal Program Transaction Revenue or Program Trade Sale Proceeds, as the case may be, taking into account the portion of Arsanis Trade Sale proceeds attributable to Undesignated Rights and any Combination Product adjustment that the Party proposes under Section 4.3(e). In the case of a dispute under Section 4.5(c), each Party shall make a detailed proposal as to the portion of Net

Sales of the Combination Product that such Party proposes to be royalty-bearing under this Agreement. Each of the foregoing written proposals shall be provided by the Parties within [**] days after the appointment of the Arbitrator, and each shall not to exceed [**] pages (including supporting materials and explanation). Each Party shall be allowed [**] depositions as part of the discovery process not to exceed [**] hours in the aggregate (or more if the Arbitrator deems them reasonably necessary), and each Party may perform reasonable document discovery to the extent determined by the Arbitrator. Each Party shall disclose its proposal simultaneously to the other Party and to the Arbitrator. The Arbitrator may hold hearings including both Parties and in which each Party may make a presentation or present witnesses for no more than [**] hours. The Arbitrator may also question the Parties and hear the Parties' answers to the Arbitrator's questions for no more than an additional [**] hours. Neither Party shall engage in *ex parte* communications with the Arbitrator. The Arbitrator shall choose one of the Parties' proposals to become the arbitral award, and shall render his or her decision within [**] days after the Arbitrator is selected.

(iv) The Arbitrator's selection shall be binding on the Parties with respect to the particular Multi-Product Deal, Multi-Target Deal, Arsanis Trade Sale, or Combination Product adjustment to Net Sales or to Program Transaction Revenue, as the case may be, absent proven fraud. Each Party shall bear its own costs of arbitration, and the Parties shall share equally the costs for the Arbitrator and the arbitration process, unless the Arbitrator chooses to award costs and attorneys' fees to either Party in whole or in part, which the Arbitrator is hereby fully empowered to do. All information disclosed to the Arbitrator or to the other Party by a Party shall be Confidential Information of the disclosing Party (except to the extent containing Confidential Information previously disclosed hereunder by the other Party).

(v) The standards that the Arbitrator shall apply to the different allocation decisions that are decided by arbitration under this Section are:

(1) In the case of a Multi-Target Deal, the Arbitrator is instructed to choose the proposal that more fairly and reasonably allocates Program Transaction Revenue to the elements of the Multi-Target Deal other than the Unrelated Target component (i.e., to (a) the Target(s) that are not Unrelated Targets in the particular Program Transaction, (b) antibodies and other drugs against such Target(s), (c) products containing any of the foregoing, (d) Epitope Patents relating to such Targets, and/or (e) anything (including rights, data, activities and materials) relating to any of the foregoing, all of the foregoing as opposed to and contrasted with (v) the Unrelated Targets in the Multi-Target Deal; (w) antibodies to such Unrelated Target(s), (x) small molecules or non-antibody drugs (in each case not co-formulated with any of (a)-(c)), (y) products containing any of the foregoing in (v)—(x); and/or (z) anything (including rights, data, activities and materials) relating to any of the foregoing in (v)—(y)).

Multi-Target Deal Program Transaction Revenue shall be subject to further adjustment applying the standard of subsection (2) if elements (a)—(d) in the foregoing paragraph include rights to antibodies that are neither Licensed Antibodies nor Program-Benefited Antibodies nor products based exclusively on either or both of the foregoing (i.e., if the deal is, additionally, a Multi-Product Deal).

Multi-Target Deal Program Transaction Revenue shall be subject to further adjustment applying the standard of subsection (3) if the lead Product or any back-up Product in active development in the Multi-Target Deal is a Combination Product.

The Program Transaction Revenue fairly and reasonably attributable to Epitope Patents shall in any event be included in Multi-Target Deal Program Transaction Revenue.

(2) In the case of a Multi-Product Deal, the Arbitrator is instructed to choose the proposal that more fairly and reasonably allocates Program Transaction Revenue to the Licensed Antibody, Product, Program-Benefited Antibody, product containing the foregoing, and Epitope Patents components of the Multi-Product Deal, taking into account all of the following factors:

(a) Whether a Licensed Antibody, Program-Benefited Antibody, Product, or product containing a Program-Benefited Antibody is the lead product candidate in the program;

(b) Which antibodies and products in the deal are the most advanced;

(c) With respect to which antibodies and products in the deal significant data have been generated, and how advanced and favorable such data are;

(d) Which antibodies and products in the deal would require further adjustment prior to being a viable candidate for development (e.g., in the case of antibodies, whether or not they require humanization prior to being considered a product candidate);

(e) Levels of affinity or other desirable properties vis-à- vis the Target(s) and data as to efficacy;

(f) Safety characteristics;

(g) What candidates are planned to have what level of resource put into their development going forward after the Program Transaction (if such plans are known at that time);

(h) Proprietary positions on the different product candidates;

(i) If not grouped together in a single transaction, and instead sold in separate, unrelated, arms'-length transactions in which the counterparties are unrelated to each other, which elements included in the Program Transaction would garner the highest prices (and what relative prices would the different elements garner); and

(j) All other relevant commercial factors.

The Arbitrator is instructed that the allocation should not be made purely based on the number of antibodies, drugs, product candidates and products in the deal that are and are not Licensed Antibodies, Program-Benefited Antibodies, Products and products containing the foregoing. Rather, it should be based upon a qualitative inquiry into which antibodies, drugs, product candidates and candidates are responsible for the value being realized and monetized in the Program Transaction, and in what proportions. It is anticipated that antibodies, drugs, product candidates and products that are most advanced in development shall receive allocation of the majority or in some cases all of the Program Transaction Revenue. The Arbitrator shall, in assessing the Parties' proposed allocations, take into account that it is not necessarily fair or reasonable to allocate any value to antibodies, drugs, product candidates and products for which no data have been generated.

The Program Transaction Revenue reasonably attributable to Epitope Patents shall in any event be included in Multi-Product Deal Program Transaction Revenue and shall not be subject to reduction or allocation under this subsection (2).

Where this subsection (2) is being applied as a further adjustment to Multi-Target Deal Program Transaction Revenue, it shall be applied solely to Multi-Target Deal Program Transaction Revenue (not to all Program Transaction Revenue).

(3) If the lead Product(s) and other Products having undergone active development or that are advanced back-ups in active development in the Program Transaction are Combination Products, then the Arbitrator shall pick the proposal for the formula A/(A+B) that more fairly and reasonably attributes value to Licensed Antibody components in the Combination Product(s), where "A" is the value contributed by the Licensed Antibody and Program-Benefited Antibody components, and "B" is the value contributed, in the case of Drug Combinations, by the other active ingredients; in the case of Drug-Device Combinations, by the other active ingredients (if any) and patented delivery device; and in the case of Diagnostic Combinations by the other antibodies in the Diagnostic Combination (the components listed out here being the "recognized components;" the recognized components shall in any event always exclude inert ingredients and excipients in Drug Combinations and Drug-Device Combinations, as well as unpatented technology in Drug-Device Combinations). The Arbitrator shall take into account all of the following:

(a) Sales prices of each component when sold separately shall be considered the most reliable indicator of value, if available for each recognized component (as indicated above) in the Combination Product.

(b) Any active ingredient that is a generic drug or generic biologic shall in general be considered to contribute significantly less value than proprietary active ingredients.

Where this subsection (3) is being applied as a further adjustment to Multi-Target Deal Program Transaction Revenue, it shall be applied solely to Multi-Target Deal Program Transaction Revenue (not to all Program Transaction Revenue).

Where this subsection (3) is being applied as a further adjustment to Multi-Product Deal Program Transaction Revenue, it shall be applied solely to Multi-Product Deal Program Transaction Revenue (not to all Program Transaction Revenue).

This sub-section (3) shall *not* be applied to further adjust any value that was attributed to Epitope Patents in an allocation under subsection (1).

(4) In the case of an allocation in an Arsanis Trade Sale, the Arbitrator shall apply the same standards to allocate revenue to the Undesignated Rights as used first in Multi-Target Deals, and with further adjustment under subsections (2) and (3) as warranted by the facts.

(5) In the case of a Combination Product adjustment to Net Sales, the Arbitrator shall select the proposal that more fairly and reasonably allocates Net Sales of a Combination Product to the Licensed Antibody component(s) of such Combination Product, on the formula A/(A+B), with the remainder of the standard being as described in subsection (3) but applied to Net Sales rather than Program Transaction Revenue.

The page limits and presentation time limits stated in this Section 10.2(b) apply to all allocations being made with respect to a given Program Transaction or Arsanis Trade Sale, on an aggregate basis.

10.3 Governing Law and Venue. This Agreement shall be governed by and interpreted in accordance with the laws of the State of New York without giving effect to principles of conflicts of laws that would require the application of any other law; *provided*, that matters of intellectual property law will be determined in accordance with the United States federal law. Any and all judicial resolutions of disputes in connection with this Agreement shall be in federal court located within any of the boroughs of New York City, New York, and each Party hereby consents to the jurisdiction and venue of such courts, and waives all defenses it may have to such jurisdiction and venue, including that the court cannot assert personal jurisdiction over the defendant and *forum non conveniens.*

10.4 Entire Agreement. This Agreement (including its Exhibits) sets forth all the covenants, promises, agreements, warranties, representations, conditions and understandings between the Parties with respect to the subject matter hereof and supersedes and terminates all prior agreements and understandings between the Parties with respect to such subject matter (including that certain Mutual Confidential Disclosure Agreement between the Parties dated 8 March 2011). No subsequent alteration, amendment, change or addition to this Agreement shall be binding upon the Parties unless reduced to writing and signed by the respective authorized officers of the Parties.

10.5 Assignment. Neither Party may assign in whole or in part this Agreement without the advance written consent of the other Party, except as set forth in the following sentence. Either Party may assign this Agreement in its entirety to the successor to all or substantially all of its stock or assets to which this Agreement relates in connection with its merger with, or the sale of all or substantially all of its stock or assets to which this Agreement relates, to another entity, regardless of the form of the transaction. In addition, Adimab may

assign this Agreement, or any of its rights under this Agreement, in connection with the sale of, monetization of, transfer of, or obtaining financing on the basis of the payments due to Adimab under this Agreement or debt or project financing in connection with this Agreement. Also, Arsanis may assign its rights and obligations under this Agreement on a Target-by-Target basis, at any time after Option exercise for the particular Target, to any entity to which Arsanis assigns all or substantially all of its assets with respect to such Target (and its related Patents, Licensed Antibodies and Products); *provided* that, to avoid any ambiguity as to what rights and obligations are being assigned, Adimab shall be entitled to require before the closing of such transaction that a separate document be created and signed between the Parties addressing solely the rights and obligations in relation to such Target (and its related Patents, Licensed Antibodies and Products) and it shall be only the rights and obligations set forth in such separate document that shall be assigned in the transaction. Subject to the foregoing, this Agreement shall be binding upon and shall inure to the benefit of the Parties and their respective successors and permitted assigns. Any assignment of this Agreement not made in accordance with this Agreement is prohibited hereunder and shall be null and void.

10.6 Severability. If one or more of the provisions in this Agreement are deemed unenforceable by law, then such provision shall be deemed stricken from this Agreement and the remaining provisions shall continue in full force and effect.

10.7 Force Majeure. Both Parties shall be excused from the performance of their obligations under this Agreement to the extent that such performance is prevented by a Force Majeure (defined below) and the nonperforming Party promptly provides notice of the prevention to the other Party. Such excuse shall be continued so long as the condition constituting Force Majeure continues and the nonperforming Party takes reasonable efforts to remove the condition, but no longer than six (6) months. For purposes of this Agreement, "**Force Majeure**" means conditions beyond a Party's reasonable control or ability to plan for, including acts of God, war, terrorism, civil commotion, labor strike or lock-out; epidemic; failure or default of public utilities or common carriers; and destruction of production facilities or materials by fire, earthquake, storm or like catastrophe; *provided, however*, the payment of invoices due and owing under this Agreement shall not be excused by reason of a Force Majeure affecting the payor.

10.8 Notices. Any notice required or permitted to be given under this Agreement shall be in writing, shall specifically refer to this Agreement and shall be deemed to have been sufficiently given for all purposes if (a) mailed by first class certified or registered mail, postage prepaid, (b) delivered by express delivery service, (c) personally delivered, or (d) transmitted by facsimile with proof of completed transmission and which notice by facsimile shall be followed reasonably promptly by an additional notice pursuant to one of clause (a), (b) or (c) above. Unless otherwise specified in writing, the mailing addresses of the Parties shall be as described below. Arsanis will provide its facsimile number by written notice within 60 days after the Signing Date.

If to Adimab:

Adimab, Inc.
16 Cavendish Court
Lebanon, NH 03766
Attention: CEO
Facsimile: [**]

with a required copy to each of:

Attention: Head, Business Development at the same address and fax.

and

Laura O. Spiegelman
Spiegelman Life Sciences
1459 Eighteenth Street – PMB 309
San Francisco, CA 94107
Facsimile: [**]

In the case of Arsanis:

Arsanis, Inc.
16 Cavendish Court
Lebanon, NH
Attention: Chief Scientific Officer

with a copy to:

Sumy C. Daeufer
Faber Daeufer & Rosenberg PC
950 Winter Street, Suite 4500
Waltham, MA 02451
Facsimile: [**]

10.9 Construction. This Agreement has been prepared jointly and shall not be strictly construed against either Party. Ambiguities, if any, in this Agreement shall not be construed against any Party, irrespective of which Party may be deemed to have authored the ambiguous provision.

10.10 Headings. The headings for each article and section in this Agreement have been inserted for convenience of reference only and are not intended to limit or expand on, nor to be used to interpret, the meaning of the language contained in the particular article or section.

10.11 No Waiver. Any delay in enforcing a Party's rights under this Agreement or any waiver as to a particular default or other matter shall not constitute a waiver of such Party's rights to the subsequent enforcement of its rights under this Agreement, excepting only as to an express written and signed waiver as to a particular matter for a particular period of time executed by an authorized officer of the waiving Party.

10.12 Performance by Affiliates. A Party may perform some or all of its obligations under this Agreement through Affiliate(s) or may exercise some or all of its rights under this Agreement through Affiliates. However, each Party shall remain responsible and be guarantor of the performance by its Affiliates and shall cause its Affiliates to comply with the provisions of this Agreement in connection with such performance. In particular and without limitation, all Affiliates of a Party that receive Confidential Information of the other Party pursuant to this Agreement shall be governed and bound by all obligations set forth in Article 6, and shall (to avoid doubt) be subject to the intellectual property assignment and other intellectual property provisions of Article 5 as if they were the original Party to this Agreement (and be deemed included in the actual Party to this Agreement for purposes of all intellectual property-related definitions). A Party and its Affiliates shall be jointly and severally liable for their performance under this Agreement.

10.13 Counterparts. This Agreement may be executed in one or more identical counterparts, each of which shall be deemed to be an original, and which collectively shall be deemed to be one and the same instrument. In addition, signatures may be exchanged by facsimile or PDF.

[remainder of page intentionally blank]

IN WITNESS WHEREOF, the Parties have by duly authorized persons executed this Agreement as of the date first written above.

ARSANIS, INC.:

Sign: /s/ Eszter Nagy
Print Name: Eszter Nagy
Title: CSO
Date: 9/20/2011

ADIMAB, LLC:

Sign: /s/ Errik Anderson
Print name: Errik Anderson
Title: COO
Date: 9/20/2011

EXHIBITS LIST

A – ADIMAB PLATFORM/BACKGROUND PATENTS

B – RESEARCH OVERVIEW

C – RESEARCH PLAN

D – FORM OF QUESTIONNAIRE

E – JOINT PRESS RELEASE

F – PERMITTED TARGET DESCRIPTIONS

G – EXCERPT FROM ARSANIS ARTICLES

EXHIBIT A

BACKGROUND PATENTS

Adimab Platform / Background Patents

Publication Number	**Title**
[**]	

EXHIBIT B

RESEARCH OVERVIEW

[**]

EXHIBIT C

RESEARCH PLAN 1

Adimab—Arsanis workplan #1

Confidential Materials omitted and filed separately with the Securities and Exchange Commission. A total of 26 pages were omitted.

[**]

EXHIBIT D

FORM OF QUESTIONNAIRE

Partner Completed Target Questionnaire

Information you are able to provide about your target will help Adimab design a customized selection strategy and detailed work plan. This will ultimately allow Adimab to deliver antibodies that fit your desired properties.

Confidential Materials omitted and filed separately with the Securities and Exchange Commission. A total of 4 pages were omitted.

EXHIBIT E

JOINT PRESS RELEASE

Joint Press Release has not been agreed at this time and is subject to mutual written agreement between authorized officers of both parties.

EXHIBIT F

PERMITTED TARGET DESCRIPTIONS

The following target descriptions may be used with no further description of the identity, nature or class of target:

bacterial target

EXHIBIT G

EXCERPT FROM ARSANIS ARTICLES

[SEE ATTACHED PAGES.]

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "ARSANIS, INC.", FILED IN THIS OFFICE ON THE FIFTEENTH DAY OF SEPTEMBER, A.D. 2010, AT 11:06 O'CLOCK A.M.

A FILED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS.

4851982 8100

100909108
You may verify this certificate online at corp.delaware.gov/authver.shtml

AUTHENTICATION: 8227827

DATE: 09-15-10

State of Delaware
Secretary of State
Division of Corporations
Delivered 11:14 AM 09/15/2010
FILED 11:06 AM 09/15/2010
SRV 100909108 - 4851982 FILE

Arsanis, Inc.

CERTIFICATE OF AMENDMENT

OF

CERTIFICATE OF INCORPORATION

Arsanis, Inc., a corporation organized and existing under the General Corporation Law of Delaware (the "Corporation") DOES HEREBY CERTIFY:

FIRST: That the Board of Directors of the Corporation by unanimous written consent adopted resolutions proposing and declaring advisable that the Certificate of Incorporation of said corporation, filed with the Secretary of State of Delaware, be amended as follows:

RESOLVED: That the Board of Directors of this Corporation recommends and deems it advisable that the Certificate of Incorporation of this Corporation be amended by deleting Article FOURTH thereof and substituting for said Article FOURTH the new Article FOURTH set forth on Exhibit A attached hereto;

RESOLVED: That the aforesaid proposed amendment be submitted to the stockholders of this Corporation for their consideration.

RESOLVED: That following the approval by the stockholders of the aforesaid amendment as required by law, the officers of this Corporation be, and they hereby are, and each of them hereby is, authorized and directed (i) to prepare, execute and file with the Secretary of State of the State of Delaware a Certificate of Amendment setting forth the aforesaid amendment in the form approved by the stockholders and (ii) to take any and all other actions necessary, desirable or convenient to give effect to the aforesaid amendment or otherwise to carry out the purposes of the foregoing resolutions.

SECOND: That in lieu of a meeting and vote of stockholders, the stockholders have given written consent to said amendment in accordance with the provisions of Section 228 of the General Corporation Law of the State of Delaware.

THIRD: That the aforesaid amendments were duly adopted in accordance with the applicable provisions of Sections 242 of the General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be signed by Robert L. Birnbaum, its Secretary, this 15th day of September, 2010.

/s/ Robert L. Birnbaum

Robert L. Birnbaum

Exhibit A

Article Fourth of Certificate of Incorporation of Arsanis, Inc.

FOURTH: The total number of shares of all classes of capital stock which the Corporation shall have authority to issue shall be 6,779,078 shares divided into two classes, as follows: 4,464,539 shares of common stock, par value $0.001 per share (the "Common Stock") and 2,314,539 shares of Preferred Stock, par value $0.001 per share (the "Preferred Stock").

A description of the respective classes of stock and a statement of the designations, preferences, voting powers, relative, participating, optional or other special rights and privileges and the qualifications, limitations and restrictions of the Preferred Stock and Common Stock are as follows:

A. Common Stock.

1. Relative Rights of Preferred Stock and Common Stock. All preferences, voting powers, relative, participating, optional or other special rights and privileges, and qualifications, limitations or restrictions, of the Common Stock are expressly made subject and subordinate to those that may be fixed with respect to any shares of the Preferred Stock.

2. Voting Rights. Except as otherwise required by law or this Certificate of Incorporation, the holders of Common Stock will be entitled to one vote per share on all matters to be voted on by the stockholders of the Corporation.

3. Increase/Decrease of Common Stock. Notwithstanding the provisions of Section 242(b)(2) of the Delaware General Corporation Law, the number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares then outstanding) by (in addition to any vote of the holders of one or more series of Preferred Stock that may be required by the terms of this Certificate of Incorporation) the affirmative vote of the holders of a majority of the outstanding shares of capital stock of the Corporation, voting as a single class, with each such share being entitled to such number of votes per share as is provided in this Article FOURTH.

4. Dividends. Dividends may be paid on the Common Stock out of funds legally available therefor it, as and when determined by the Board of Directors of the Corporation subject to the restrictions of Section B(2) below.

5. Dissolution, Liquidation or Winding-Up. In the event of any dissolution, liquidation or winding-up of the affairs of the Corporation, after distribution in full of the preferential amounts, if any, to be distributed to the holders of shares of the Preferred Stock, holders of Common Stock shall be entitled, unless otherwise provided by law or this Certificate of Incorporation, to receive all of the remaining assets of the Corporation of whatever kind available for distribution to stockholders ratably in proportion to the number of shares of Common Stock held by them.

B. Preferred Stock.

1. Designation. Of the class of 2,314,539 shares of Preferred Stock which the Corporation has the authority to issue: (i) 200,001 shares shall be a series designated and known as "Series A-1 Convertible Preferred Stock" ("Series A-1 Preferred Stock") and (ii) 2,114,538 shares shall be a series designated and known as the "Series A-2 Convertible Preferred Stock" ("Series A-2 Preferred Stock").

2. Dividends. Dividends may be declared and paid on Preferred Stock from funds lawfully available therefor if, as and when, determined by the Board of Directors of the Corporation; provided, that the holders of the Preferred Stock shall be entitled to receive, out of funds legally available therefor, dividends at the same rate and same time as dividends (other than dividends paid in additional shares of Common Stock) are paid with respect to the Common Stock (treating each share of Preferred Stock as being equal to the number of shares of Common Stock (including fractions of a share) into which each share of Preferred Stock is then convertible).

3. Liquidation, Dissolution or Winding-Up; Certain Mergers, Consolidations and Asset Sales.

(a) Payment to Preferred Stock Upon Liquidation.

(i) Preferred Stock. Upon any liquidation, dissolution or winding-up of the Corporation, whether voluntary or involuntary, the holders of each share of Preferred Stock then outstanding shall be entitled to receive an amount, to be paid first out of the assets of the Corporation available for distribution to holders of the capital stock of all classes, equal to the greater of the following:

(l) In the case of the Series A-1 Preferred Stock, $2.00 per share (which amount shall be subject to equitable adjustment whenever there shall occur a stock dividend, distribution, combination of shares, reclassification or other similar event affecting such shares) plus all declared and unpaid dividends thereon to and including the date full payment shall be tendered to the holders of Preferred Stock with respect to such liquidation, dissolution or winding-up;

(2) In the case of the Series A-2 Preferred Stock, $4.54 per share (which amount shall be subject to equitable adjustment whenever there shall occur a stock dividend, distribution, combination of shares, reclassification or other similar event affecting such shares) plus all declared and unpaid dividends thereon to and including the date full payment shall be tendered to the holders of Preferred Stock with respect to such liquidation, dissolution or winding-up; or

(3) Such amount per share of Preferred Stock as would have been payable had all shares of Preferred Stock been converted to Common Stock immediately prior to such event of liquidation, dissolution or winding-up pursuant to the provisions of Section 5.

If the assets of the Corporation shall be insufficient to permit the payment in full to the holders of the Preferred Stock of all amounts distributable to them under subsection (a)(i), then the entire assets of the Corporation available for such distribution shall be distributed ratably among the holders of the Preferred Stock on a pari passu basis in proportion to the full preferential amount each such holder is otherwise entitled to receive.

(ii) Common Stock. After such payments shall have been made in full to the holders of the Preferred Stock or funds necessary for such payments shall have been set aside by the Corporation in trust for the account of holders of Preferred Stock so as to be available for such payments, the remaining assets available for distribution shall be distributed among the holders of the Common Stock ratably in proportion to the number of shares of Common Stock held by them.

Upon conversion of shares of Preferred Stock into shares of Common Stock pursuant to Section 5 below, the holder of such Common Stock shall not be entitled to any preferential payment or distribution in case of any liquidation, dissolution or winding-up of the Corporation, but shall share ratably in any distribution of the assets of the Corporation to all the holders of Common Stock.

(b) Distributions Other than Cash. Whenever the distribution provided for in this Section 3 shall be payable in property other than cash, the value of such distribution shall be the fair market value of such property as determined in good faith by the Board of Directors of the Corporation.

(c) Merger as Liquidation, etc. The holders of the Preferred Stock at the time of (i) a consolidation or merger of the Corporation into or with any other entity or entities that results in the exchange of outstanding shares of the Corporation for securities or other consideration issued or paid or caused to be issued or paid by any such entity or affiliate thereof (except a consolidation or merger in which the holders of the Corporation's voting stock outstanding immediately prior to the transaction constitute a majority of the holders of voting stock of the surviving entity outstanding immediately following the transaction), (ii) the sale or transfer by the Corporation of all or substantially all its assets in a single transaction or series of related transactions, (iii) the granting by the Corporation of an exclusive license in all fields with respect to all or substantially all of the Corporation's intellectual property in a single transaction or series of related transactions, or (iv) the sale or transfer by the Corporation's stockholders of capital stock representing a majority of the voting power at elections of directors of the Corporation (each, an "Event"), may deem such Event to be a liquidation within the meaning of the provisions of this Section 3 by a vote of at a majority of the then outstanding shares of all series of Preferred Stock (voting as a single class on an as-converted to Common Stock basis) and by giving written notice thereof to the Corporation at least three days before the effective date of the Event. Any cash, property, rights or securities distributed to such holders by the acquiring person, firm or other entity upon such Event shall be deemed to be applied toward, and all consideration received by the Corporation in such asset sale together with all other available assets of the Corporation shall be distributed toward the liquidation payments attributable to the shares of Preferred Stock. The value of such property, rights or other securities shall be determined in good faith by the Board of Directors of the Corporation.

(d) Notice and Opportunity to Exercise Conversion Rights. Notwithstanding anything to the contrary that may be inferred from the provisions of this Section 3, each holder of shares of Preferred Stock shall be entitled to receive notice from the Corporation pursuant to Section 5(k) hereof of any proposed Event, liquidation, dissolution or winding-up of the Corporation at least ten (10) days prior to the date on which any such Event, liquidation, dissolution or winding-up of the Corporation is scheduled to occur and, at any time prior to any such Event, liquidation, dissolution or winding-up of the Corporation, to convert any or all of such holder's shares of Preferred Stock into shares of Common Stock pursuant to Section 5 hereof.

(e) Effecting an Event.

(1) The Corporation shall not have the power to effect an Event unless the agreement or plan of merger or consolidation for such transaction (the "Merger Agreement") provides that the consideration payable to the stockholders of the Corporation shall be allocated among the holders of capital stock of the Corporation in accordance with Section 3 above.

(2) In the event of an Event, if the Corporation does not effect a dissolution of the Corporation under the General Corporation Law of the State of Delaeare within 30 days after such Deemed Liquidation Event, then (i) the Corporation shall send a written notice to each holder of Preferred Stock no later than the 30th day after Event advising such holders of their right (and the requirements to be met to secure such right) pursuant to the terms of the following clause (ii) to require the redemption of such shares of Preferred Stock, and (ii) (x) the holders of at least a majority of the then-outstanding shares of Series A-1 Preferred Stock and (y) the holders of at least a majority of the then-outstanding shares of Series A-2 Preferred Stock so request in a written instrument delivered to the Corporation not later than 60 days after such Event, the Corporation shall use the consideration received by the Corporation for such Event (net of any retained liabilities associated with the assets sold or technology licensed, as determined in good faith by the Board of Directors of the Corporation) (the "Net Proceeds"), to the extent legally available therefor, on the 90th day after such Event, to redeem, on a pari passu basis, all (i) outstanding shares of Series A-1 Preferred Stock at a price per share equal to the greater of (x) $2.00 per share (which amount shall be subject to equitable adjustment whenever there shall occur a stock dividend, distribution, combination of shares, reclassification or other similar event affecting such shares) plus all declared and unpaid dividends thereon and (y) such amount per share of Series A-1 Preferred Stock as would have been payable had all shares of Series A-1 Preferred Stock been converted to Common Stock immediately prior to such Event and all such Net Proceeds distributed in accordance with Section 3(a)(i)(3) and (ii) outstanding shares of Series A-2 Preferred Stock at a price per share equal to the greater of (x) $4.54 per share (which amount shall be subject to equitable adjustment whenever there shall occur a stock dividend, distribution, combination of shares, reclassification or other similar event affecting such shares) plus all declared and unpaid dividends thereon and (y) such amount per share of Series A-2 Preferred Stock as would have been payable had all shares of Series A-2 Preferred Stock been converted to Common Stock immediately prior to such Event and all such Net Proceeds distributed in accordance with Section 3(a)(i)(3). Notwithstanding the foregoing, in the event of a redemption pursuant to the preceding sentence, if the Net Proceeds are not sufficient to redeem all outstanding shares of

Preferred Stock, or if the Corporation does not have sufficient lawfully available funds to effect such redemption, the Corporation shall redeem a pro rata portion of each holder's shares of Preferred Stock to the fullest extent of such Net Proceeds or such lawfully available funds, as the case may be, based on the respective amounts which would otherwise be payable in respect of the shares to be redeemed if the legally available funds were sufficient to redeem all such shares, and shall redeem the remaining shares to have been redeemed as soon as practicable after the Corporation has funds legally available therefor. The provisions of Section 7 shall apply, with such necessary changes in the details thereof as are necessitated by the context, to the redemption of the Preferred Stock pursuant to this Section 3(e). Prior to the distribution or redemption provided for in this Section 3(e), the Corporation shall not expend or dissipate the consideration received for such Event, except to discharge expenses incurred in connection with such Event or in the ordinary course of business.

(ii) Amount Deemed Paid or Distributed. lf the amount deemed paid or distributed under this Section 3(e) is made in property other than in cash, the value of such distribution shall be the fair market value of such property, determined as follows:

(1) For securities not subject to investment letters or other similar restrictions on free marketability,

(2) if traded on a securities exchange, unless otherwise specified in a Merger Agreement, the value shall be deemed to be the average of the closing prices of the securities on such exchange or market over the 30-day period ending three days prior to the closing of such transaction;

(3) if actively traded over-the-counter, unless otherwise specified in a Merger Agreement, the value shall be deemed to be the average of the closing bid prices over the 30-day period ending three days prior to the closing of such transaction; or

(4) if there is no active public market, the value shall be the fair market value thereof, as determined in good faith by the Board of Directors of the Corporation (including a majority of the directors designated by holders of Preferred Stock).

(5) The method of valuation of securities subject to investment letters or other similar restrictions on free marketability (other than restrictions arising solely by virtue of a stockholder's status as an affiliate or former affiliate) shall take into account an appropriate discount (as determined in good faith by the Board of Directors of the Corporation (including a majority of the directors designated by holders of Preferred Stock)) from the market value as determined above so as to reflect the approximate fair market value thereof.

(f) Allocation of Escrow or Contingent Payments. In the case of an Event, if any portion of the consideration payable to the stockholders of the Corporation is placed into escrow and/or is payable to the stockholders of the Corporation subject to contingencies, the Merger Agreement shall provide that (a) the portion of such consideration that is not placed in

escrow and not subject to any contingencies (the "Initial Consideration") shall be allocated among the holders of capital stock of the Corporation in accordance with Section 3(a) above as if the Initial Consideration were the only consideration payable in connection with such Event and (b) any additional consideration which becomes payable to the stockholders of the Corporation upon release from escrow or satisfaction of contingencies shall be allocated among the holders of capital stock of the Corporation in accordance with Section 3(e) above above after taking into account the previous payment of the Initial Consideration as part of the same transaction.

4. Voting.

(a) Each holder of outstanding shares of Preferred Stock shall be entitled to the number of votes equal to the number of whole shares of Common Stock into which the shares of Preferred Stock held by such holder are then convertible (as adjusted from time to time pursuant to Section 5 hereof), at each meeting of stockholders of the Corporation (and written actions of stockholders in lieu of meetings) with respect to any and all matters presented to the stockholders of the Corporation for their action or consideration. Except as provided by law or by the provisions establishing any other series of Preferred Stock, holders of Preferred Stock shall vote together with the holders of Common Stock as a single class on all actions to be taken by the stockholders of the Corporation, including, but not limited to actions amending the Certificate of Incorporation of the Corporation to increase the number of authorized shares of Common Stock.

(b) In addition to any other rights provided by law, for so long as not less than twenty percent (20%) of the shares of Preferred Stock that have been issued remain outstanding (appropriately adjusted to take account of any stock split, stock dividend, combination of shares or the like), the Corporation shall not, without first obtaining the affirmative vote or written consent of the holders of at least a majority of the then outstanding shares of Preferred Stock voting together as a single class on an as-converted to Common Stock basis:

(i) amend, alter or repeal any provision of, or add any provision to, the Corporation's Certificate of Incorporation or By-laws, including amendment by or incident to a merger;

(ii) incur any obligation to issue shares of, or authorize or designate any class or series of capital stock having any rights senior to or on a parity with the Preferred Stock as to redemption, dividends, liquidation or otherwise;

(iii) amend, alter or repeal the preferences, rights or privileges of the Preferred Stock including, without limitation the Series A-1 Preferred Stock and/or the Series A-2 Preferred Stock;

(iv) pay or declare any dividend or distribution on any shares of its capital stock (except dividends payable solely in shares of Common Stock), or apply any of its assets to the redemption, retirement, purchase or acquisition, directly or indirectly, through subsidiaries or otherwise, of any shares of its capital stock (other than repurchase of Common Stock upon termination of employment or service pursuant to written agreements in effect on the date hereof or written agreements approved by the Corporation's Board of Directors);

(v) voluntarily liquidate, dissolve or wind-up or consent to any of the foregoing;

(vi) effect a change of control, liquidation, merger, reincorporation, recapitalization, or sale or other transfer of a substantial part of the Corporation's assets other than in the ordinary course of business, including without limitation an Event, or consent to the any of the foregoing;

(vii) effect any acquisition of the capital stock of another entity which results in the consolidation of that entity into the results of operations of the Corporation or acquisition of all or substantially all of the assets of another entity;

(viii) incur indebtedness for borrowed funds, in a single or related series of transactions, in principal amount at any time outstanding in excess of $500,000;

(ix) except as contemplated by Section 5(d)(i)(C)(IV), create a new plan or arrangement for the grant of stock options, stock appreciation rights, restricted stock or other similar stock-based compensation, or increase the number of shares or other rights available under such existing plan or arrangement; or

(x) form a subsidiary, or acquire any equity interest in any other entity, other than a wholly-owned subsidiary, the composition of who's board of directors, managers or other similar governing body is identical to the composition of the Board of Directors of the Corporation.

5. Optional Conversion. The holders of the Preferred Stock shall have conversion rights as follows (the "Conversion Rights"):

(a) Right to Convert. Each share of Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder threreof, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing $2.00 (in the case of the Series A-1 Preferred Stock) or $4.54 (in the case of the Series A-2 Preferred Stock) by the Conversion Price (as defined below) in effect at the time of conversion. The "Series A-1 Conversion Price" shall initially be $2.00 and the "Series A-2 Conversion Price" shall initially be $4.54. The Series A-1 Conversion Price and the Series A-2 Conversion Price shall collectivelly be referred to herein as the "Conversion Prices". Such initial Conversion Prices, and the rate at which shares of Series A-1 Preferred Stock and Series A-2 Preferred Stock may be converted into shares of Common Stock, shall be subject to adjustment as provided below.

(b) Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of the Preferred Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the then effective applicable Conversion Price. Whether or not fractional shares would be issuable upon such conversion shall be determined on the basis of the total number of shares of Preferred Stock the holder is at the time converting into Common Stock and the aggregate number of shares of Common Stock issueable upon such conversion.

(c) Mechanics of Conversion.

(i) In order for a holder of Preferred Stock to convert shares of Preferred Stock into shares of Common Stock, such holder shall surrender the certificate or certificates for such shares of Preferred Stock (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate), at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent), together with written notice that such holder elects to convert all or any number of the shares of Preferred Stock represented by such certificate or certificates. If required by the Corporation, certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or his, her or its attorney duly authorized in writing. The date of receipt of such certificates (or lost certificate affidavit and agreement) and notice by the transfer agent (or by the Corporation if the Corporation serves as its own transfer agent) shall be the conversion date ("Conversion Date"), and the shares of Common Stock issuable upon conversion of the shares represented by such certificate shall be deemed to be outstanding of record as of such date. The Corporation shall, as soon as practicable after the Conversion Date, issue and deliver at such office to such holder of Preferred Stock a certificate or certificates for the number of shares of Common Stock to which such holder shall be entitled, together with cash in lieu of any fraction of a share.

(ii) The Corporation shall at all times when any Preferred Stock shall be outstanding, reserve and keep available out of its authorized but unissued stock, for the purpose of effecting the conversion of the Preferred Stock, such number of its duly authorized shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding Preferred Stock. Before taking any action which would cause an adjustment reducing either of the Conversion Prices below the then par value of the shares of Common Stock issuable upon conversion of the Preferred Stock, the Corporation will take any corporate action which may, in the opinion of its counsel, be necessary in order that the Corporation may validly and legally issue fully paid and nonassessable shares of Common Stock at such adjusted Conversion Prices.

(iii) Upon any such conversion, no adjustment to the Conversion Prices shall be made for any declared but unpaid dividends on the Preferred Stock surrendered for conversion or on the Common Stock delivered upon conversion.

(iv) All shares of Preferred Stock which shall have been surrendered for conversion as herein provided shall no longer be deemed to be outstanding and all rights with respect to such shares, including the rights, if any, to receive notices and to vote such shares of Preferred Stock, shall immediately cease and terminate on the Conversion Date, except only the right of the holders thereof to receive shares of Common Stock in exchange therefor and payment of any dividends declared but unpaid thereon. Any shares of Preferred Stock so converted shall be retired and cancelled and

shall not be reissued, and the Corporation (without the need for stockholder action) may from time to time take such appropriate action as may be necessary to reduce the authorized number of shares of Preferred Stock and the number of shares of Series A-1 Preferred Stock and/or Series A-2 Preferred Stock, accordingly.

(v) The Corporation shall pay any and all issue and other taxes that may be payable in respect of any issuance or delivery of shares of Common Stock upon conversion of shares of Preferred Stock pursuant to this Section 5. The Corporation shall not, however, be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of shares of Common Stock in a name other than that in which the shares of Preferred Stock so converted were registered, and no such issuance or delivery shall be made unless and until the person or entity requesting such issuance has paid to the Corporation the amount of any such tax or has established, to the satisfaction of the Corporation, that such tax has been paid.

(d) Adjustments to Conversion Price for Diluting Issues:

(i) Special Definitions. For purposes of this Section 5, the following definitions shall apply:

(A) "Option" shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.

(B) "Convertible Securities" shall mean any evidences of indebtedness, shares or other securities directly or indirectly convertible into or exchangeable for Common Stock, but excluding Options.

(C) "Additional Shares of Common Stock" shall mean all shares of Common Stock issued (or, pursuant to Subsection 5(d)(iii) below, deemed to be issued) by the Corporation after the date hereof other than:

(I) shares of Common Stock issued or issuable upon conversion of shares of Preferred Stock;

(II) shares of Common Stock issued or issuable as a dividend or distribution on Preferred Stock;

(III) shares of Common Stock issued or issuable by reason of a dividend, stock split, split-up or other distribution on shares of Common Stock that is covered by Subsection 5(e) or 5(f) below;

(IV) up to 1,683,333 shares (appropriately adjusted to take account of any stock split, stock dividend, combination of shares or the like) of Common Stock (or Options with respect thereto) issued or issuable to employees or directors of, or consultants

to, the Corporation pursuant to a plan or arrangement in effect prior to the issuance of any Preferred Stock or a plan or arrangement approved by the Board of Directors of the Corporation or any combination of such plans; or

(V) shares of Common Stock (including Options or Convertible Securities) (a) issued solely in consideration for the acquisition (whether by merger or otherwise) by the Corporation of all or substantially all of the capital stock or assets of any other corporation or entity, or (b) issued in connection with an equipment financing, line of credit or other lending arrangement; provided, however, the issuance of such shares pursuant to (a) or (b) above is approved by holders of at least a majority of the then outstanding shares of Preferred Stock voting together as a single class on an as-converted to Common Stock basis.

(ii) No Adjustment of Conversion Prices. No adjustment in the number of shares of Common Stock into which Series A-1 Preferred Stock is convertible shall be made, by adjustment in the Series A-1 Conversion Price unless the consideration per share (determined pursuant to Subsection 5(d)(v)) for an Additional Share of Common Stock issued or deemed to be issued by the Corporation is less than the Series A-1 Conversion Price in effect immediately prior to the issue of such Additional Shares of Common Stock. No adjustment in the number of shares of Common Stock into which Series A-2 Preferred Stock is convertible shall be made, by adjustment in the Series A-2 Conversion Price unless the consideration per share (determined pursuant to Subsection 5(d)(v)) for an Additional Share of Common Stock issued or deemed to be issued by the Corporation is less than the Series A-2 Conversion Price in effect immediately prior to the issue of such Additional Shares of Common Stock. Further no adjustment shall be made to either of the Conversion Prices, if prior to, or after, such issuance, the Corporation receives written notice from the holders of at least a majority of the then outstanding shares of Preferred Stock voting together as a single class on an as-converted to Common Stock basis agreeing that no such adjustment shall be made as the result of the issuance of Additional Shares of Common Stock.

(iii) Issue of Securities Deemed Issue of Additional Shares of Common Stock. If the Corporation at any time or from time to time hereafter shall issue any Options or Convertible Securities (excluding Options or Convertible Securities covered by Subsection 5(d)(i)(C)(IV) and (V) above) or shall fix a record date for the determination of holders of any class of securities entitled to receive any such Options or Convertible Securities, then the maximum number of shares of Common Stock (as set forth in the instrument relating thereto without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or, in the case of Convertible Securities and Options therefor, the conversion or exchange

of such Convertible Securities, shall be deemed to be Additional Shares of Common Stock issued as of the time of such issue or, in case such a record date shall have been fixed, as of the close of business on such record date, provided that Additional Shares of Common Stock shall not be deemed to have been issued unless the consideration per share (determined pursuant to Subsection 5(d)(v) hereof) of such Additional Shares of Common Stock would be less than the Series A-1 Conversion Price or Series A-2 Conversion Price, as applicable, in effect on the date of and immediately prior to such issue, or such record date, as the case may be, and provided further that in any such case in which Additional Shares of Common Stock are deemed to be issued:

(A) No further adjustment in either of the Conversion Prices shall be made upon the subsequent issue of Convertible Securities or shares of Common Stock upon the exercise of such Options or conversion or exchange of such Convertible Securities;

(B) If such Options or Convertible Securities by their terms provide, with the passage of time or otherwise, for any increase or decrease in the consideration payable to the Corporation, then upon the exercise, conversion or exchange thereof, the Conversion Prices computed upon the original issue thereof (or upon the occurrence of a record date with respect thereto), and any subsequent adjustments based thereon, shall, upon any such increase or decrease becoming effective, be recomputed to reflect such increase or decrease insofar as it affects such Options or the rights of conversion or exchange under such Convertible Securities;

(C) Upon the termination of any Option or any right to convert or exchange any Convertible Securities as to which an adjustment in either of the Conversion Price pursuant to Section 5(d)(iv) has previously been made upon the grant or issuance thereof, the Conversion Price(s) then in effect hereunder shall forthwith be increased to the Conversion Price(s) which would have been in effect at the time of such termination had such Option or Convertible Securities, to the extent outstanding immediately prior to such termination, never been issued;

(D) In the event of any change in the number of shares of Common Stock issuable upon the exercise, conversion or exchange of any such Option or Convertible Security, including, but not limited to, a change resulting from the anti-dilution provisions thereof, the Conversion Price(s) then in effect shall forthwith be readjusted to such Conversion Price(s) as would have obtained had the adjustment which was made upon the issuance of such Option or Convertible Security not exercised, converted or exchanged prior to such change been made upon the basis of such change; and

(E) No readjustment pursuant to clause (B), (C) or (D) above shall have the effect of increasing either of the Conversion Prices to an amount which exceeds the lower of (i) the Conversion Price(s) immediately preceding adjustment on the original adjustment date, or (ii) the Conversion Price(s) that would have resulted from any issuances of Additional Shares of Common Stock between the original adjustment date and such readjustment date.

In the event the Corporation amends the terms of any such Options or Convertible Securities so as to change the number of securities for which they are exercisable, convertible or exchangeable or the consideration payable thereunder, then such Options or Convertible Securities, as so amended, shall be deemed to have been issued after the date hereof and the provisions of this Subsection 5(d)(iii) shall apply.

(iv) Adjustment of Conversion Prices Upon Issuance of Additional Shares of Common Stock. In the event the Corporation shall at any time hereafter issue Additional Shares of Common Stock (including Additional Shares of Common Stock deemed to be issued pursuant to Subsection 5(d)(iii)), without consideration or for a consideration per share less than the applicable Conversion Prices in effect immediately prior to such issue, then and in such event, the applicable Conversion Prices shall be reduced, concurrently with such issue, to a price (calculated to the nearest cent) determined by multiplying such applicable Conversion Price by a fraction, (A) the numerator of which shall be (1) the number of shares of Common Stock outstanding immediately prior to such issue plus (2) the number of shares of Common Stock which the aggregate consideration received or to be received by the Corporation for the total number of Additional Shares of Common Stock so issued would purchase at such applicable Conversion Price; and (B) the denominator of which shall be the number of shares of Common Stock outstanding immediately prior to such issue plus the number of such Additional Shares of Common Stock so issued; provided that, (i) for the purpose of this Subsection 5(d)(iv), all shares of Common Stock issuable upon conversion or exchange of Convertible Securities or Options outstanding immediately prior to such issue shall be deemed to be outstanding, and (ii) the number of shares of Common Stock deemed issuable upon conversion or exchange of such outstanding Convertible Securities shall not give effect to any adjustments to the conversion or exchange price or conversion or exchange rate of such Convertible Securities resulting from the issuance of Additional Shares of Common Stock that is the subject of this calculation.

(v) Determination of Consideration. For purposes of this Subsection 5(d), the consideration received by the Corporation for the issue of any Additional Shares of Common Stock shall be computed as follows:

(A) Cash and Property: Such consideration shall:

(I) insofar as it consists of cash, be computed at the aggregate of cash received by the Corporation, excluding amounts paid or payable for accrued interest;

(II) insofar as it consists of property other than cash, be computed at the fair market value thereof at the time of such issue, as determined in good faith by the Board of Directors; and

(III) in the event Additional Shares of Common Stock are issued together with other shares or securities or other assets of the Corporation for consideration which covers both, be the proportion of such consideration so received, computed as provided in clauses (I) and (II) above, as determined in good faith by the Board of Directors.

(B) Options and Convertible Securities. The consideration per share received by the Corporation for Additional Shares of Common Stock deemed to have been issued pursuant to Subsection 5(d)(iii), relating to Options and Convertible Securities, shall be determined by dividing

(x) the total amount, if any, received or receivable by the Corporation as consideration for the issue of such Options or Convertible Securities, plus the minimum aggregate amount of additional consideration (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such consideration) payable to the Corporation upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities, by

(y) the maximum number of shares of Common Stock (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or the conversion or exchange of such Convertible Securities.

(vi) Multiple Closing Dates. In the event the Corporation shall issue on more than one date Additional Shares of Common Stock which are comprised of shares of the same series of Preferred Stock, and such issuance dates occur within a period of no more than 120 days, then, upon the final such issuance, the applicable Conversion Prices shall be adjusted to give effect to all such issuances as if they occurred on the date of the final such issuance (and without giving effect to any adjustments as a result of such prior issuances within such period).

(e) Adjustment for Stock Splits and Combinations. If the Corporation shall at any time or from time to time after the date hereof effect a subdivision of the outstanding Common Stock, the Conversion Prices then in effect immediately before that subdivision shall be proportionately decreased. If the Corporation shall at any time or from time to time after the date hereof combine the outstanding shares of Common Stock, the Conversion Prices then in effect immediately before the combination shall be proportionately increased. Any adjustment under this paragraph shall become effective at the close of business on the date the subdivision or combination becomes effective.

(f) Adjustment for Certain Dividends and Distributions. In the event the Corporation at any time, or from time to time after the date hereof shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in additional shares of Common Stock, then and in each such event each Conversion Price then in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the applicable Conversion Price then in effect by a fraction:

(1) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and

(2) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution;

provided, however, if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the Conversion Prices shall be recomputed accordingly as of the close of business on such record date and thereafter the Conversion Prices shall be adjusted pursuant to this paragraph as of the time of actual payment of such dividends or distributions; and provided further, however, that no such adjustment shall be made if the holders of Preferred Stock simultaneously receive (i) a dividend or other distribution of shares of Common Stock in a number equal to the number of shares of Common Stock as they would have received if all outstanding shares of Preferred Stock had been converted into Common Stock on the date of such event or (ii) a dividend or other distribution of shares of Preferred Stock which are convertible, as of the date of such event, into such number of shares of Common Stock as is equal to the number of additional shares of Common Stock being issued with respect to each share of Common Stock in such dividend or distribution.

(g) Adjustments for Other Dividends and Distributions. In the event the Corporation at any time or from time to time after the date hereof shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in securities of the Corporation (other than shares of Common Stock) or in cash or other property (other than cash out of earnings or earned surplus, determined in accordance with generally accepted accounting principles), then and in each such event provision shall be made so that the holders of the Preferred Stock shall receive upon conversion thereof in addition to the number of shares of Common Stock receivable thereupon, the amount of securities of the Corporation that they would have received had the Preferred Stock been converted into Common Stock on the date of such event and had they thereafter, during the period from the date of such event to and including the conversion date, retained such securities receivable by them as aforesaid during such period, giving application to all adjustments called for during such period under this paragraph with respect to the rights of the holders of the Preferred Stock; and provided further, however, that no such adjustment shall be made if the holders of Preferred Stock simultaneously receive a dividend or other distribution of such securities in an amount equal to the amount of such securities as they would have received if all outstanding shares of Preferred Stock had been converted into Common Stock on the date of such event.

(h) Adjustment for Merger or Reorganization, etc. Subject to the provisions of Subsection 3(c), if there shall occur any reorganization, recapitalization, consolidation or merger involving the Corporation in which the Common Stock is converted into or exchanged for securities, cash or other property (other than a transaction covered by paragraphs (e), (f) or (g) of this Section 5), then, following any such reorganization, recapitalization, consolidation or merger, each share of each series of Preferred Stock shall be convertible into the kind and amount of securities, cash or other property which a holder of the number of shares of Common Stock of the Corporation issuable upon conversion of one share of such series of Preferred Stock immediately prior to such reorganization, recapitalization, consolidation or merger would have been entitled to receive pursuant to such transaction; and, in such case, appropriate adjustment (as determined in good faith by the Board of Directors) shall be made in the application of the provisions in this Section 5 set forth with respect to the rights and interest thereafter of the holders of the Preferred Stock, to the end that the provisions set forth in this Section 5 (including provisions with respect to changes in and other adjustments of the Conversion Prices) shall thereafter be applicable, as nearly as reasonably may be, in relation to any shares of stock or other property thereafter deliverable upon the conversion of the Preferred Stock.

(i) No Impairment. Unless approved by a majority of the then outstanding shares of Preferred Stock voting together as a single class on an as-converted to Common Stock basis as provided in Section 4(b) above, the Corporation will not, by amendment of its Certificate of Incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms to be observed or performed hereunder by the Corporation, but will at all times in good faith assist in the carrying out of all the provisions of this Section 5 and in the taking of all such action as may be necessary or appropriate in order to protect the Conversion Rights of the holders of the Preferred Stock against impairment.

(j) Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of either of the Conversion Prices pursuant to this Section 5, the Corporation at its expense shall promptly compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of any applicable series of Preferred Stock a certificate setting forth such adjustment or readjustment and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, upon the written request at any time of any holder of Preferred Stock, furnish or cause to be furnished to such holder a certificate setting forth (i) the Conversion Prices then in effect, and (ii) the number of shares of Common Stock and the amount, if any, of other securities, cash or property which then would be received upon the conversion of each such series of Preferred Stock.

(k) Notice of Record Date. In the event:

(i) the Corporation shall take a record of the holders of its Common Stock (or other stock or securities at the time issuable upon conversion of the Preferred Stock) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of stock of any class or any other securities, or to receive any other right; or

(ii) of any capital reorganization of the Corporation, any reclassification of the Common Stock of the Corporation, any consolidation or merger of the Corporation with or into another corporation (other than a consolidation or merger in which the Corporation is the surviving entity and its Common Stock is not converted into or exchanged for any other securities or property), or any transfer of all or substantially all of the assets of the Corporation; or

(iii) of the voluntary or involuntary dissolution, liquidation or winding-up of the Corporation or any Event,

then, and in each such case, the Corporation will mail or cause to be mailed to the holders of the Preferred Stock a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation, winding-up or Event is to take place, and the time, if any is to be fixed, as of which the holders of record of Common Stock (or such other stock or securities at the time issuable upon the conversion of the Preferred Stock) shall be entitled to exchange their shares of Common Stock (or such other stock or securities) for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up. Such notice shall be mailed at least 10 days prior to the record date or effective date for the event specified in such notice.

6. Mandatory Conversion.

(a) Upon the closing of the sale of shares of Common Stock in an underwritten firm commitment public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, in which (i) the price to the public per share is at least $22.70 (subject to equitable adjustment for any stock dividend, stock split, stock split-up, combination of shares or the like) and (ii) the aggregate offering price is at least $50,000,000 (based on the market price or fair value at the time of such offering) (the "IPO Mandatory Conversion Date"), (i) all outstanding shares of Series A-1 Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective applicable conversion rate for Series A-1 Preferred Stock, (ii) all outstanding shares of Series A-2 Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective applicable conversion rate for Series A-2 Preferred Stock and (iii) all provisions included under the caption "Preferred Stock", and all references to the Preferred Stock, shall be deleted and shall be of no further force or effect.

(b) All outstanding shares of Series A-1 Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective applicable conversion rate for Series A-1 Preferred Stock and all outstanding shares of Series A-2 Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective applicable conversion rate for Series A-2 Preferred Stock upon the conversion of more than 75% in voting power of the aggregate number of shares of Preferred Stock at any time issued by the

Corporation (other than any shares of Preferred Stock that have been redeemed or, if a Redemption Election has been made pursuant to Section 7 below, that the Corporation is required to redeem pursuant to such Section 7). Such conversion shall be deemed to have occurred on the date (the "Special Conversion Date" and collectively with the IPO Mandatory Conversion Date, "Mandatory Conversion Dates") upon which the aggregate number of shares of Preferred Stock which have been converted to Common Stock exceeds such 75%.

(c) All holders of record of shares of Preferred Stock shall be given written notice of the relevant Mandatory Conversion Date and the place designated for mandatory conversion of all such Preferred Stock pursuant to this Section 6. Such notice need not be given in advance of the occurrence of the Mandatory Conversion Date. Such notice shall be sent by first class or registered mail, postage prepaid, to each record holder of Preferred Stock at such holder's address last shown on the records of the transfer agent for the Preferred Stock (or the records of the Corporation, if it serves as its own transfer agent). Upon receipt of such notice, each holder of shares of Preferred Stock shall surrender his, her or its certificate or certificates for all such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice, and shall thereafter receive certificates for the number of shares of Common Stock to which such holder is entitled pursuant to this Section 6. On the Mandatory Conversion Date, all outstanding shares of Preferred Stock shall be deemed to have been converted into shares of Common Stock, which shall be deemed to be outstanding of record, and all rights with respect to the Preferred Stock so converted, including the rights, if any, to receive notices and vote (other than as a holder of Common Stock) will terminate, except for the rights of the holders thereof, upon surrender of their certificate or certificates (or lost certificate affidavit and agreement) therefor, to receive certificates for the number of shares of Common Stock into which such Preferred Stock has been converted, and payment of any declared but unpaid dividends thereon. If so required by the Corporation, certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by his, her or its attorney duly authorized in writing. As soon as practicable after the Mandatory Conversion Date and the surrender of the certificate or certificates for such Preferred Stock (or lost certificate affidavit and agreement), the Corporation shall cause to be issued and delivered to such holder, or on his, her or its written order, a certificate or certificates for the number of full shares of Common Stock issuable on such conversion in accordance with the provisions hereof and cash as provided in Subsection 5(b) in respect of any fraction of a share of Common Stock otherwise issuable upon such conversion.

(d) All certificates evidencing shares of Preferred Stock which are required to be surrendered for conversion in accordance with the provisions hereof shall, from and after the Mandatory Conversion Date, be deemed to have been retired and cancelled and the shares of Preferred Stock represented thereby converted into Common Stock for all purposes, notwithstanding the failure of the holder or holders thereof to surrender such certificates on or prior to such date. Such converted Preferred Stock may not be reissued, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

7. Redemption.

(a) At the written election of holders of at least a majority of the outstanding shares of Preferred Stock voting together as a single class on an as-converted to Common Stock basis made at any time on or after the fifth anniversary of the first date of issuance of a share of Preferred Stock (the "Redemption Election"), the Corporation shall be required to redeem all, but not less than all, of the outstanding shares of Preferred Stock in three equal annual installments, upon the terms set forth in this Section 7. The first installment of such redemption (the "First Redemption Date") shall occur on the date specified in the Redemption Election, which shall be not less than ninety days after the date of the Redemption Election, and the second and third installments of such redemption shall occur on the first and second anniversaries, respectively, of the First Redemption Date. The Corporation shall redeem one-third of the outstanding shares of Preferred Stock held by each holder on the First Redemption Date, one half of the outstanding shares of Preferred Stock held by each holder on the first anniversary thereof and the remaining shares on the second anniversary thereof. On each such redemption date, the holders shall surrender the certificate or certificates for the shares to be redeemed (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate), duly endorsed for transfer or with duly executed stock transfer powers sufficient to permit transfer attached, at the offices of the Corporation or of any transfer agent for the Preferred Stock. The Corporation shall, as soon as practicable thereafter, issue and deliver to each holder a certificate or certificates for the balance of the shares not being redeemed. The redemption price per share of Preferred Stock shall be equal to $2.00 (in the case of the Series A-1 Preferred Stock) or $4.54 (in the case of the Series A-2 Preferred Stock), in each case subject to equitable adjustment for any stock dividend, stock split, stock split-up, combination of shares or the like, plus all dividends declared but unpaid on such share on the redemption date.

(b) Notice of redemption shall be sent by first class mail, postage prepaid, to each holder of record of the Preferred Stock, not less than thirty days nor more than sixty days prior to the First Redemption Date, at the address of such holder as it appears on the books of the Corporation. Such notice shall set forth (i) the First Redemption Date, the dates of the second and third installments of such redemption, and the place of redemption; and (ii) the number of shares to be redeemed on each date of redemption and the redemption price on each such date. The Corporation shall be obligated to redeem the Preferred Stock on the dates and in the amounts set forth in the notice; provided, however, that any holder of Preferred Stock who is not party to a Redemption Election may convert any or all of the shares owned by such holder into Common Stock in accordance with Section 5 at any time prior to the First Redemption Date. The Corporation, if advised before the First Redemption Date by written notice from any holder of record of Preferred Stock to be redeemed who is not a party to a Redemption Election, shall credit against the number of shares of Preferred Stock required to be redeemed from such holder, and shall not redeem, the number of shares of Preferred Stock which had been converted by such holder on or before such date and which had not previously been credited against any redemption.

(c) If, on or before a redemption date, the funds necessary for such redemption shall have been set aside by the Corporation and deposited with a bank or trust company, in trust for the pro rata benefit of the holders of the Preferred Stock that has been called for redemption, then, notwithstanding that any certificates for shares that have been called for redemption shall not have been surrendered for cancellation, the shares represented thereby shall no longer be deemed outstanding from and after such redemption date, and all rights of holders of such shares so called for redemption shall forthwith, after such redemption date, cease and terminate with respect to such shares, excepting only the right to receive the redemption funds therefor to which they are entitled. Any interest accrued on funds so deposited and unclaimed by stockholders entitled thereto shall be paid to such stockholders at the time their respective shares are redeemed or to the Corporation at the time unclaimed amounts are paid to it. In case the holders of Preferred Stock which shall have been called for redemption shall not, within six years after the final redemption date, claim the amounts so deposited with respect to the redemption thereof, any such bank or trust company shall, upon demand, pay over to the Corporation such unclaimed amounts and thereupon such bank or trust company shall be relieved of all responsibility in respect thereof to such holder and such holder shall look only to the Corporation for the payment thereof. Any funds so deposited with a bank or trust company which shall not be required for such redemption by reason of the exercise subsequent to the date of such deposit of the right of conversion of any shares or otherwise shall be returned to the Corporation forthwith.

(d) If the Corporation for any reason fails to redeem any of the shares of Preferred Stock in accordance with Section 7(a) on or prior to the redemption dates determined in accordance with this Section 7, then, the Corporation shall become obligated to pay, in addition to the redemption price specified in Section 7(a), interest on the unpaid balance of such price, which shall accrue at a rate of one percent (1%) per month until such price is paid in full. (For the purposes of this Section 7(d), shares of Preferred Stock for which funds have been set aside and deposited as provided in Section 7(c) shall be deemed to be redeemed.)

(e) If the funds of the Corporation legally available for redemption of shares of Preferred Stock on a redemption date are insufficient to redeem the total number of shares of Preferred Stock submitted for redemption, those funds which are legally available will be used to redeem the maximum possible number of whole shares ratably among the holders of such shares. The shares of Preferred Stock not redeemed shall remain outstanding and entitled to all rights and preferences provided herein. At any time thereafter when additional funds of the Corporation are legally available for the redemption of such shares of Preferred Stock, such funds will be used, at the end of the next succeeding fiscal quarter, to redeem the balance of such shares, or such portion thereof for which funds are then legally available.

8. Waiver. Any of the rights of the holders of Preferred Stock set forth herein may be waived by the affirmative vote of the holders of at least majority of the shares of Preferred Stock then outstanding voting together as a single class on an as-converted to Common Stock basis.

AMENDMENT NUMBER ONE
TO THE
COLLABORATION AGREEMENT

THIS AMENDMENT NUMBER ONE (the "**Amendment**") dated February 11, 2013 (the "**Amendment Effective Date**") amends the **COLLABORATION AGREEMENT** (the "**Agreement**") dated as of May 1, 2011 (the "**Original Effective Date**"), by and between **ADIMAB**, **LLC**, a Delaware limited liability company having an address at 7 Lucent Drive, Lebanon, NH 03766 ("**Adimab**") and **ARSANIS**, **INC**., a Delaware corporation having an address at 7 Lucent Drive, Lebanon, NH 03766 (together with Arsanis Biosciences GmbH, an Austrian entity having an address at Helmut-Qualtinger-Gasse 2, Vienna, A-1030, Austria, collectively "**Arsanis**") Capitalized terms used herein and not otherwise defined shall have the meanings ascribed to such words in the Agreement.

BACKGROUND

1. The Parties wish to extend the Target Nomination Period for [**] additional years.

2. The Parties wish to explicitly acknowledge that Research Plans may include optimization of antibodies discovered by Arsanis or Third Parties, and that the Parties wish to provide for different economics with respect to such optimized antibodies.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants set forth below, and for other good and valuable consideration, the receipt of which is hereby acknowledged. Adimab and Arsanis hereby agree as follows:

1. Section 1.30 of the Agreement is hereby deleted in its entirety and replaced with the following language:

"**FTE Rate**" means [**] dollars ($[**]) per FTE (or [**] dollars ($[**]) on a quarterly basis).

The FTE Rate will be reduced by [**] percent ([**]%) for any Research Program under or in connection with a Research Plan concerning a Pilot Target.

2. The following new Section 1.46A shall be added to the Agreement:

"**Optimized Antibody**" means an antibody with proven binding activity against a Target that is (a) provided by Arsanis to Adimab for optimization and/or humanization pursuant to a Research Plan; (b) not a Program Antibody or a Program Benefited Antibody at the time it is provided to Adimab by Arsanis; and (c) optimized and/or humanized by Adimab for use against such Target pursuant to such Research Plan. For clarity, following optimization by Adimab an Optimized Antibody becomes a Program Antibody, and if Arsanis exercises its option in Section 3.2 with respect to an Optimized Antibody, then such Optimized Antibody shall also be a Licensed Antibody.

3. Section 1.63 of the Agreement is hereby deleted in its entirety and replaced with the following language:

"**Research Plan**" means the research plan set forth in Exhibit C, or any research plan providing for a program of research that the Research Committee may finalize and the Parties approve in writing as provided for in Section 2.2. It is anticipated that there may ultimately be [**] Research Plans under the Collaboration, but the final number of Research Plans is not currently known. The Research Plan of Exhibit C is "Research Plan 1." All subsequent Research Plans will be numbered consecutively. All Research Plans shall comply with the applicable requirements stated in Section 2.2. For the avoidance of doubt, a Research Plan may include the optimization and/or humanization by Adimab of antibodies that were not discovered by Adimab in order to develop Optimized Antibodies.

4. Section 1.73 of the Agreement is hereby deleted in its entirety and replaced with the following language:

"**Tail Period**" means the [**] months beginning at the end of the Target Nomination Period.

5. Section 1.74 of the Agreement is hereby deleted in its entirety and replaced with the following language:

"**Target**" means the disease-related biological target of interest to Arsanis that is specifically identified in Research Plan 1, or the disease-related biological target of interest to Arsanis that is specifically identified in any subsequent Research Plan. Different epitopes on or serotypes of the same molecule that is a biological target of interest will not be deemed to be different Targets, and Target shall be defined by reference to entire molecules rather than individual serotypes/epitopes (although activities may be focused on specific serotype/epitopes).

A Target shall be deemed a "**Pilot Target**" if either (i) it is the first Target under the Collaboration, following the Amendment Effective Date as defined in that certain "Amendment Number One To The Collaboration Agreement", that is a carbohydrate; or (ii) the Parties mutually agree in writing to designate a particular Target as a Pilot Target. In all cases, for a Target to be deemed a Pilot Target, it must be clearly designated as such in the related Research Plan.

6. Section 1.75 of the Agreement is hereby deleted in its entirety and replaced with the following language:

"**Target Nomination Period**" means the period beginning on the Start Date and ending on December 31, 2013. At any time within [**] days after the closing of an Arsanis Trade Sale, Adimab may terminate the Target Nomination Period upon [**] days' prior written notice to Arsanis. Notwithstanding anything in Section 2.4(a) to the contrary, prior to the effective date of termination of the Target Nomination Period by Adimab as set forth above, Arsanis shall notify Adimab in writing of those Research Programs that Arsanis elects (in its sole discretion) to pursue during the Tail Period (or any portion thereof) and Adimab will provide Arsanis with a schedule of the FTE usage required by Adimab to complete such Research Programs.

7. Section 4.4 of the Agreement is hereby deleted in its entirety and replaced with the following language:

Program Transaction Revenue Payments

(a) With respect to a Program Transaction in which rights are granted to one or more Licensed Antibodies and/or Products, none of which is, or is comprised of, an Optimized Antibody (or a modified or derivative form of an Optimized Antibody): Arsanis shall pay to Adimab: (i) [**] percent ([**]%) of all Program Transaction Revenue in connection with such a Program Transaction for which the Revenue Election is made (other than a Multi-Product Deal or Multi-Target Deal); (ii) [**] percent ([**]%) of Multi-Product Deal Program Transaction Revenue for such a Program Transaction that is a Multi-Product Deal for which the Revenue Election is made; and (iii) [**] percent ([**]%) of Multi-Target Deal Program Transaction Revenue for all Multi-Target Deals for which the Revenue Election is made.

(b) With respect to a Program Transaction in which rights are granted to Incensed Antibodies and/or Products that are, or are comprised of, only Optimized Antibodies (or modified or derivative forms of Optimized Antibodies), Arsanis shall pay to Adimab: (i) [**] percent ([**]%) of all Program Transaction Revenue in connection with such a Program Transaction for which the Revenue Election is made (other than Multi-Product Deals or Multi-Target Deals); (ii) [**] percent ([**]%) of Multi-Product Deal Program Transaction Revenue for such a Program Transaction that is a Multi-Product Deal for which the Revenue Election is made; and (iii) [**]percent ([**]%) of Multi-Target Deal Program Transaction Revenue for such a Program Transaction that is a Multi-Target Deal for which the Revenue Election is made.

(c) With respect to a Program Transactions in which rights are granted to both (i) one or more Licensed Antibodies and/or Products that are not, and are not comprised of, an Optimized Antibody and (ii) one or more Licensed Antibodies and/or Products that are, or are comprised of, Optimized Antibodies, then Arsanis shall pay to Adimab [**] percent ([**]%) of the Program Transaction Revenue allocated to Licensed Antibodies described in clause (c)(i) above and [**] percent ([**]%) of the Program Transaction Revenue allocated to Licensed Antibodies described in clause (c)(ii) above. Adimab and Arsanis will negotiate and endeavor to agree in good faith the allocation of Program Transaction Revenue to each such class of Lincensed Antibody within [**] days after the date of notice from Arsanis of such Program Transaction. If despite good faith efforts the Parties are unable to agree upon such allocation within such [**] day period, and Adimab has undergone an Adimab Change of Control prior to the Program Transaction, then Arsanis may request that a Third Party determine such allocation by baseball arbitration pursuant to Section 10.2(b). If despite good faith efforts the Parties are unable to agree upon such allocation within such [**] day period, and Adimab has *not* undergone an Adimab Change of Control prior to the Program Transaction, then Arsanis shall not have any right to refer the matter for dispute resolution or baseball arbitration under Section 10.2(b), and there shall be no reduction or adjustment to Program Transaction Revenue in the applicable Program Transaction for Licensed Antibodies and Products that are, or are comprised of, Optimized Antibodies.

(d) Each of the foregoing shall be subject to adjustment (if any) under Section 4.3(e) in the Combination Product circumstances in which it applies. The amounts due under this Section shall be payable on an ongoing basis within [**] days after the calendar month in which Program Transaction Revenue, Multi-Target Deal Program Transaction Revenue or Multi-Product Deal Program Transaction Revenue, as the case may be, is received.

8. Section 4.5(a) of the Agreement is hereby deleted in its entirety and replaced with the following language:

(a) Royalty Rate for Products. Arsanis shall pay Adimab royalties at the rate of [**]percent ([**]%) of Net Sales of each Product that is not comprised of any Optimized Antibodies. Arsanis shall pay Adimab royalties at the rate of [**] percent ([**]%) of Net Sales of each Product, the Licensed Antibodies of which are all Optimized Antibodies. In each case such royalties are payable during the applicable Royalty Term, determined on a country-by-country and Product-by-Product basis in accordance with Section 4.5(b). In the case of a Product comprised of one or more Licensed Antibodies that are Optimized Antibodies and one or more Licensed Antibodies that are not Optimized Antibodies, the Parties will mutually agree on the applicable blended royalty rate (not to exceed [**] percent ([**]%)) in advance of First Commercial Sale of such Product, and if the Parties have failed to agree on such percentage in writing within [**] days after Arsanis in writing requests discussions, and Adimab has prior to such time undergone an Adimab Change of Control, then the percentage of Net Sales determined in baseball arbitration under Section 10.2(b). Arsanis shall have no right to refer the matter for dispute resolution or baseball arbitration under Section 10.2(b) unless Adimab has undergone an Adimab Change of Control prior to the First Commercial Sale of the applicable Product in the applicable country,

9. Section 3.3(c)(i) of the Agreement is hereby amended by deleting the words “of [**] percent ([**]%)” and replacing them with “based on”.

10. All other terms and conditions of the Agreement shall remain in full force and effect.

[remainder of page intentionally blank]

IN WITNESS WHEREOF, the parties have by duly authorized persons executed this Agreement as of the date first written above.

ARSANIS, INC.:

Sign: /s/ Jonathan Sheller
Print Name: Jonathan Sheller
Title: Director of Operations & Finance
Dated: 02/11/2013

ADIMAB, LLC:

Sign: /s/ Errick Anderson
Print Name: Errik Anderson
Title: Chief Operating Officer
Date: 02/11/2013

AMENDMENT NUMBER TWO
TO THE
COLLABORATION AGREEMENT

THIS AMENDMENT NUMBER TWO (the "**Amendment**") dated January 16, 2014 (the "**Amendment Effective Date**") amends the **COLLABORATION AGREEMENT** (the "**Agreement**") dated as of May 1, 2011 (the "**Original Effective Date**"), as amended, by and between **ADIMAB, LLC**, a Delaware limited liability company having an address at 7 Lucent Drive, Lebanon, NH 03766 ("**Adimab**") and **ARSANIS, INC.**, a Delaware corporation having an address at 7 Lucent Drive, Lebanon, NH 03766 (together with Arsanis Biosciences GmbH, an Austrian entity having an address at Helmut-Qualtinger-Gasse 2, Vienna, A-1030, Austria, collectively "**Arsanis**"). Capitalized terms used herein and not otherwise defined shall have the meanings ascribed to such words in the Agreement.

BACKGROUND

1. The Parties wish to extend the Target Nomination Period for three months.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants set forth below, and for other good and valuable consideration, the receipt of which is hereby acknowledged, Adimab and Arsanis hereby agree as follows:

1. Section 1.75 of the Agreement is hereby deleted in its entirety and replaced with the following language:

"**Target Nomination Period**" means the period beginning on the Start Date and ending on March 31, 2014. At any time within [**] days after the closing of an Arsanis Trade Sale, Adimab may terminate the Target Nomination Period upon [**] days' prior written notice to Arsanis. Notwithstanding anything in Section 2.4(a) to the contrary, prior to the effective date of termination of the Target Nomination Period by Adimab as set forth above, Arsanis shall notify Adimab in writing of those Research Programs that Arsanis elects (in its sole discretion) to pursue during the Tail Period (or any portion thereof) and Adimab will provide Arsanis with a schedule of the FTE usage required by Adimab to complete such Research Programs.

2. All other terms and conditions of the Agreement shall remain in full force and effect.

[remainder of page intentionally blank]

IN WITNESS WHEREOF, the Parties have by duly authorized persons executed this Agreement as of the date first written above.

ARSANIS, INC.:

Sign: /s/ Eszter Nagy
Print Name: Eszter Nagy
Title: CSO
Dated: 01.16.2014

ADIMAB, LLC:

Sign: /s/ Errik Anderson
Print Name: Errik Anderson
Title: COO
Date: 1-17-14

AMENDMENT NUMBER THREE
TO THE
COLLABORATION AGREEMENT

THIS AMENDMENT NUMBER THREE (the "**Amendment**") dated January 22 2015 (the "**Amendment Effective Date**") amends the **COLLABORATION AGREEMENT** (the "**Agreement**") dated as of May 1, 2011 (the "**Original Effective Date**"), as amended, by and between Adimab, LLC, a Delaware limited liability company having an address at 7 Lucent Drive, Lebanon, NH 03766 ("**Adimab**") and **ARSANIS, INC.**, a Delaware corporation having an address at 7 Lucent Drive, Lebanon, NH 03766 (together with Arsanis Biosciences GmbH, an Austrian entity having an address at Helmut-Qualtinger-Gasse 2, Vienna, A-1030, Austria, collectively "**Arsanis**"). Capitalized terms used herein and not otherwise defined shall have the meanings ascribed to such words in the Agreement.

BACKGROUND

1. The Parties wish to open a new Target Nomination Period for the three months beginning January 1, 2015 and ending on March 31, 2015 (the "2015 Target Nomination Period").

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants set forth below, and for other good and valuable consideration, the receipt of which is hereby acknowledged, Adimab and Arsanis hereby agree as follows:

1. The following new Section 1,75A is hereby added to the Agreement:

"**2015 Target Nomination Period**" means the period beginning on the January 1, 2015 and ending on March 31, 2015. At any gtime within [**] days after the closing of an Arsanis Trade Sale, Adimab may terminate the 2015 Target Nomination Period upon [**] days' prior written notice to Arsanis. The 2015 Target Nomination Period shall be a Target Nomination for all purposes under this Agreement other than Section 2.4(a), which shall not apply to the 2015 Target Nomination Period. For clarity, the 2015 Target Nomination Period shall be followed by a Tail Period. No later than [**] prior to the expiration of the 2015 Target Nomination Period, Arsanis shall notify Adimab in writing of those Research Programs that Arsanis elects (in its sole discretion) to pursue during the Tail Period (or any portion thereof) and Adimab will provide Arsanis with a schedule of the FTE usage required by Adimab to complete such Research Programs. During the 2015 Target Nomination Period and the Tail Period Adimab will devote the number of FTEs required to complete such Research Programs, however, Adimab's aggregate FTE commitment during the Tail Period shall not exceed [**] FTEs per year over such period taken as a whole unless agreed by the Parties in writing. Adimab shall not be required during the Target Nomination Period or during the Tail Period to devote any FTEs to performing Research Programs, other than FTEs funded by Arsanis under Section 4.2. In addition, the last sentence of Section 4.2(a) shall not apply to the 2015 Target Nomination Period,

2. All other terms and conditions of the Agreement shall remain in full force and effect.

[remainder of page intentionally blank]

IN WITNESS WHEREOF, the Parties have by duly authorized persons executed this Agreement as of the date first written above.

ARSANIS, INC.:

Sign: /s/ Eszter Nagy
Print Name: Eszter Nagy
Title: CSO
Dated: 21.01.2015

ADIMAB, LLC:

Sign: /s/ Tillman Gerngross
Print Name: Tillman Gerngross
Title: CEO
Date: 1/22/2015

AMENDMENT NUMBER FOUR
TO THE
COLLABORATION AGREEMENT

This Amendment Number Four to the Collaboration Agreement (the "**Fourth Amendment**") is entered into on April 21, 2017 (the "**Fourth Amendment Effective Date**") by and between Adimab, LLC, a Delaware limited liability company having an address at 7 Lucent Drive, Lebanon, NH 03766 ("**Adimab**") and Arsanis, Inc., a Delaware corporation having an address at 890 Winter Street, Suite 230, Waltham, MA 02451 (together with Arsanis Biosciences GmbH, an Austrian entity having an address at Helmut-Qualtinger-Gasse 2, Vienna, A-1030, Austria, collectively, "**Arsanis**").

BACKGROUND

A. Arsanis and Adimab are the parties to a Collaboration Agreement dated as of May 1, 2011, as previously amended (as so amended, the "**Original Agreement**");

B. Substantially concurrently with the execution of this Fourth Amendment, Arsanis and the Bill & Melinda Gates Foundation (the "**Foundation**") are entering into a letter agreement (the "**Letter Agreement**") under which the Foundation obtains certain rights to the antibodies ASN-1, ASN-2 and ASN-3 (the "**Antibodies**");

C. The Antibodies are Program-Benefitted Antibodies for which Arsanis has timely exercised an Option under the Original Agreement; and

D. Arsanis wishes to amend the Original Agreement as it applies to the Antibodies in order to permit Arsanis to enter into and perform under the Letter Agreement and other related agreements with the Foundation as contemplated thereunder (the "**Foundation Program Transaction**" as further defined below, which, for clarity, is a Program Transaction), and Adimab is willing to so amend the Original Agreement, all as set forth in this Fourth Amendment.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants set forth below, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Adimab and Arsanis agree as follows:

1. **Effect of Amendment**.

(a) **Application to the Antibodies**. Upon execution of this Fourth Amendment, the Original Agreement as amended by this Fourth Amendment will apply to the use of the Antibodies in connection with the Foundation Program Transaction but, for all other purposes, except as expressly stated in this Fourth Amendment, the Original Agreement will remain unchanged and in full force and effect. For avoidance of doubt, nothing in this Fourth Amendment affects (i) the application of the Original Agreement to any antibodies other than the Antibodies or (ii) the use of the Antibodies by Arsanis outside of the Foundation Program Transaction.

(b) **Royalty Election**. Arsanis hereby exercises the Royalty Election with respect to the Foundation Program Transaction.

2. **Additional Definitions**. The following additional definitions are added to the Original Agreement:

"**1.81 Developing Countries**" has the meaning given to it in the Letter Agreement. The Letter Agreement provides that Adimab's consent is required for any change to the Developing Countries, such consent not to be unreasonably withheld.

1.82 "**Foundation**" means the Bill & Melinda Gates Foundation.

1.83 "**Foundation Program Transaction**" means the transactions contemplated by the Letter Agreement and the financing and other documents entered into by Arsanis and the Foundation substantially concurrently with the Letter Agreement.

1.84 "**Foundation Selling Party**" means Arsanis, its Affiliates, or their counterparties in the Foundation Program Transaction (including the Foundation, its designee(s), sublicensees, and Foundation-supported Entities and their respective Affiliates).

1.85 "**Foundation-supported Entity**" has the meaning given to it in the Letter Agreement.

1.86 "**Global Access Commitment**" means the rights, licenses and obligations of Arsanis and the Foundation under Section 3 of the Letter Agreement (including the rights, licenses and obligations of Arsanis and the Foundation under the grant and other agreements specifically contemplated thereby) with respect to the neonatal sepsis programs described therein. For clarity, the Global Access Commitment does not include any commitment for Adimab to provide services or to grant a license or transfer of Adimab Platform/Core Technology beyond what is contained in Article 3 of the Original Agreement prior the Fourth Amendment Effective Date set forth the Fourth Amendment to this Agreement.

1.87 "**Letter Agreement**" means the letter agreement between Arsanis and the Foundation dated April 24, 2017.

1.88 "**NGO Sales**" means sales and dispositions of Products by or on behalf of the Foundation Selling Parties in fulfillment of the Global Access Commitments to the extent that the gross amounts invoiced and the fair market value of non-cash consideration received by the Foundation Selling Parties for such sales and dispositions of Products does not exceed the Foundation Selling Party's recognized cost of goods sold as calculated in accordance with the Foundation Selling Party's usual and customary accounting methods, which are in accordance with GAAP. For clarity, to the extent that the gross amounts invoiced and the fair market value of non-cash consideration received by the Foundation Selling Parties for sales and dispositions of Products in fulfillment of the Global Access Commitment exceed such recognized cost of goods in the foregoing sentence, the amount of such excess shall be included in the calculation of "Foundation Program Transaction Net Sales" (and shall not be considered "NGO Sales").

3. **New Foundation Program Transaction Net Sales Definition**. The following new Section 1.43A is added to the Original Agreement:

1.43A "**Foundation Program Transaction Net Sales** means the gross amount invoiced by a Foundation Selling Party for the sale, transfer or other disposition of Product to Third Parties other than a Foundation Selling Party (in final form for end use or in whatever form is sold to Third Parties who are not Program Transaction counterparties, Foundation Selling Parties, or their respective Affiliates, to the extent such sales are not NGO Sales, less any of the following applicable deductions to the extent actually granted and included in the invoiced amounts:

(**a**) normal, customary trade discounts (including volume discounts), credits, chargebacks, rebates, and allowances and adjustments for rejections, recalls, outdated products, and returns, in each case whether voluntary or required;

(**b**) freight, shipping, and insurance;

(**c**) sales, use, excise, value-added and similar customs, taxes, tariffs or duties and other governmental charges imposed on such sale, transfer, or other disposition (but in no case taxes on income);

(**d**) credits actually given or allowances actually made for wastage replacement, Medicare/Medicaid rebates, indigent patient and similar programs to provide Product for free; or

(**e**) amounts written off by reason of uncollectible debt solely with respect to payments payable for Product to the extent consistent with Accounting Standards, as determined on a country-by-country basis, but such deduction for uncollectible debt shall not to exceed [**] percent ([**]%) of gross amounts invoiced country-by-country in any twelve (12) month period.

Even if there is overlap between any of deductions (a)—(i), each individual item shall only be deducted once in each Foundation Program Transaction Net Sales calculation.

Foundation Program Transaction Net Sales calculated as described above shall be adjusted for Combination Products, as provided in Section 4.5(c). The same adjustment shall be applied to product bundles (in the countries where bundling is permitted under anti-trust law, if any).

Foundation Program Transaction Net Sales excludes amounts from sales or other dispositions of Product between Arsanis and any of its Affiliates, and other Foundation Selling Parties, solely to the extent that such entity purchasing a Product either (a) resells such Product to another Third Party not Affiliated with any of them and such resale is included in Foundation Program Transaction Net Sales, or (b) the quantities are for use to be provided free to patients in a Product clinical trial.

NGO Sales are not (except to the extent set forth in Section 1.88 (NGO Sales)) sales or other dispositions of Products for purposes of this definition of "Foundation Program Transaction Net Sales" or for purposes of Article 4 (Financial Terms) hereof. For clarity, sale of a Product by a Foundation Selling Party to another Foundation Selling Party at a price that does not exceed the Foundation Selling Party's recognized cost of goods sold as calculated in accordance with the Foundation Selling Party's usual and customary accounting methods, which are in accordance with GAAP, for resale by such entity to a Third Party (other than a Foundation Selling Party) shall not be deemed a sale for purposes of this definition of "Foundation Program Transaction Net Sales"; provided, however, that the first sale thereafter by a Foundation Selling Party to a Third Party (other than a Foundation Selling Party) shall be included in the computation of Foundation Program Transaction Net Sales. If a Foundation Selling Party sells or disposes of a Product to a Third Party (other than a Foundation Selling Party) in a country in a transaction that is not an arm's-length sale (defined below), the gross amount invoiced for such Product for purposes of calculating Foundation Program Transaction Net Sales for such transaction shall be deemed to equal the weighted (by sales volume) average sale price of such Product in such country to arm's-length purchasers during the calendar quarter in which such sale or disposition occurs. For purposes of the foregoing, an "arm's-length sale" is a sale of Product solely for cash consideration to a Third Party that is unaffiliated with the Foundation Selling Party."

4. New Section 4.5(f). The following new Section 4.5(f) is added to the Original Agreement:

(**f**) **Application to Foundation Program Transaction**. Notwithstanding anything to the contrary in this Section 4.5 and elsewhere in this Agreement, (i) any royalties due to Adimab resulting from sales and dispositions of Products in the course of the Foundation Program Transaction will be calculated using Section 1.43A (Foundation Program Transaction Net Sales) instead of Section 1.43 (Net Sales), and (ii) with regard to such sales and dispositions of Products only, all references in this Agreement to "Net Sales" shall be deemed to refer to "Foundation Program Transaction Net Sales". In addition, for the sake of convenience and efficiency, if requested by the Foundation and Arsanis, Adimab may allow the Foundation, its designee(s), sublicensees or Foundation-supported entities or their respective Affiliates to pay directly to Adimab any royalty owed to Adimab as a result of sales made by a Foundation Selling Party; provided, however, that in the event such payment is less than what would be due to Adimab under this Agreement, then Arsanis shall promptly pay the difference directly to Adimab.

5. **Pass-Through Obligations**.

(a) Notwithstanding anything to the contrary in the Original Agreement, (including, without limitation, Sections 3.3, 4.10, 4.11 and 8.2 of the Original Agreement), and except as provided in Section 5(b), Arsanis will not be required to (x) impose on the Foundation, or (y) impose on, or require the Foundation or any Foundation-supported Entity to impose on, any Third Party to which the Foundation grants a sublicense under the rights to the Antibodies granted by Arsanis to the Foundation under the Letter Agreement to conduct activities in furtherance of the sale or other distribution of Products in the Developing Countries (each, a "**Qualified Sublicensee**," and any sublicense described in this Section 5(a), a "**Qualified Sublicense**") any:

(i) restriction or limit the identity or form of the sublicensee;

(ii) any royalty or financial obligations other than the [**]% royalty specified in the Original Agreement as amended by this Fourth Amendment (to the extent such royalty is applicable);

(iii) obligation on the Foundation to be responsible for the acts or omissions of any sublicensee of any tier, including for breach of the sublicense agreement or otherwise;

(iv) requirement that a sublicensee grant intellectual property rights or licenses to Adimab or Arsanis (except with respect to improvements to the Adimab platform intellectual property);

(v) obligation on the Foundation to indemnify or defend Adimab or Arsanis for its own acts or for acts or omissions of sublicensees of any tier; or

(vi) obligation to permit an audit of the Foundation's records.

(b) Notwithstanding anything to the contrary in Section 5(a) of this Fourth Amendment, if in any Qualified Sublicense or any other sublicense the Foundation grants to its sublicensee rights to conduct activities in furtherance of the sale or other distribution of Products for the benefit of patients outside the Developing Countries, Arsanis will require that all applicable obligations of the Original Agreement as amended by this Fourth Amendment (including, without limitation, Sections 3.3, 4.10, 4.11 and 8.2 of the Original Agreement) that are required to be imposed on sublicensees under the Original Agreement apply to the extent that such sublicensee is exercising its rights in furtherance of the sale or other distribution of Products outside the Developing Countries, but only to the extent required under the Original Agreement as amended by this Fourth Amendment without regard to Section 5(a) of this Fourth Amendment.

(c) Notwithstanding anything to the contrary in Section 5(a) of this Fourth Amendment, Arsanis will ensure that any sublicense granted by the Foundation will (i) provide the Foundation with the right to terminate the sublicensee's rights to any rights covered by the Adimab Agreement granted under the sublicense for uncured material breach of the sublicense agreement as it pertains to those rights, and (ii) state that both Adimab and Arsanis are intended third party beneficiaries of the relevant terms of the sublicense agreement that affect or relate to any rights or obligations under the Adimab Agreement, as the case may be, including without limitation with respect to indemnification, with the right to enforce those terms, and including without limitation the right to enforce the termination of the sublicense; provided that, to the extent the sublicense includes rights other than rights covered by the Adimab Agreement, such termination will not apply to such other rights and neither Adimab nor Arsanis will be entitled to enforce any termination of such rights. Further, and notwithstanding anything to the contrary in Section 5(a), Arsanis will require the Foundation to impose on Qualified Sublicensees the indemnification and audit obligations required under the Original Agreement as amended by this Fourth Amendment without regard to Sections 5(a) or 5(b) of this Fourth Amendment, to which Arsanis and Adimab will be third party beneficiaries.

(d) At the request of Arsanis, Adimab will use good faith and reasonable efforts to work with Arsanis and the Foundation to help ensure that the sublicenses can be used for the achievement of the Charitable Purpose (as that term is defined in the Letter Agreement) without undue restrictions, including considering in good faith waivers or consents to under the Original Agreement as amend by this Fourth Amendment.

(e) For clarity, none of the foregoing modifies or waives Arsanis' obligation to indemnify Adimab pursuant to Section 8.2 of the Original Agreement with respect to the acts and omissions of the Foundation and the Foundation's sublicensees.

6. **Publication**. **Section** 6.8 (*Publication*) of the Original Agreement is deleted in its entirety and replaced with the following:

"**6.8 Publication**. Arsanis may publish or present the results of the Collaboration and/or the results of evaluation of Licensed Antibodies (including during the applicable Option Terms), in each case solely with respect to Licensed Antibodies and/or their Target(s). If such publication or presentation contains Adimab's Confidential Information, Arsanis shall submit such publication or presentation for prior review and approval by Adimab for patentability and protection of Adimab's Confidential Information as provided in this Section 6.8 (and subject to Section 6.2). Arsanis may not proceed with such publications or presentations containing Adimab's Confidential Information unless approved of in advance in writing by Adimab in its sole discretion. Arsanis will provide to Adimab the opportunity to review any proposed abstracts, manuscripts or summaries of presentations that contain Adimab's Confidential Information. Adimab will designate a person or persons who will be responsible for reviewing such publications. Such designated person will respond in writing promptly and in no event later than [**] days after receipt of the proposed material with either approval of the proposed material or a specific statement of concern, based upon either the need to seek patent protection or delete Adimab Confidential Information or concern regarding competitive disadvantage arising from the proposal. In the event of concern, Arsanis agrees not to submit such publication or to make such presentation that contains Adimab's Confidential Information until Adimab is given a reasonable period of time (not to exceed [**] days) to seek patent protection for any material in such publication or presentation that it believes is patentable and that it has the right to patent, or to resolve any other issues, and Arsanis will remove from such proposed publication any Confidential Information of Adimab as requested by Adimab."

7. **Non-Terminable License to Foundation**. Notwithstanding anything to the contrary in the Original Agreement, Arsanis may grant to the Foundation a non-terminable, perpetual, irrevocable license or sublicense under the rights covered by the Original Agreement; provided that, (a) neither the Foundation nor any Foundation-supported Entity has the right to grant a non-terminable sublicense of such rights to any third party, and (b) each such sublicense meets the requirements set forth in Section 5 of this Fourth Amendment including, but not limited to, terms meeting the requirements of Section 5(c) of this Fourth Amendment.

8. **Capitalized Terms**. Capitalized terms used in this Fourth Amendment and not otherwise defined in this Fourth Amendment have the meanings ascribed to them in the Original Agreement.

IN WITNESS WHEREOF, the Parties have by duly authorized persons executed this Fourth Amendment to be effective as of the Fourth Amendment Effective Date.

"Arsanis"
Arsanis, Inc.

By: /s/ Michael P. Gray
Name: Michael P. Gray
Title: CFO/CBO

"Adimab"
Adimab, LLC

By: /s/ Tillman Gerngross
Name: Tillman Gerngross
Title: CEO

Arsanis Biosciences GmbH,
Helmut-Qualtinger-Gasse 2,
1-1030 Vienna,
Austria

Adimab, Inc
16 Cavendish Court
Lebanon, NH 03766

Att: CEO

28 May 2013

Dear Dr Gerngross,

Re: Adimab LLC / Arsanis Inc Agreement dated 1st May 2011: Trigger of license option for the antibodies developed by Adimab for the Arsanis *Staphylococcus aureus* program, first antigen.

As provided for in section 3.2 of the above Collaboration Agreement, Arsanis requests to trigger the exclusive option to obtain the licenses and assignment of corresponding Antibody Sequences for antibodies delivered to Arsanis by Adimab under the ***Staphylococcus aureus* program**. These antibodies are listed according to target antigen in the following appended tables.

Yours sincerely,

/s/ Eszter Nagy

Dr Eszter Nagy
Co-founder and CSO, Arsanis Biosciences Inc
Managing Director, Arsanis Biosciences GmbH

Read and confirmed by:

/s/ Tillman Gerngross

Dr Tillman Gerngross CEO Adimab Inc

Arsanis Biosciences GmbH,
Helmut-Qualtinger-Gasse 2,
A-1030 Vienna,
Austria

Adimab, Inc
7 Lucent Drive
Lebanon, NH 03766

Att: CEO

29 January 2014

Dear Dr Gerngross,

Re: Adimab LLC / Arsanis Inc Agreement dated 1st May 2011: Trigger of license option for the antibodies developed by Adimab for the Arsanis *Staphylococcus aureus* program, second antigen: [**].

As provided for in section 3.2 of the above Collaboration Agreement, Arsanis requests to trigger the exclusive option to obtain the licenses and assignment of corresponding Antibody Sequences for antibodies delivered to Arsanis by Adimab under the ***Staphylococcus aureus*** **program for [**]**. These antibodies are listed according to target antigen in the following appended tables.

Yours sincerely,

/s/ Eszter Nagy

Dr Eszter Nagy
Co-founder and CSO, Arsanis Inc
Managing Director, Arsanis Biosciences GmbH

Read and confirmed by:

/s/ Tillman Gerngross

Dr Tillman Gerngross CEO Adimab Inc

Arsanis Biosciences GmbH,
Helmut-Qualtinger-Gasse 2,
1-1030 Vienna,
Austria

Adimab, Inc
16 Cavendish Court
Lebanon, NH 03766

Att: CEO

24rd April 2014

Dear Dr Gerngross,

Re: Adimab LLC / Arsanis Inc Agreement dated 1st May 2011: Trigger of license option for the antibodies developed by Adimab for the Arsanis *Staphylococcus aureus* program, third antigen: [**].

As provided for in section 3.2 of the above Collaboration Agreement, Arsanis requests to trigger the exclusive option to obtain the licenses and assignment of corresponding Antibody Sequences for antibodies delivered to Arsanis by Adimab under the ***Staphylococcus aureus*** **program for [**]**. These antibodies are listed according to target antigen in the following appended tables.

Yours sincerely,

/s/ Eszter Nagy

Dr Eszter Nagy
Co-founder and CSO, Arsanis Inc
Managing Director, Arsanis Biosciences GmbH

Read and confirmed by:

/s/ Tillman Gerngross

Dr Tillman Gerngross CEO Adimab Inc

Exhibit 10.19

Confidential Materials omitted and filed separately with the
Securities and Exchange Commission. Double asterisks denote omissions.

Execution Copy
CONFIDENTIAL

OPTION AND LICENSE AGREEMENT

THIS OPTION AND LICENSE AGREEMENT (the **"Agreement**") is made effective as of February 27, 2017 (the **"Effective Date"**), by and between **ADIMAB, LLC**, a Delaware limited liability company having an address at 7 Lucent Drive, Lebanon, NH 03766 **("Adimab**"), and **ARSANIS INC.**, a Delaware corporation having an address at 890 Winter Street, Suite 230, Waltham, MA 02451-1472 **("Arsanis**").

BACKGROUND

WHEREAS, Adimab has proprietary antibodies against RSV;

WHEREAS, Arsanis desires to develop, manufacture and commercialize one or more RSV Antibodies against RSV in accordance with the terms hereof; and

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants set forth below, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Adimab and Arsanis hereby agree as follows:

ARTICLE 1

DEFINITIONS.

The following initially capitalized terms have the following meanings (and derivative forms of them shall be interpreted accordingly):

1.1 "**Adimab"** has the meaning set forth in the recitals.

1.2 "Adimab Derived Antibody" has the meaning set forth in Section 1.7(b) (*Adimab RSV Antibody*).

1.3 "**Adimab Indemnitees**" has the meaning set forth in Section 8.2 *(Indemnification by Arsanis*).

1.4 "Adimab Materials" means any tangible biological or chemical materials (including all [**] and other [**] in the form of tangible biological or chemical materials) used or created by Adimab under a previously performed RSV research program, [**].

1.5 "**Adimab Platform Patents**" means all Patents [**] the [**] that [**]. For clarity, Adimab Platform Patents specifically exclude: (a) RSV Antibody Patents; and (b) any Patents Controlled by Adimab to the extent that they Cover any invention or subject matter other than the manner in which Adimab discovered the Adimab RSV Antibodies.

1.6 "**Adimab Platform Technology"** means (a) methods of discovery and optimization of antibodies, which methods include the use of synthetic DNA antibody libraries and engineered strains of yeast and interrogating repertoires generated through B-cell cloning, (b) all methods, materials and other Know-How used in the foregoing and (c) platforms embodying any of the foregoing in (a) or (b), or components, component steps or other portions thereof; in each case, solely to the extent the foregoing either (i) are Covered by Patents Controlled by Adimab or (ii) constitute Confidential Information of Adimab. For clarity, Adimab Platform Technology includes technology Controlled by, or confidential or proprietary to, Adimab that is used by Adimab in the discovery and optimization of any Adimab RSV Antibody, in each case based on the manner in which Adimab discovered or optimized such Adimab RSV Antibody, but not based on the specific composition of or any Sequence information regarding such Adimab RSV Antibody (or any product containing an Adimab RSV Antibody), but Adimab Platform Technology excludes: (A) Adimab RSV Antibodies; and (B) technology Controlled by, or confidential or proprietary to, Adimab that is related to: (1) product formulation; (2) manufacturing, purification, or production; (3) modification or optimization of antibodies; (4) RSV (including any antigen representation thereof), or any mechanism of action via interaction with RSV, or methods of using antibodies based on their interaction with RSV; or (5) if other than an IgG, the construct of any Product.

1.7 "**Adimab RSV Antibody"** means:

(a) any RSV-specific antibody discovered or identified by or on behalf of Adimab, on or before the Effective Date, in any biological material obtained from a Donor, as listed on **Exhibit A** hereto (each, an **"Initial RSV Antibody**"); or

(b) any modified or derivative form of any Initial RSV Antibody (including an scFv or Fab) created by or on behalf of Adimab (whether before, on, or after the Effective Date), including any fragment or pegylated version (whether or not including amino acid changes) of an Initial RSV Antibody and including chemically modified versions (including associated amino acid substitutions) of an Initial RSV Antibody, and including an antibody designed or derived using the Sequence of any Initial RSV Antibody, polynucleotide encoding it, and any cell line or cellular or bacterial expression system or vector expressing any Initial RSV Antibody or incorporating the polynucleotide encoding an Initial RSV Antibody (in each case, an **"Adimab Derived Antibody**"). For clarity, any modified or derivative form of any Adimab Derived Antibody created by or on behalf of Adimab shall itself be an Adimab Derived Antibody.

1.8 "**Administrator"** has the meaning set forth in Section 10.4(b)(i) (*Arbitration*).

1.9 "**Affiliate**" means an entity that, directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with a Party. For this purpose, "control" means the possession, directly or indirectly, of fifty percent (50%) or more of the voting securities entitled to elect the directors or management of the entity, or of the actual power to elect or direct the management of the entity.

1.10 "**Agreement**" has the meaning set forth in the recitals.

1.11 "**Antibody**" means any full-length antibody, fragment thereof, and chemically modified version thereof (including any pegylated versions and regardless of whether containing amino acid substitutions), all of the foregoing whether naturally occurring, artificially produced, raised in an artificial system, or created through modification of an antibody produced in any of the foregoing ways or otherwise, and whether represented by physical material, nucleic acid sequences, or amino acid sequences.

1.12 "**Arsanis**" has the meaning set forth in the recitals.

1.13 "**Arsanis Approvals**" has the meaning set forth in Section 3.6 (*Regulatory*).

1.14 "**Arsanis Derived Antibody**" means any modified or derivative form of an Adimab RSV Antibody (including an scFv or Fab) created by or on behalf of Arsanis or its Licensees or the Foundation, including any fragment or pegylated version (whether or not including amino acid changes) of an Adimab RSV Antibody and including chemically modified versions (including associated amino acid substitutions) of an Adimab RSV Antibody, and including an antibody designed or derived using the Sequence of any Adimab RSV Antibody, polynucleotide encoding it, and any cell line or cellular or bacterial expression system or vector expressing any Adimab RSV Antibody or incorporating the polynucleotide encoding an Adimab RSV Antibody. For clarity, any modified or derivative form of any Arsanis Derived Antibody shall itself be an Arsanis Derived Antibody.

1.15 "**Arsanis Indemnitees**" has the meaning set forth in Section 8.1 *(Indemnification by Adimab*).

1.16 "**Arsanis Invention**" means any invention, whether or not patentable, that is made solely by one or more employees, consultants or contractors of Arsanis in the course and as a result of: (a) the practice of the Research License during the Evaluation Term; or (b) the practice of the License or the discovery, optimization, research, development, manufacture or commercialization of Arsanis Derived Antibodies or Products during the Post-Exercise Term.

1.17 "**Arsanis Know-How"** shall mean all Know-How Controlled by Arsanis as of the effective date of termination of this Agreement that is necessary or useful for the development, manufacture or commercialization of RSV Antibodies in the Field, including, without limitation, all data and results of any research, preclinical, clinical, stability, toxicology or other study of any RSV Antibody conducted by or on behalf of Arsanis.

1.18 "**Arsanis Materials"** means (a) any tangible biological or chemical materials (including antigen samples and other Know-How in the form of tangible biological or chemical materials) created by Arsanis in the practice of the Research License or the License or in the development or manufacture of Licensed Antibodies and Products, and (b) from and after the time of the Option exercise, the quantities of Selected Antibody provided to Arsanis by Adimab under this Agreement.

1.19 "**Arsanis Patents**" means Patents Covering Arsanis Inventions.

1.20 "**Arsanis Regulatory Filings"** has the meaning set forth in Section 3.6 (*Regulatory*).

1.21 "**Assignment**" has the meaning set forth in Section 3.1(a) *(Assignment)*.

1.22 "**Background Technology"** has the meaning provided in the Grant Documents. For clarity, Adimab RSV Antibodies are Background Technology, and will remain Background Technology even if (i) such Adimab RSV Antibodies are assayed or otherwise used in the performance of the Funded Project to generate data (understanding that such data may be Funded Developments rather than Background Technology) or (ii) Arsanis Derived Antibodies are created from them (understanding that such Arsanis Derived Antibodies may be Funded Developments rather than Background Technology).

1.23 "**Bankruptcy Laws**" has the meaning set forth in Section 10.2 *(Bankruptcy Code)*.

1.24 "**Biosimilar"** means, with respect to a Product in a country, any pharmaceutical biologic product that (a) is similar to such Product; (b) has the same route of administration, dosage form and strength as such Product; (c) obtained regulatory approval under a biosimilar application submitted in accordance with the then-current rules and regulations in such country that referred to or relied on data submitted by Arsanis, or any of its Affiliates or Licensees, in an NDA for the Product in such country; and (d) is sold in the same country as such Product by a Third Party that is not a Licensee of Arsanis or its Affiliates and did not purchase such product in a chain of distribution that included any of Arsanis or its Affiliates or Licensees.

1.25 "Blocking Arsanis Patents" shall mean:

(a) in the case of (i) expiration of this Agreement pursuant to clause (a) of Section 9.1 *(Term)*, or (ii) termination of this Agreement prior to Option exercise either (A) by Adimab pursuant to Section 9.2 *(Termination for Material Breach)* or (B) by Arsanis pursuant to Section 9.3 *(Termination for Convenience):* Arsanis Patents that, in the absence of a license thereunder, would be infringed by the manufacture, use, sale, offer for sale or import of any RSV Antibody; *provided, however,* that "Blocking Arsanis Patents" shall exclude any and all Patents licensed to Arsanis by any Third Party; and

(b) in the case of termination of this Agreement during the Post-Exercise Term either (i) by Adimab pursuant to Section 9.2 *(Termination for Material Breach)* or (ii) by Arsanis pursuant to Section 9.3 *(Termination for Convenience)*: Arsanis Patents that, in the absence of a license thereunder, would be infringed by the manufacture, use, sale, offer for sale or import of any Adimab RSV Antibody; *provided, however,* that "Blocking Arsanis Patents" shall exclude any and all Patents licensed to Arsanis by any Third Party.

1.26 "**CDR**" means the complementarity determining regions of an antibody.

1.27 "**Combination Product"** means a product containing a Licensed Antibody in combination with one or more Other Active(s).

1.28 "**Commercially Reasonable Efforts**" means with respect to Arsanis' obligation under this Agreement to conduct a particular activity, a level of efforts and resources similar to those efforts and resources normally used by Arsanis for a similar product owned by it or to which it has rights, which product is at a similar stage in its development or product life and is of similar market potential, based on conditions then prevailing and taking into account safety, efficacy, product profile, the competitiveness of the marketplace, the proprietary position of the product, the regulatory structure involved, the market potential and profitability of the product, and other relevant scientific, technical and commercial factors.

1.29 "**Companion Diagnostic**" means an *in vitro* diagnostic device consisting of or containing Licensed Antibody(ies) that provides information for the safe and effective use of a particular therapeutic Product, where the use of such *in vitro* diagnostic device is stipulated in the instructions for use in the labeling of both such *in vitro* diagnostic device and the corresponding therapeutic Product approved by the applicable Regulatory Authority.

1.30 "**Compulsory License**" means, in the case of a Product in a country, a compulsory license obtained by a Third Party through the order, decree or grant of a Regulatory Authority or other governmental authority of such country, authorizing such Third Party to manufacture, use, sell, offer for sale or import such Product in such country.

1.31 "**Confidential Information**" has the meaning set forth in Section 6.1(a) *(Confidential Information)*.

1.32 "**Control**" means, with respect to any Know-How or Patent[**]other than pursuant to this Agreement[**] of the [**] as provided for in this Agreement without violating the terms of any written agreement with any Third Party.

1.33 "**Cover**" or "**Covering**" or the like, means, with respect to a particular Licensed Antibody or Product and a particular Patent, that the [**] of such [**] or [**].

1.34 "**Disclosing Party**" has the meaning set forth in Section 6.2 *(Exclusions from Nondisclosure Obligation)*.

1.35 "**Dispute**" has the meaning set forth in Section 10.4(a) *(Initial Dispute Resolution*).

1.36 "**Donor**" means either of the human donors identified by Adimab as "patient #[**]" and "patient #[**]."

1.37 "**Effective Date**" has the meaning set forth in the recitals.

1.38 "**EMA**" means the European Medicines Agency or any successor agency thereto in the European Union having substantially the same function.

1.39 "**Evaluation Term**" means the time period beginning upon the Effective Date and ending on the earlier of (a) [**] months from the date upon which Adimab has delivered to Arsanis both (i) the Sequences of all Adimab RSV Antibodies and (ii) [**] IgG material of each of the Highest-Affinity Initial RSV Antibodies, and (b) the date that is [**] days after Arsanis receives funding from the Foundation for the conduct of the Funded Project activities described under "Milestone 3 – Phase 1 ready" in the Grant Documents which funding is payable upon achievement of "Milestone 2 – Process Lock" as described in the Grant Documents.

1.40 "**Evaluation Term Data**" has the meaning set forth in Section 2.9 *(Effect of Expiration of Option Without Exercise)*.

1.41 "**Evaluation Term Patents**" means any application for an Arsanis Patent filed by or on behalf of Arsanis during the Evaluation Term that Covers any Arsanis Derived Antibody and all Arsanis Patents corresponding to such patent application.

1.42 "**Excluded Technology**" means Third Party technology (and the Patents that Cover and the Know-How that embodies such Third Party technology) related to:

[**].

1.43 "**FDA**" means the United States Food and Drug Administration or any successor agency thereto in the U.S. having substantially the same function.

1.44 "**Field**" means all indications and uses; *provided, however,* that if Arsanis proposes to commercialize any Product as a diagnostic (other than as a Companion Diagnostic) or as a research reagent, the Parties will first negotiate commercially reasonable financial terms for such field of use. For clarity: (a) no further negotiation will be required for the development, manufacture, or commercialization of any Companion Diagnostic; (b) Arsanis shall pay royalties with respect to Net Sales of Companion Diagnostics in accordance with Section 4.3 of this Agreement; (c) no Milestone Payments shall be payable with respect to any Companion Diagnostic; and (d) no other or additional financial terms will apply to the development, manufacture, or commercialization of any Companion Diagnostic.

1.45 "**First Commercial Sale**" means, with respect to a Product in any country, the first sale, transfer or disposition for value or for end use or consumption of such Product in such country after Marketing Approval (and, if legally required, pricing approval) for such Product has been received in such country.

1.46 "**First Product**" has the meaning set forth in Section 4.2(a) (*Milestone Events)*.

1.47 "**Force Majeure**" means conditions beyond a Party's reasonable control or ability to plan for, including acts of God, war, terrorism, civil commotion, labor strike or lock-out; epidemic; failure or default of public utilities or common carriers; and destruction of facilities or materials by fire, earthquake, storm or like catastrophe.

1.48 "**Foundation"** means the Bill & Melinda Gates Foundation or its designee(s).

1.49 "**Foundation Rights**" means the licenses and other rights granted by Arsanis to the Foundation under the Grant Documents with respect to Funded Developments and any Background Technology incorporated into a Funded Development or required to use a Funded Development.

1.50 "**FTE**" means the equivalent of a full-time employee's working days over a twelve (12) month period (taking account of normal vacations, sick days and holidays not being considered working days), which equates to a total of [**] hours per twelve (12) month period of work performed by a fully qualified Adimab employee or consultant. To provide an FTE over a given period that is less than a year means to provide the proportionate share (corresponding to the proportion that such period bears to a full year) during such period of a full year's FTE.

1.51 "**FTE Rate**" means [**] dollars ($[**]) per FTE.

1.52 "**Fully Paid Product**" has the meaning set forth in Section 9.5(b)(i)(2)(A) *(Termination But For Fully-Paid Products)*.

1.53 "**Funded Developments**" has the meaning provided in the Grant Documents.

1.54 "**Funded Project**" means the project described in the Project Plan incorporated by reference in the Grant Documents.

1.55 "**Global Access Commitment**" means Arsanis' obligations described under the heading "Global Access" in the "Terms and Conditions" included in the Grant Documents.

1.56 "**Grant Documents**" means the Grant Agreement between Arsanis and the Foundation dated as of February 20, 2017, including all Attachments thereto.

1.57 "**Highest-Affinity Initial RSV Antibodies**" has the meaning set forth in Section 2.3 *(Delivery of Adimab RSV Antibodies)*.

1.58 "**IND**" means: (a) in the United States, an Investigational New Drug application (as more fully described in 21 CFR Part 312, or its successor regulation), filed with the FDA, or any successor application to the foregoing; or (b) in any other country or group of countries, the equivalent application or filing filed with the governing Regulatory Authority in such country or group of countries necessary to commence human clinical trials in such jurisdiction.

1.59 "**Indemnified Party**" has the meaning set forth in Section 8.3 *(Indemnification Procedures)*.

1.60 "**Indemnify**" has the meaning set forth in Section 8.1 *(Indemnification by Adimab)*.

1.61 "**Indemnifying Party**" has the meaning set forth in Section 8.3 *(Indemnification Procedures*).

1.62 "**Indemnitees**" has the meaning set forth in Section 8.3 *(Indemnification Procedures*).

1.63 "**Initial RSV Antibody**" has the meaning set forth in Section 1.7(a) *(Adimab RSV Antibody*).

1.64 "**Know-How**" means all technical information and know-how in any tangible or intangible form, including (a) inventions, discoveries, trade secrets, data, specifications, instructions, processes, formulae, materials (including cell lines, vectors, plasmids, nucleic acids and the like), methods, protocols, expertise and any other technology, including the applicability of any of the foregoing to formulations, compositions or products or to their manufacture, development, registration, use or marketing or to methods of assaying or testing them or processes for their manufacture, formulations containing them or compositions incorporating or comprising them, and (b) all data, instructions, processes, formulae, strategies, and expertise, whether biological, chemical, pharmacological, biochemical, toxicological, pharmaceutical, physical, analytical, or otherwise and whether related to safety, quality control, manufacturing or other disciplines; that, in each case, are not in the public domain. Notwithstanding the foregoing, Know-How excludes Patent claims.

1.65 "**License**" has the meaning set forth in Section 3.1(b) *(License)*.

1.66 "**Licensed Antibody**" means: (a) any Selected Antibody; or (b) any Arsanis Derived Antibody created from any Selected Antibody, whether before or after exercise of the Option.

1.67 "**Licensee**" means a Third Party to whom Arsanis or its Affiliate has granted, directly or indirectly through one or more tiers of sublicense, a license, sublicense or other right to develop, manufacture, and/or commercialize any Licensed Antibody or Product; but specifically excluding (a) the Foundation and (b) any Third Party contract service provider. For clarity, licensees of RSV Antibody Patents and sublicensees of the License (excluding, in each case, the Foundation) shall be Licensees.

1.68 "**Licensee Agreement**" has the meaning set forth in Section 3.2 *(Licensees and Sublicensees)*.

1.69 "**Losses**" has the meaning set forth in Section 8.1 *(Indemnification by Adimab)*.

1.70 "**Major European Market**" means any of [**].

1.71 "**Major Market**" means any of the [**].

1.72 "**Marketing Approval**" means, within any given country, approval to market and sell a Product legally as a drug or biologic, including approval of an NDA. Pricing approval need not be obtained in order for Marketing Approval to be achieved.

1.73 "**Milestone Event**" has the meaning set forth in Section 4.2(a) *(Milestone Events)*.

1.74 "**Milestone Payment**" has the meaning set forth in Section 4.2(a) *(Milestone Events*).

1.75 "**NDA**" means**:** (a) in the United States, as applicable, a New Drug Application (as more fully described in 21 CFR Part 314.50, et seq., or its successor regulation) or a Biologics License Application (as more fully described in 21 CFR Part 601, et seq., or its successor regulation), filed with the FDA, or any successor application to either of the foregoing; or (b) in any other country or group of countries, the equivalent application or submission for approval to market a pharmaceutical product filed with the governing Regulatory Authority in such country or group of countries.

1.76 "**Net Sales**" means the gross amounts invoiced for sales or other dispositions of Products (including Companion Diagnostics) by or on behalf of Arsanis, its Affiliates and Licensees, and to the extent such sales or other dispositions are not NGO Sales, the Foundation (each, a "**Selling Party**") to Third Parties (other than a Selling Party), less the following deductions actually incurred, allowed, paid, accrued or otherwise specifically allocated to Products by the Selling Party (if not previously deducted in calculating the amount invoiced), all in compliance with applicable accounting standards, consistently applied by the Selling Party:

[**].

NGO Sales shall not be deemed sales or other dispositions of Products for purposes of this definition of "Net Sales" or for purposes of Article 4 *(Financial Terms)* hereof except to the extent set forth in Section 1.77 *(NGO Sales')*.

For clarity, sale of a Product by a Selling Party to another Selling Party for resale by such entity to a Third Party (other than a Selling Party) shall not be deemed a sale for purposes of this definition of "Net Sales,"; provided, however, that the first sale thereafter by a Selling Party to a Third Party (other than a Selling Party) shall be included in the computation of Net Sales. If a Selling Party sells or disposes of a Product to a Third Party (other than a Selling Party) in a country in a transaction that is not an arm's-length sale (defined below), the gross amount invoiced for such Product for purposes of calculating Net Sales for such transaction shall be deemed to equal the weighted (by sales volume) average sale price of such Product in such country to arm's-length purchasers during the calendar quarter in which such sale or disposition occurs. For purposes of the foregoing, an "arm's-length sale" is a sale of Product solely for cash consideration to a Third Party that is unaffiliated with the Selling Party.

Further, transfers or dispositions of Products as free promotional samples in commercially reasonable amounts, consistent with prevailing pharmaceutical industry standards, or in any patient assistance, test marketing program, named-patient program or compassionate use program (so long as such Products are provided without charge or at or below the Selling Party's cost), donated to non-profit institutions or government agencies, or used in research, development or regulatory activities, including, without limitation, clinical trials, shall be disregarded in determining Net Sales.

On a country-by-country basis, if a Product under this Agreement is sold in the form of a Combination Product in a country, Net Sales for the purpose of determining royalties due hereunder shall be calculated as follows:

(i) Where both Product containing the applicable Licensed Antibody as its sole active therapeutic ingredient **(**"**Single-Agent Product**") and all Other Active(s) in such Combination Product are sold separately in such country, Net Sales shall be calculated by multiplying actual Net Sales of such Combination Product in such country (as determined

without the application of this paragraph) by the fraction A/(A+B), where A is the weighted average sale price (by sales volume) of Single-Agent Product in such country, and B is the weighted average sale price (by sales volume) of the Other Active(s) in the Combination Product when sold separately, in each case in the same dosage and dosage form and in the same country as the Combination Product during the applicable reporting period.

(ii) If Single-Agent Product is sold in such country, but none of the Other Active(s) is sold separately in such country, Net Sales shall be calculated by multiplying actual Net Sales of such Combination Product in such country (as determined without the application of this paragraph) by the fraction A/C, where A is the weighted average sale price (by sales volume) of such Single-Agent Product in such country, and C is the weighted average sale price (by sales volume) of the Combination Product in such country.

(iii) If Single-Agent Product is not sold in such country, but the Other Active(s) are sold separately in such country, Net Sales shall be calculated by multiplying actual Net Sales of such Combination Product in such country (as determined without the application of this paragraph) by the fraction (C-D)/C, where C is the weighted average sale price (by sales volume) of the Combination Product in such country, and D is the sum of the weighted average sale price (by sales volume) of the Other Active(s) in the Combination Product when sold separately in such country.

(iv) If neither Single-Agent Product nor the Other Active(s) are sold separately in such country, Net Sales for the purpose of determining royalties due hereunder for the Combination Product shall be determined by mutual agreement of the Parties in good faith based on the relative value contributions of the Licensed Antibody and the Other Active(s), such agreement not to be unreasonably withheld. If the Parties are unable to reach mutual agreement as to the relative value contributions of the Licensed Antibody and the Other Active(s), such relative value contributions shall be determined in accordance with Section 10.4 *(Dispute Resolution)*.

1.77 "**NGO Sales**" means sales and dispositions of Products (including Companion Diagnostics) by or on behalf of the Selling Parties in fulfillment of the Global Access Commitment, to the extent that the gross amounts invoiced and the fair market value of non-cash consideration received by the Selling Parties for such sales and dispositions of Products does not exceed the sum of: (a) the Selling Party's fully-burdened cost of goods of such Products; (b) excise taxes, use taxes, tariffs, sales taxes and customs duties and/or other government charges or fees imposed on the sale of such Products (including VAT); and (c) outbound freight, shipment, insurance and other distribution costs for such Products. For clarity, to the extent that the gross amounts invoiced and the fair market value of non-cash consideration received by the Selling Parties for sales and dispositions of Products (including Companion Diagnostics) in fulfillment of the Global Access Commitment exceed the sum of (a), (b) and (c) in the foregoing sentence, the amount of such excess shall be included in the calculation of "Net Sales" (and shall not be considered "NGO Sales").

1.78 "**Option**" has the meaning set forth in Section 2.2(b) *(Option)*.

1.79 "**Option Fee**" has the meaning set forth in Section 4.1(b) *(Option Fee)*.

1.80 "**Other Active**" means any active therapeutic ingredient other than a Licensed Antibody.

1.81 "**Other Arsanis Patents**" means all Arsanis Patents (other than Blocking Arsanis Patents) that claim inventions actually practiced by or on behalf of Arsanis in the manufacture, use, sale, offer for sale or import of any RSV Antibody prior to termination of this Agreement.

1.82 "**Party**" means Adimab or Arsanis.

1.83 "**Patent**" means any patent application or patent anywhere in the world, including all of the following categories of patents and patent applications, and their foreign equivalents: provisional, utility, divisional, continuation, continuation-in-part, and substitution applications; and utility, re-issue, re-examination, renewal and extended patents; and any rights associated with extended patent terms, including Patent Term Adjustment (PTA), Patent Term Extension (PTE), Supplementary Protection Certificates (SPC); and other similar rights.

1.84 "**Phase I Trial**" means a human clinical trial conducted in any country that would satisfy the requirements for a Phase 1 study as defined in 21 CFR § 312.21(a) (or any amended or successor regulations).

1.85 "**Phase II Trial**" means a human clinical trial conducted in any country that would satisfy the requirements for a Phase 2 study as defined in 21 CFR § 312.21(b) (or any amended or successor regulations).

1.86 "**Phase III Trial**" means a human clinical trial conducted in any country that would satisfy the requirements for a Phase 3 study as defined in 21 CFR § 312.21(c) (or any amended or successor regulations).

1.87 "**PMDA**" shall mean the Japanese Pharmaceuticals and Medical Devices Agency or any successor agency thereto in Japan having substantially the same function.

1.88 "**Post-Exercise Term**" means the portion of the Term beginning upon Arsanis' exercise of the Option in accordance with Section 2.2(b) *(Option)*.

1.89 "**Product**" means any pharmaceutical product (whether or not such product has received Marketing Approval) that comprises or contains one or more Licensed Antibodies (whether or not as the sole active ingredient(s)), including, without limitation, any Companion Diagnostic.

1.90 "**Receiving Party**" has the meaning set forth in Section 6.2 *(Exclusions from Nondisclosure Obligation)*.

1.91 "**Regulatory Authority**" shall mean any national, supranational or other regulatory agency, department, bureau or other governmental or regulatory authority having the administrative authority to regulate the development or marketing of pharmaceutical products in any country or other jurisdiction, including the FDA in the U.S., the EMA in the European Union, and the PMDA in Japan.

1.92 "**Research License**" has the meaning set forth in Section 2.2(a) *(Research License to Arsanis)*.

1.93 "**Research Plan**" has the meaning set forth in Section 2.3 *(Delivery of Adimab RSV Antibodies*).

1.94 "**Royalty Payment**" has the meaning set forth in Section 4.3(a) *(Royalty Payments*).

1.95 "**Royalty Term**" means, on a Product-by-Product and country-by-country basis, the term beginning on First Commercial Sale of a Product in a country and ending at the later of twelve (12) years after the First Commercial Sale of such Product in such country and (b) the expiration of the last Valid Claim of an RSV Antibody Patent listed on **Exhibit B** hereto (or a Patent claiming priority to an RSV Antibody Patent listed on **Exhibit B** hereto) Covering such Product in such country.

1.96 "**RSV**" means respiratory syncytial virus.

1.97 "**RSV Antibodies**" means, collectively, Adimab RSV Antibodies and Arsanis Derived Antibodies.

1.98 "**RSV Antibody Patents**" means those Patents that Cover Adimab RSV Antibodies, including those Patents set forth on **Exhibit B** hereto. RSV Antibody Patents exclude: (a) Adimab Platform Patents; and (b) those Patents that Cover Arsanis Derived Antibodies (except to the extent any claim of any such Patent claims priority to any of the Patents set forth on **Exhibit B** hereto).

1.99 "**Rules**" has the meaning set forth in Section 10.4(b)(i) *(Arbitration)*.

1.100 "**Sale Transaction**" has the meaning set forth in Section 10.7 (*Assignment*).

1.101 "**Second Product**" has the meaning set forth in Section 4.2(a) *(Milestone Events)*.

1.102 "**Selected Antibody**" has the meaning set forth in Section 2.2(b) *(Option)*.

1.103 "**Selling Party**" has the meaning provided in Section 1.766 *(Net Sales)*.

1.104 "**Senior Executive Discussions**" has the meaning set forth in Section 10.4(a) (*Initial Dispute Resolution*).

1.105 "**Sequence**" means, with respect to any Antibody, the amino acid sequence of such Antibody and the corresponding nucleic acid sequences encoding such Antibody.

1.106 "**Single Agent Product**" has the meaning set forth in Section 1.76 *(Net Sales)*.

1.107 "**Term**" shall have the meaning set forth in Section 9.1 *(Term)*.

1.108 "**Third Party**" means an entity other than a Party or a Party's Affiliates.

1.109 "**Third Party Acquirer**" has the meaning set forth in Section 10.7 (*Assignment*).

1.110 "**Third Party Claims**" has the meaning set forth in Section 8.1 *(Indemnification by Adimab).*

1.111 "**Third Party Patent License**" means a license under a Patent of a Third Party that Arsanis determines in good faith is reasonably required for the manufacture, use, sale, offer for sale or import of a Licensed Antibody or Product in order to avoid potential Third Party claims of patent infringement based on the way in which Adimab discovered an Adimab RSV Antibody using Adimab Platform Technology. For clarity, Third Party Patent Licenses explicitly excludes (a) licenses to any Patent other than a Patent Covering the way in which an Adimab RSV Antibody was discovered using Adimab Platform Technology and (b) licenses to Excluded Technology.

1.112 "**Unrestricted RSV Antibody**" **means any RSV-specific antibody that is not an RSV Antibody.**

1.113 "**Valid Claim**" means a claim of a Patent, which claim (a) is issued and unexpired and has not been found to be unpatentable, invalid or unenforceable by a court or other authority having jurisdiction, from which decision no appeal is taken, will be taken or can be taken; or (a) is pending and has not been finally abandoned or finally rejected and has been pending for no more than [**] years.

1.114 References in the body of this Agreement to "Sections" or "Articles" refer to the sections or articles of this Agreement. The terms "include," "includes," "including" and derivative forms of them shall be deemed followed by the phrase "without limitation" regardless of whether such phrase appears there (and with no implication being drawn from its inconsistent inclusion or non-inclusion) and the term "or" has the inclusive meaning represented by the phrase "and/or" (regardless of whether it is actually written and drawing no implication from the actual use of the phrase "and/or" in some instances but not in others).

ARTICLE 2

RESEARCH LICENSE AND OPTION; EVALUATION OF RSV ANTIBODIES.

2.1 Alliance Managers. Each Party shall designate in writing within [**] days after the Effective Date an "Alliance Manager" to be the primary contact for such Party. A Party may replace its Alliance Manager at any time upon written notice to the other Party. The Alliance Managers shall be responsible for managing communications between the Parties with respect to this Agreement.

2.2 Grants to Arsanis During Evaluation Term.

(a) Research License to Arsanis. Subject to the terms and conditions of this Agreement, Adimab hereby grants Arsanis, during the Evaluation Term, an exclusive, fully-paid, royalty-free, non-sublicensable license under the Adimab Platform Patents, Adimab Platform Technology, and RSV Antibody Patents, to create, research, optimize, make, have made and use RSV Antibodies, including Arsanis Derived Antibodies, in the Field for the purposes of (i) determining whether to exercise the Option and (ii) identifying the Adimab RSV Antibodies (if any) with respect to which Arsanis wishes to exercise the Option (the "**Research License**"). For the avoidance of doubt, the Research License specifically excludes the right to use the Adimab Platform Technology to discover or optimize antibodies.

(b) Option. Adimab hereby grants to Arsanis, during the Evaluation Period, the exclusive option (the "**Option**") to obtain the Assignment and License for up to [**] Adimab RSV Antibodies selected by Arsanis in its sole discretion. Arsanis may exercise the Option at any time on or before the expiry of the Evaluation Term by delivering written notice to Adimab identifying the Adimab RSV Antibodies with respect to which Arsanis is exercising the Option (each, a "**Selected Antibody**"), not to exceed [**] Selected Antibodies, no later than the expiry of the Evaluation Term, and paying the Option Fee to Adimab within [**] days after delivery of such notice.

2.3 Delivery of Adimab RSV Antibodies. As promptly as practicable (and in any event within [**] days) after the Effective Date, Adimab shall deliver to Arsanis: (a) [**]. It is understood and agreed that [**] and [**], the [**] an Adimab RSV Antibody. In addition, as promptly as reasonably practicable after the Effective Date, [**], and the [**], by mutual agreement of the Parties. [**] a written research plan for the [**] (the "**Research Plan**"), which shall set forth the [**] described therein, and each Party shall [**]. Adimab shall [**]. If [**], Adimab will [**].

2.4 Reports. During the Evaluation Period, Arsanis shall provide [**] written reports to Adimab summarizing the research and development activities conducted by or on behalf of Arsanis with respect to RSV Antibodies during the preceding [**] period. In addition, such report shall identify any stage completion milestone of the Funded Project that was achieved during such [**] period. For the avoidance of doubt, in no event shall Arsanis have any obligation to disclose to Adimab the Sequence of any Arsanis Derived Antibody.

2.5 Adimab Materials.

(a) Use of Adimab Materials During Evaluation Term. During the Evaluation Term, Arsanis shall use the Adimab Materials solely within the scope of the Research License. Arsanis shall not use Adimab Materials for any other purposes. During the Evaluation Term, Arsanis shall not sell, transfer, disclose or otherwise provide access to the Adimab Materials, other Confidential Information of Adimab, or RSV Antibodies to any Third Party, except as expressly permitted by Section 2.5(b) *(Access to Adimab Materials Within Arsanis)* and 2.5(c) *(Third Party Access to Adimab Materials)*.

(b) Access to Adimab Materials Within Arsanis. Arsanis may allow access to Adimab Materials, other Confidential Information of Adimab, and RSV Antibodies to those employees, officers and consultants of Arsanis who require such access in order to enable Arsanis to conduct activities with respect to the RSV Antibodies within the scope of the Research License for the purpose of determining whether to exercise the Option and identifying the Adimab RSV Antibodies (if any) with respect to which Arsanis wishes to exercise the Option; *provided, however*, that: (i) each such employee, officer or consultant is bound by obligations of confidentiality and non-use regarding Confidential Information of Adimab,

ownership, use and disposition of RSV Antibodies, including Adimab Materials, that, in each case, are no less protective of Adimab than the terms of this Agreement; and (ii) Arsanis shall at all times be fully responsible for its employees', officers' and consultants' compliance with this Agreement.

(c) Third Party Access to Adimab Materials. Arsanis may engage Third Party contractors to perform activities within the scope of the Research License on behalf of Arsanis; *provided, however,* that: (i) none of Adimab's rights hereunder are diminished or otherwise adversely affected as a result of such contracting; (ii) each such contractor undertakes in writing obligations of confidentiality and non-use regarding Confidential Information of Adimab, ownership, disposition, and use of RSV Antibodies, including Adimab Materials, that, in each case, are no less protective of Adimab than the terms of this Agreement; (iii) prior to initiating performance of any such activities on behalf of Arsanis, each such contractor has signed a binding agreement or instrument assigning, and agreeing to assign, to Arsanis all data and other work product relating to Adimab Materials and RSV Antibodies generated by such contractor; and (iv) Arsanis shall at all times be fully responsible for each such contractor's compliance with this Agreement.

(d) Limits on Use of Adimab Materials. Arsanis understands and agrees that Adimab Materials may have unpredictable and unknown chemical properties, that they are to be used with caution, and that, except as expressly permitted by Article 3 *(License and Assignment; Development & Commercialization)* following exercise of the Option, they are not to be used [**]. At no time shall the physical Adimab Materials delivered by Adimab to Arsanis be [**] for any purpose. Arsanis shall use Adimab Materials in compliance with all applicable laws and regulations.

2.6 Title to Adimab Materials. During the Evaluation Term, Adimab shall retain title to the Adimab Materials, including all quantities of Adimab RSV Antibodies delivered to Arsanis.

2.7 Adimab Retained Rights.

(a) Adimab Platform Technology. Adimab will at all times retain the exclusive and absolute right to practice and license the Adimab Platform Technology and the Adimab Platform Patents for any and all purposes; *provided, however*, that during the Evaluation Term and the Post-Exercise Term, Adimab shall not deliver Adimab RSV Antibodies to any Third Party. For clarity, during the Evaluation Term, Adimab may use the Adimab Platform Technology to discover, optimize, develop, manufacture, and commercialize Unrestricted RSV Antibodies on behalf of itself or Third Parties without limitation. Except as set forth in this Section 2.7(a) *(Adimab Platform Technology)*, nothing herein shall prevent Adimab from licensing or transferring some or all of the Adimab Platform Technology to a Third Party (including technical support in connection therewith) nor shall anything herein require Adimab to in any way limit the use of the Adimab Platform Technology by Adimab or a Third Party for purposes of generating antibodies against RSV.

(b) Antibodies within Libraries. Notwithstanding anything to the contrary in this Agreement, nothing herein shall require Adimab to physically remove from its antibody libraries any RSV Antibody that is included in any antibody library it has generated or will generate. Arsanis acknowledges that Adimab has transferred antibody libraries to numerous partners and may transfer additional antibody libraries to partners in the future, and that although statistically unlikely, it is theoretically possible that such antibody libraries contain antibodies with the same Sequence as an RSV Antibody. Adimab hereby reserves the right for Adimab to license or transfer any antibody library to Third Parties (including the transfer of physical possession of such antibody libraries, which may contain samples of an RSV Antibody included therein, to a Third Party as part of the transfer of libraries).

(c) Clarifications. For clarity, nothing contained in this Agreement shall be construed to prohibit or restrict Adimab from:

(i) using the Adimab Platform Technology to discover, optimize, develop, manufacture, and commercialize Unrestricted RSV Antibodies on behalf of itself or Third Parties;

(ii) licensing or transferring any Unrestricted RSV Antibody (including the transfer of physical possession of samples of any Unrestricted RSV Antibody) to any Third Party;

(iii) using or generating libraries which may include RSV Antibodies, subject to Adimab's compliance with Section 2.8(a) *(Adimab Negative Covenants)*; or

(iv) licensing or transferring antibody libraries to any Third Party (including samples of any RSV Antibody contained in such libraries, but solely as contained in such libraries), subject to Adimab's compliance with Section 2.8(a) *(Adimab Negative Covenants*).

2.8 Certain Negative Covenants. The following covenants are in addition to any express covenants of the parties contained elsewhere in this Agreement.

(a) Adimab Negative Covenants. During the Evaluation Term, Adimab and its Affiliates shall not grant to any Third Party any license, option or other right under or with respect to any RSV Antibody Patent and shall not deliver any isolated Adimab RSV Antibody to any Third Party. Adimab further covenants that, during the Evaluation Term, if any Third Party to which Adimab or its Affiliate has transferred any antibody library that includes any Adimab RSV Antibody requests, or inquires as to the availability of, any license, option or other rights to any Adimab RSV Antibody, or requests the nucleic acid sequence or amino acid sequence of any Adimab RSV Antibody, or requests additional physical material of any Adimab RSV Antibody, Adimab or its Affiliate shall:

(i) inform such Third Party that rights to such Adimab RSV Antibody are not available and that Adimab's contractual obligations to another Adimab partner prohibit it from providing the sequence information for, or any additional physical material of, such Adimab RSV Antibody;

(ii) not disclose to such Third Party the Sequence information (to the extent that such sequence has not been published) for such Adimab RSV Antibody (it being understood that such Third Party may determine the Sequence of such Adimab RSV Antibody on its own initiative, and the same shall not constitute a breach of this Agreement by Adimab); and

(iii) not deliver any additional physical material of such Adimab RSV Antibodies to a Third Party.

(b) Arsanis Negative Covenants. Arsanis and its Affiliates shall not file any IND with respect to or conduct any clinical trial of any RSV Antibody during the Evaluation Term prior to Option exercise. Arsanis further covenants not to practice, and not to permit or cause any of its Affiliates or any Licensee or other Third Party to practice, any Adimab Platform Patents, Adimab Platform Technology or RSV Antibody Patents or Evaluation Term Patents for any purpose outside the express scope of the Research License during the Evaluation Term prior to Option exercise.

2.9 Effect of Expiration of Option Without Exercise. If the Evaluation Term expires without Arsanis having exercised the Option, then:

(a) effective as of such expiration**,** (i) the Research License and the Option shall terminate and be of no further force or effect, and (ii) [**]; and

(b) within [**] days after expiration of the Evaluation Term, Arsanis shall (i) either return to Adimab or destroy (at Adimab's direction) all quantities of Adimab RSV Antibodies (including Adimab Materials) remaining in the possession of Arsanis, (ii) destroy all quantities of Arsanis Derived Antibodies remaining in the possession of Arsanis, and (iii) deliver to Adimab [**].

Additional consequences of expiration of the Evaluation Term without Arsanis having exercised the Option are set forth in Article 9 (*Term; Termination*) hereof.

ARTICLE 3

LICENSE AND ASSIGNMENT; DEVELOPMENT & COMMERCIALIZATION

3.1 Development and Commercialization License and Assignment.

(a) Assignment. Subject to the terms and conditions of this Agreement, effective on Arsanis' exercise of the Option, Adimab hereby assigns to Arsanis all right, title and interest in and to all Selected Antibodies and all RSV Antibody Patents (the "**Assignment**").

(b) License. Subject to the terms and conditions of this Agreement, effective on Arsanis' exercise of the Option, Adimab hereby grants to Arsanis a non-exclusive, worldwide license, including the right to sublicense through multiple tiers of sublicense in accordance with Section 3.2 (**Licensees and Sublicensees**), under the Adimab Platform Patents and Adimab Platform Technology, to research, develop, have developed, make, have made, use, sell, have sold, offer for sale, import and export Licensed Antibodies and Products in the Field (the "**License**") during the Term. For the avoidance of doubt, the License specifically excludes the right to use the Adimab Platform Technology to discover or optimize antibodies.

3.2 Licensees and Sublicensees. Arsanis shall have the right to grant licenses or sublicenses, through multiple tiers of sublicense, under the License and/or the RSV Antibody Patents, in each case solely with respect to any Licensed Antibody or Product. Any license or sublicense (or option to license or sublicense) of any Licensed Antibody or Product granted to any Licensee, and any direct or indirect license or sublicense (or option to license or sublicense) under the License and/or the RSV Antibody Patents granted to any Licensee, shall be made solely pursuant to a written agreement (a "**Licensee Agreement**") that is consistent with all relevant terms and conditions of this Agreement and that includes the applicable Licensee's express agreement to comply with all applicable terms of this Agreement, including, for clarity, Section 9.4 *(Commitments Regarding RSV Antibodies)*. Arsanis shall remain responsible for all payments and other performance obligations due under this Agreement, notwithstanding any license or sublicense that it may grant.

3.3 Additional Covenants. The provisions of Section 2.8(a) *(Adimab Negative Covenants)* shall apply, *mutatis mutandis,* during the Post-Exercise Term. Arsanis covenants not to practice, and not to permit or cause any of its Affiliates or any Licensee or other Third Party to practice: (a) any Adimab Platform Patents or Adimab Platform Technology for any purpose outside the express scope of the License; or (b) the RSV Antibody Patents, and Arsanis Patents that Cover Arsanis Derived Antibodies (and solely with respect to the claims of such Arsanis Patents that Cover Arsanis Derived Antibodies), for the purpose of researching, developing, manufacturing or commercializing RSV Antibodies that are not Licensed Antibodies.

3.4 Acknowledgment Regarding Arsanis Derived Antibodies. Arsanis hereby acknowledges and agrees that, regardless of whether or not any of the manufacture, use, sale, offer for sale and import of an Arsanis Derived Antibody is Covered by, or would require the practice of, or a license under, any Adimab Platform Technology, Adimab Platform Patents or RSV Antibody Patents, all Arsanis Derived Antibodies, and all Products comprising or containing any Arsanis Derived Antibody, developed or commercialized by or on behalf of Arsanis or any of its Affiliates or Licensees, whether during or after the Term, and whether or not any such Arsanis Derived Antibody is a Licensed Antibody, are milestone- and royalty-bearing to Adimab in accordance with Article 4 of this Agreement; *provided, however,* that the foregoing shall not be construed as granting to Arsanis any license or other right under any Adimab Platform Technology, Adimab Platform Patents or RSV Antibody Patents, or any other Patents or Know-How Controlled by Adimab, to develop or commercialize any RSV-specific antibody other than as expressly permitted by this Agreement.

3.5 Diligence. During the Post-Exercise Term, Arsanis (directly or through its Affiliates or Licensees) shall use Commercially Reasonable Efforts: (a) to [**]; (b) to [**]; (c) to [**]; and (d) following [**].

3.6 Regulatory. During the Post-Exercise Term, Arsanis (itself or with or through its Affiliates or Licensees) shall be solely responsible for preparing and submitting all INDs, NDAs and other regulatory filings for Licensed Antibodies and Products in the Field (collectively, "**Arsanis Regulatory Filings**"), and for obtaining and maintaining all Marketing Approvals for Products in the Field ("**Arsanis Approvals**"), at Arsanis' sole expense. All Arsanis Regulatory Filings and Arsanis Approvals shall be submitted in the name of, and owned by, Arsanis (or its Affiliate or Licensee, as applicable).

3.7 Disclosure Regarding Arsanis Efforts. After Arsanis' exercise of the Option: (a) prior to [**] of a Product, Arsanis shall provide [**] written reports to Adimab in [**] of each year summarizing the [**]; and (b) after [**] of a Product, Arsanis shall provide [**] written reports to Adimab in [**] of each year summarizing the [**]. In addition, any such report shall identify any stage completion milestone of the Funded Project that was achieved during the applicable [**]month period.

3.8 Acknowledgment of Foundation Rights. Adimab acknowledges that Arsanis' activities under Article 2 and, if Arsanis exercises the Option, certain activities of Arsanis under this Article 3 constitute part of the Funded Project. Adimab further acknowledges that the funding provided by the Foundation to Arsanis for the Funded Project entitles the Foundation to the Foundation Rights and makes the Funded Developments and any Background Technology incorporated into a Funded Development or required to use a Funded Development subject to the Global Access Commitment both during and after the Term, regardless of whether or not Arsanis exercises the Option and notwithstanding the expiration or any termination of this Agreement.

ARTICLE 4

FINANCIAL TERMS.

4.1 Pre-Clinical Fees

(a) Research Funding. Arsanis shall compensate Adimab on a calendar quarterly basis for Adimab's performance of its obligations under, and in accordance with, the Research Plan, in an amount determined by multiplying the actual FTEs expended by Adimab in the performance of such obligations during such calendar quarter by the FTE Rate. Adimab shall issue quarterly written invoices to Arsanis setting forth the actual FTEs expended by Adimab in performing such Research Plan obligations, which invoice shall describe the Research Plan activities performed, and Arsanis shall pay the invoiced amount within [**] days of receipt.

(b) Option Fee. In order to exercise the Option under Section 2.2(b) *(Option),* Arsanis shall pay to Adimab a non-creditable, nonrefundable option exercise fee of [**] dollars ($[**]) (the "*Option Fee*").

4.2 Milestone Payments.

(a) Milestone Events. Subject to Section 4.2(b) *(Maximum Milestone Payments)* and Section 4.2(c) *(Catch-Up Payments)*, Arsanis shall report in writing to Adimab the first achievement of each event set forth in the table below (each, a "**Milestone Event**") by (i) the first Product (excluding any Companion Diagnostic) to achieve such Milestone Event ("**First Product**") and (ii) the first Product (excluding any Companion Diagnostic) containing or incorporating a Licensed Antibody other than the Licensed Antibody contained or incorporated in the First Product ("**Second Product**"), and, in each case, pay the corresponding milestone payment set forth in the table below (each, a "**Milestone Payment**") to Adimab, each within [**] days after the first achievement of the corresponding Milestone Event by such Product:

Milestone Event	Milestone Payment	
	First Product	Second Product
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]
[**]	[**]	[**]

(b) Maximum Milestone Payments. For clarity, the maximum aggregate amount of Milestone Payments payable under this Section 4.2 *(Milestone Payments)* for any and all Products is twenty four million three hundred seventy five thousand dollars ($24,375,000) *(i.e.,* a maximum aggregate of [**] dollars ($[**]) for the first achievement of all Milestone Events by the First Product, and a maximum aggregate of [**] dollars ($[**]) for the first achievement of all Milestone Events by a Second Product).

(c) Catch-Up Payments. If a later-stage clinical Milestone Event is achieved for any Product without one or more earlier-stage clinical Milestone Events having been achieved for that Product, then Arsanis shall pay the Milestone Payment(s) for such previous clinical Milestone Event(s) along with the payment for the most recently achieved clinical-stage Milestone Event. If a Milestone Event related to [**] for any Product is achieved without one or more of the clinical Milestone Events being achieved for that Product, then Arsanis shall pay the Milestone Payment(s) for such previous clinical Milestone Event(s) along with the payment for the first Milestone Event related to filing of an NDA for such Product.

4.3 Royalties.

(a) Royalty Payments. Subject to the remainder of Section 4.3 *(Royalties),* Arsanis shall pay Adimab, on a Product-by-Product and country-by-country basis, a royalty of [**] percent ([**]%) of Net Sales of a Product in a country during the applicable Royalty Term for such Product in such country ("**Royalty Payments**"). On a Product-by-Product and country-by-country basis, upon expiration of the Royalty Term with respect to a Product in a country, the License with respect to such Product in such country shall become royalty-free, fully-paid, irrevocable and perpetual.

(b) Adjustment for Third Party IP. If Arsanis enters into any Third Party Patent License, then [**] percent ([**]%) of the royalties actually paid to the Third Party under such Third Party Patent License with respect to sales of any given Product in any given calendar quarter in any given country may be offset against the Royalty Payment, if any, that would otherwise have been payable to Adimab with respect to Net Sales of such Product in such calendar quarter in such country; *provided, however,* that in no event shall the royalty owed to Adimab be reduced by more than [**] percent ([**]%) of the payment which would otherwise be due hereunder by reason of any and all such offsets in the aggregate. It is understood, agreed and acknowledged that Adimab's allowing Arsanis to claim the credit of this Section 4.3(b)

(Adjustments for Third Party IP) as to any particular Third Party Patent License: (i) does not mean Adimab believes that the licensed Patents of the Third Party were infringed by or Cover any aspect of the discovery or optimization work by Adimab; and (ii) is not, will not be, and shall not be under any circumstances construed as an admission of any kind. Adimab may have many reasons not to challenge any given assertion of the credit of this Section 4.3(b) *(Adjustment for Third Party IP)* by Arsanis, including: (1) maintaining good relations with a counterparty; (2) an assessment that the costs of the credit are outweighed by the benefits of Arsanis having a license in place that makes it feel comfortable to proceed with the Product (resulting in a greater likelihood of milestones and royalties being paid to Adimab); (3) resource limitations that make it impracticable to challenge Arsanis' assertion of such credit even though Adimab may disagree whether this is proper; and (4) other reasons other than thinking that the relevant Patents Cover or were infringed by any aspect of the discovery or optimization work.

(c) Biosimilar Competition. On a Product-by-Product and country-by-country basis, if, during the Royalty Term for a Product in a country, sales of Biosimilars of such Product account for [**]% or more of aggregate unit sales of such Product and such Biosimilars in such country in a calendar quarter, as determined by reference to applicable sales data obtained from a reputable independent source (*e.g.*, IMS Health), then for the remainder of the Royalty Term for such Product in such country, the royalties that would otherwise be payable by Arsanis under Section 4.3(a) (Royalty Payments) (as adjusted pursuant to Section 4.3(b) *(Adjustment for Third Party IP*), to the extent applicable), with respect to Net Sales of such Product in such country shall be reduced by [**] percent ([**]%).

(d) Compulsory Licensing. If a Compulsory License is granted to a Third Party with respect to a Product in a country, and the royalty rate payable by such Third Party to Arsanis or its Affiliate or Licensee for such Compulsory License does not equal or exceed the royalty rate provided by Section 4.3(a) *(Royalty Payments)* (as adjusted pursuant to Section 4.3(b) *(Adjustment for Third Party IP)* and 4.3(c) (Biosimilar Competition), to the extent applicable), then in lieu of Royalty Payments with respect to such Third Party's Net Sales of such Product in such country, Arsanis shall pay to Adimab [**] percent ([**]%) of the royalties paid by such Third Party to Arsanis or its Affiliate or Licensee with respect to such Third Party's sales of such Product in such country for the period during which such Compulsory License is in effect, but only with respect to sales or other dispositions of that Product in that country by that Third Party compulsory licensee.

(e) Royalty Floor. Except as expressly set forth in Section 4.3(d) *(Compulsory Licensing)*, in no event shall the effective royalty rate applicable to Net Sales of a Product in a country (excluding NGO Sales) for purposes of Royalty Payments hereunder be reduced, by reason of any and all applicable adjustments in the aggregate, to less than [**] percent ([**]%) of Net Sales of such Product in such country.

(f) No Royalty on NGO Sales. For clarity, no Royalty Payments, royalties or other payments of any kind shall be payable to Adimab with respect to NGO Sales.

(g) [**].

4.4 Quarterly Payment Timing. All Royalty Payments due under Section 4.3 *(Royalties)* shall be paid quarterly within [**] days after the end of the relevant calendar quarter for which royalties are due.

4.5 Royalty Payment Reports. With respect to each calendar quarter, within [**] days after the end of the calendar quarter, Arsanis shall provide to Adimab a written report stating the number and description of all Products sold during the relevant calendar quarter; the gross sales associated with such sales; and the calculation of Net Sales on such sales, including the amount of any deduction provided for in the definition of Net Sales. The report shall provide all such information on a country-by-country and Product-by-Product basis.

4.6 Payment Method. All payments due under this Agreement to Adimab shall be made by bank wire transfer in immediately available funds to an account designated by Adimab. All payments hereunder shall be made in the legal currency of the United States of America, and all references to "**$**" or "**dollars**" shall refer to United States dollars (*i.e.*, the legal currency of the United States).

4.7 Taxes. Adimab will pay any and all taxes levied on account of any payments made to it under this Agreement. The parties shall reasonably cooperate in good faith to achieve legally-available tax efficiencies related to payments under this Agreement. To the extent that Arsanis is required to deduct and withhold taxes on any payment to Adimab, Arsanis shall deduct and withhold such taxes and pay the amounts of such taxes to the proper government authority in a timely manner and promptly submit to Adimab an official tax certificate or other evidence of such withholding sufficient to enable Adimab to claim such payment of taxes. Arsanis shall provide Adimab with reasonable assistance in order to allow Adimab to recover, as permitted by applicable law, withholding taxes, value added taxes or similar obligations resulting from payments made hereunder or to obtain the benefit of any present or future treaty against double taxation which may apply to such payments. Adimab shall provide Arsanis with any tax forms that may be reasonably necessary in order for Arsanis not to withhold tax or to withhold tax at a reduced rate under an applicable bilateral tax income treaty. Adimab shall use reasonable efforts to provide any such tax forms to Arsanis at least [**] days prior to the due date identified by Arsanis for any payment for which Adimab desires that Arsanis apply a reduced withholding rate. Arsanis shall make all payments due hereunder from the United States.

4.8 Records; Audit. Arsanis shall keep (and shall cause its Affiliates and Licensees to keep) complete and accurate records pertaining to the sale or other disposition of Products in sufficient detail to permit Adimab to confirm the accuracy of all royalty payments due hereunder for at least [**] full calendar years following the end of the calendar year to which they pertain. Adimab shall have the right, [**], to cause an independent, certified public accountant of international standing and reasonably acceptable to Arsanis to audit such records solely to confirm Net Sales and royalties for a period covering not more than the preceding [**] full calendar years. No calendar year shall be subject to audit under this section more than [**]. Such audits may be exercised during normal business hours upon at least [**] days' prior written notice to Arsanis in the location where the records are maintained. The auditor will execute a reasonable written confidentiality agreement with Arsanis and will disclose to Adimab only such information as is reasonably necessary to provide Adimab with information regarding any actual or potential discrepancies between amounts reported and actually paid and amounts payable

under this Agreement. The auditor will send a copy of the report to Arsanis at the same time it is sent to Adimab. The report sent to both Parties will include the methodology and calculations used to determine the results. If the audit reveals an underpayment, Arsanis shall promptly pay to Adimab the amount of such underpayment plus interest in accordance with Section 4.11 *(Late Payments)***.** If the audit reveals that the monies owed by Arsanis to Adimab have been understated by more than [**] percent ([**]%) for the period audited, Arsanis shall, in addition, pay the costs of such audit. If such audit discloses an overpayment by Arsanis, then Arsanis shall have the right to deduct the amount of such overpayment from any amount owed to Adimab under this Agreement.

4.9 Foreign Exchange. If any currency conversion shall be required in connection with the calculation of amounts payable hereunder, such conversion shall be made using the rate of exchange for such currency used throughout Arsanis' accounting system for financial reporting purposes for the calendar quarter for which payment is due. With any payment in relation to which a currency conversion is performed to calculate the amount of payment due, Arsanis shall provide to Adimab a copy of the exchange rates used in such calculation.

4.10 Non-refundable, non-creditable payments. Each payment that is required under this Agreement is non-refundable and non-creditable except to the extent set forth in Section 4.3(b) *(Adjustment for Third Party IP)*.

4.11 Late Payments. Any amount owed by Arsanis to Adimab under this Agreement that is not paid within the applicable time period set forth herein will accrue interest at the rate of [**] percent ([**]%) above the then-applicable short-term three-month London Interbank Offered Rate (LIBOR) as quoted in the Wall Street Journal (or if it no longer exists, a similarly authoritative source) calculated on a daily basis, or, if lower, the highest rate permitted under applicable law.

ARTICLE 5

INTELLECTUAL PROPERTY.

5.1 Ownership and Inventorship.

(a) Adimab Platform Patents. Adimab shall at all times remain the sole and exclusive owner of the Adimab Platform Patents.

(b) RSV Antibody Patents. Prior to Option exercise, Adimab shall be the sole and exclusive owner of all RSV Antibody Patents. From and after Arsanis' exercise of the Option in accordance with Section 2.2(b) *(Option),* Arsanis shall be the sole and exclusive owner of all RSV Antibody Patents.

(c) Other Patents. Except as expressly set forth in Section 2.9 *(Effect of Expiration of Option Without Exercise)*, Section 5.1(b) (RSV Antibody Patents) and Section 9.5(b)(i)(2)(B) *(Assignment of RSV Antibody Patents)*, nothing in this Agreement shall alter the ownership of the Parties' Patents.

(d) Inventorship. For purposes of this Agreement, inventorship of any invention, whether or not patentable, shall be determined in accordance with United States patent law.

5.2 Assignment. Each Party shall promptly execute and deliver, or require its employees or contractors to execute and deliver, all documents and instruments necessary or reasonably requested by the other Party to effectuate, evidence, record and perfect the Assignment and the ownership of RSV Antibody Patents set forth in Section 5.1(b) *(RSV Antibody Patents)* and Section 9.5(b)(i)(2)(B) *(Assignment of RSV Patent Rights*), and to enable the other Party to apply for and prosecute such RSV Antibody Patents in any country. In addition, [**]. Each Party hereby designates and appoints the other Party and its duly authorized officers and agents as its agent and attorney-in-fact to act for and on behalf of such Party solely to execute, deliver and file the foregoing documents and instruments, with the same legal force and effect as if executed by such Party if a Party is unable for any reason to secure the other Party's or its representatives' signature on any such document or instrument. Each Party acknowledges that this appointment is coupled with an interest. Each Party shall make its relevant personnel (and their assignments and signatures on such documents and instruments) reasonably available to the other Party for assistance in accordance with this Article 5 *(Intellectual Property)* at no charge.

5.3 Patent Prosecution and Maintenance.

(a) Adimab Platform Technology. Adimab shall have the sole right (but not the obligation) to file, prosecute, maintain, defend and enforce all Patents directed to Adimab Platform Technology and all Adimab Platform Patents, all at its own expense.

(b) RSV Antibody Patents, Evaluation Term Patents and Arsanis Patents.

(i) Prior to Option Exercise. During the Evaluation Term prior to Option exercise:

(1) Adimab shall file additional RSV Antibody Patents and prosecute, maintain, defend and enforce all RSV Antibody Patents, in accordance with instructions from Arsanis and at Arsanis' expense;

(2) Arsanis and its Affiliates shall not file, and shall not cause to be filed, any additional RSV Antibody Patents, including patent applications that Cover any Adimab RSV Antibody;

(3) Adimab shall provide Arsanis with drafts of proposed patent office submissions with respect to Adimab RSV Antibodies and RSV Antibody Patents, including draft patent applications and related correspondence, no less than [**] business days in advance of filing;

(4) Adimab shall consider in good faith the requests and comments of Arsanis with respect to such drafts;

(5) Adimab shall keep Arsanis reasonably informed of progress with regard to the prosecution and maintenance of RSV Antibody Patents and shall provide Arsanis with copies of all correspondence received from patent offices relating thereto (including office actions and the like) promptly after receipt; and

(6) Arsanis may, in its sole discretion and at its sole expense, file or cause to be filed applications for Evaluation Term Patents, [**].

(ii) During the Post-Exercise Term. During the Post-Exercise Term:

(1) Arsanis shall have the sole right to prosecute, maintain, enforce and defend all RSV Antibody Patents, Evaluation Term Patents, and Arsanis Patents, all at its own expense;

(2) Adimab and its Affiliates shall not file, and shall not cause to be filed, any additional RSV Antibody Patents;

(3) Adimab shall have the right to review and comment on prosecution of RSV Antibody Patents, and Arsanis shall consider in good faith the requests and comments of Adimab with respect thereto;

(4) Arsanis shall provide Adimab with drafts of proposed patent office submissions with respect to RSV Antibody Patents, including draft patent applications and related correspondence, no less than [**] business days in advance of filing; and

(5) Arsanis shall keep Adimab reasonably informed of progress with regard to the prosecution and maintenance of RSV Antibody Patents and shall provide Adimab with copies of all correspondence received from patent offices relating thereto (including office actions and the like) promptly after receipt.

(c) Responsibility. It is understood and agreed that searching for, identification and evaluation of Third-Party Patents that may Cover Excluded Technology, including the Sequence of, or any method of using or making, any Licensed Antibody, is the responsibility of Arsanis, and that Adimab shall have no responsibility for the foregoing nor liability if any such Third Party Patents exist.

5.4 Cooperation of the Parties. At the reasonable request of the responsible (as provided for in this Article 5 *(Intellectual Property))* Party, the other Party agrees to cooperate fully in the preparation, filing, prosecution, enforcement and maintenance of any RSV Patents under this Agreement. Such cooperation includes executing all papers and instruments (or causing its personnel to do so) reasonably useful to enable the other Party to apply for and to prosecute patent applications in any country; and promptly informing the other Party of any matters coming to such Party's attention that may affect the preparation, filing, prosecution, enforcement or maintenance of any such Patents. Notwithstanding the foregoing, Adimab shall not be required pursuant hereto to disclose Adimab Platform Technology to Arsanis or to participate in any action against another Adimab customer.

ARTICLE 6

CONFIDENTIALITY; PUBLICITY.

6.1 General Confidentiality Obligations.

(a) Confidential Information. Any and all confidential or proprietary information disclosed to one Party by the other Party under this Agreement is the "**Confidential Information**" of the disclosing Party; *provided, however,* that, notwithstanding the foregoing:

(i) information embodied in Adimab Materials is Adimab's Confidential Information;

(ii) information embodied in the Arsanis Materials is Arsanis' Confidential Information;

(iii) prior to exercise of the Option, Sequence information (whether as to amino acid sequence or nucleic acid sequence) with respect to RSV Antibodies shall be deemed the Confidential Information of both Parties; and

(iv) from and after the date of Option exercise: (A) the Sequence information as to the CDRs of RSV Antibodies shall be Confidential Information of Arsanis; and (B) the Sequence information as to the non-CDR portions (*i.e.*, the framework) of RSV Antibodies may be disclosed by either Party; *provided, however*, that this clause (B) shall not be construed to require Arsanis to disclose to Adimab any Sequence information with respect to any Arsanis Derived Antibody.

(b) Limits on Use and Disclosure of Confidential Information. Each Party shall receive and maintain the other Party's Confidential Information in strict confidence. Neither Party shall disclose any Confidential Information of the other Party to any Third Party. Neither Party shall use the Confidential Information of the other Party for any purpose other than as required to perform its obligations or exercise its rights hereunder. Each Party may disclose the other Party's Confidential Information to the receiving Party's employees and contractors requiring access thereto for the purposes of this Agreement, *provided, however,* that prior to making any such disclosures, each such person shall be bound by written agreement to maintain Confidential Information in confidence and not to use such information for any purpose other than in accordance with the terms and conditions of this Agreement. Each Party agrees to take all steps necessary to ensure that the other Party's Confidential Information shall be maintained in confidence including such steps as it takes to prevent the disclosure of its own proprietary and confidential information of like character. Each Party agrees that this Agreement shall be binding upon its employees and contractors involved in the activities contemplated hereby and that it shall be liable for any breach by its employees or contractors. The foregoing obligations of confidentiality and non-use shall survive, and remain in effect for a period of [**] years from, the termination or expiration of this Agreement in accordance with Article 9 *(Term; Termination)*.

6.2 Exclusions from Nondisclosure Obligation. Information shall not be considered Confidential Information of a Party (the "**Disclosing Party**") and the nondisclosure and nonuse obligations in Section 6.1 *(General Confidentiality Obligations)* shall not apply to the extent that the other Party (the "**Receiving Party**") can establish by competent written proof that such

information: (a) was publicly known at the time of disclosure (or generation, as applicable); (b) after disclosure (or generation, as applicable), becomes publicly known by publication or otherwise, except by breach of this Agreement by the Receiving Party; (c) was in the Receiving Party's possession at the time of disclosure hereunder; (d) is received by the Receiving Party from a Third Party who has the lawful right to disclose the Confidential Information and who shall not have obtained the Confidential Information either directly or indirectly from the Disclosing Party; or (e) is independently developed by the Receiving Party (*i.e*., without reference to Confidential Information of the disclosing Party); *provided, however*, that Adimab shall not be permitted to avail itself of: (i) the exceptions set forth in the foregoing clauses (c) and (e) during the Evaluation Term with respect to Sequence information as to Adimab RSV Antibodies; (ii) the exception set forth in the foregoing clause (c) during the Post-Exercise Term with respect to Sequence information with respect to the CDRs of Adimab RSV Antibodies; or (iii) the exception set forth in the foregoing clause (e) during the Post-Exercise Term with respect to Sequence information with respect to the CDRs of Adimab RSV Antibodies except to the extent that such Sequences are independently rediscovered by Adimab without use of any Confidential Information of Arsanis or any Arsanis Materials.

6.3 Authorized Disclosures. If either Party is required, pursuant to a governmental law, regulation or order, to disclose any Confidential Information of the other Party, the receiving Party (a) shall give advance written notice to the disclosing Party, (b) shall make a reasonable effort to assist the other Party to obtain a protective order requiring that the Confidential Information so disclosed be used only for the purposes for which the law, regulation or order required and (c) shall disclose the Confidential Information solely to the extent required by the law, regulation or order. In addition, and notwithstanding the provisions of Section 6.1 *(General Confidentiality Obligations)*, the Receiving Party may disclose Confidential Information of the Disclosing Party as expressly permitted by this Agreement, or if and to the extent such disclosure is reasonably necessary in the following instances: (i) filing or prosecuting Patent Rights as permitted by this Agreement; (ii) enforcing such party's rights under this Agreement and in performing its obligations under this Agreement; (iii) prosecuting or defending litigation as permitted by this Agreement; and (iv) in the case of Arsanis as the Receiving Party, (A) disclosure in submissions to or filings with any Regulatory Authority (including, without limitation, in INDs and NDAs) with respect to any Product, and in correspondence with any Regulatory Authority regarding any Product or any of the foregoing submissions or filings, and (B) disclosures to the Foundation required by the Grant Documents; *provided, however*, that in no event may Arsanis disclose Adimab Platform Technology without the prior written consent of Adimab, which consent may be withheld in Adimab's sole discretion.

6.4 Terms of Agreement. The terms of this Agreement are the Confidential Information of both Parties. However, each Party shall be entitled to disclose the terms of this Agreement under legally binding obligations of confidence and limited use to: legal, financial and investment banking advisors; and potential and actual investors and acquirers, and, in the case of Arsanis, potential and actual Licensees, doing diligence and counsel for the foregoing. In addition, if legally required, a copy of this Agreement may be filed by either Party with the SEC (or relevant ex-U.S. counterpart). In that case, the filing Party will if requested by the other Party diligently seek confidential treatment for terms of this Agreement for which confidential treatment is reasonably available, and shall provide the non-filing Party reasonable advance notice of the terms proposed for redactions and a reasonable opportunity to request that the filing Party make additional redactions to the extent confidential treatment is reasonably available under the law. The filing Party shall seek and diligently pursue such confidential treatment requested by the non-filing Party.

6.5 Return of Confidential Information. Promptly after the termination or expiration of this Agreement for any reason (but specifically excluding expiration of the Term in accordance with clause (b) of Section 9.1 *(Term))*, each Party shall return to the other Party all tangible manifestations of such other Party's Confidential Information at that time in the possession of the receiving Party; *provided, however,* that: (a) a Party may retain one (1) copy of the Confidential Information of the other Party in its files for the sole purpose of ascertaining and complying with its confidentiality obligations hereunder; (b) a Party shall not be required to destroy any computer files stored securely by such Party only on centralized storage servers (and not on personal computers or devices) that are created during automatic system back up, so long as such computer files are not readily accessible by such Party's personnel (other than its information technology specialists who are responsible for maintaining such Party's electronic backup services; and (c) the obligation of the receiving Party to return Confidential Information pursuant to this Section 6.5 *(Return of Confidential Information)* shall not apply to Confidential Information of the other Party or copies thereof which must be retained pursuant to mandatory applicable law. Any Confidential Information retained will continue to be subject to the terms of this Agreement.

6.6 Publicity.

(a) Press Releases. The Parties shall issue joint press release announcing the execution of this Agreement in substantially the form attached hereto as **Exhibit C**. It is further acknowledged that each Party may desire or be required to issue subsequent press releases relating to this Agreement or activities hereunder, all of which shall be made in accordance with the terms of this Section 6.6(a) *(Press Releases)*.

(i) Disclosure of Significant Achievements. During the Post-Exercise Term: (A) Adimab may, without the prior review or approval of Arsanis, issue public statements or press releases announcing the exercise of the Option and the achievement of any Milestone Event for which a Milestone Payment is payable hereunder; *provided, however,* that no such statement or release shall disclose any Sequence information as to the CDR of the Licensed Antibody contained in the Product that achieved such Milestone Event or otherwise specifically identify such Licensed Antibody or Product (except that Adimab may identify such Licensed Antibody or Product by the Arsanis product designation used by Arsanis in its public disclosures); and (B) Arsanis may, without the prior review or approval of Adimab, issue public statements or press releases regarding Products being developed or commercialized by or on behalf of Arsanis, its Affiliates or Licensees, including, without limitation, announcements regarding initiation or completion of clinical trials, clinical trial results, regulatory filings and approvals, entry into License Agreements, and receipt of payments under License Agreements, and where not unreasonably cumbersome, Arsanis shall include in such statement a recognition of Adimab as the source of the Adimab RSV Antibodies.

(ii) Other Disclosures. Except as expressly set forth in Section 6.6(a)(i) *(Disclosure of Significant Achievements)*, the Parties agree to consult with each other reasonably and in good faith with respect to the text and timing of subsequent press releases prior to the issuance thereof; provided, however, that a Party may not withhold consent to such releases that the other Party may determine, based on advice of counsel, are reasonably necessary to comply with applicable laws, including disclosure requirements of the U.S. Securities and Exchange Commission, or with the requirements of any stock exchange on which securities issued by a Party or its Affiliates are traded. In the event of a required public announcement, to the extent practicable under the circumstances, the Party making such announcement shall provide the other Party with a copy of the proposed text of such announcement sufficiently in advance of the scheduled release to afford such other Party a reasonable opportunity to review and comment upon the proposed text. Each Party may make public statements regarding this Agreement in response to questions by the press, analysts, investors or those attending industry conferences or financial analyst calls, or issue press releases, so long as the contents of any such public statement or press release are contained in a prior public disclosure or public statement approved by the other Party pursuant to this Section 6.6(a)(ii) *(Other Disclosures)* or permitted by Section 6.6(a)(i) *(Disclosure of Significant Achievements)* or Section 6.3 *(Authorized Disclosures)* and does not reveal Confidential Information of the other Party.

(b) Bundled Press Releases. It is understood and agreed that a Party may sometimes issue press releases that group multiple achievements of such Party. It is understood and agreed that a Party may choose to group text from a previously-approved press release with other accomplishments or events not relating to this Agreement and, in such event, the only portions of the press release to which Section 6.6(a) (*Press Releases)* shall apply shall be those portions that relate to this Agreement or the other Party.

6.7 Certain Data. The Parties recognize the need for Adimab to disclose the general capabilities of the Adimab Platform Technology. In connection therewith, and provided that Adimab does not disclose the identity of Arsanis, any Adimab RSV Antibody, the target thereof *(i.e.,* RSV) or any Sequence information as to the CDRs of Adimab RSV Antibodies, Adimab shall have the right to disclose generally Adimab RSV Antibody attributes, including the following: [**]. For clarity, Adimab has already published the article by Gilman et al., entitled “Rapid profiling of RSV antibody repertoires from the memory B cells of naturally infected adult donors”, Sci Immunol., Vol. 1(6), December 16, 2016 (Epublished December 9, 2016), which article includes the sequences of certain Adimab RSV Antibodies.

ARTICLE 7

REPRESENTATIONS AND WARRANTIES.

7.1 Mutual Representations. Each of Adimab and Arsanis hereby represents and warrants to the other of them that the representing and warranting Party is duly organized in its jurisdiction of incorporation; that the representing and warranting Party has the full power and authority to enter into this Agreement; that this Agreement is binding upon the representing and warranting Party; that this Agreement has been duly authorized by all requisite corporate action within the representing and warranting Party; and that the execution, delivery and performance by the representing and warranting Party of this Agreement and its compliance with the terms and conditions hereof does not and shall not conflict with or result in a breach of any of the terms and conditions of or constitute a default under (a) any agreement or other instrument binding or affecting it or its property, (b) the provisions of its bylaws or other governing documents or (c) any order, writ, injunction or decree of any governmental authority entered against it or by which any of its property is bound.

7.2 Representations of Adimab. Adimab hereby represents and warrants to Arsanis that, as of the Effective Date:

[**].

7.3 DISCLAIMER OF WARRANTIES. OTHER THAN THE EXPRESS WARRANTIES SET FORTH IN THIS ARTICLE 7 (REPRESENTATIONS AND WARRANTIES), EACH PARTY DISCLAIMS ALL WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, VALIDITY OF PATENTS, NON-INFRINGEMENT OF THE INTELLECTUAL PROPERTY RIGHTS OF THIRD PARTIES, OR ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICES.

7.4 Limitation of Liability. EXCEPT FOR LIABILITY FOR BREACH OF ARTICLE 6 (CONFIDENTIALITY; PUBLICITY), NEITHER PARTY SHALL BE ENTITLED TO RECOVER FROM THE OTHER PARTY ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES IN CONNECTION WITH THIS AGREEMENT OR ANY LICENSE GRANTED HEREUNDER; PROVIDED, HOWEVER, THAT THIS SECTION 7.4 (LIMITATION OF LIABILITY) SHALL NOT BE CONSTRUED TO LIMIT EITHER PARTY'S INDEMNIFICATION OBLIGATIONS UNDER ARTICLE 8 (INDEMNIFICATION).

ARTICLE 8

INDEMNIFICATION

8.1 Indemnification by Adimab. Adimab hereby agrees to indemnify, defend and hold harmless (collectively**, "Indemnify**") Arsanis, its Affiliates and its and their directors, officers, agents and employees (collectively, "**Arsanis Indemnitees**") from and against any and all liability, loss, damage or expense (including without limitation reasonable attorneys' fees) (collectively, "**Losses**") they may suffer as the result of any claim, demand, action or other proceeding by any Third Party (collectively, "**Third-Party Claims**") arising out of or relating to (a) the breach by Adimab of any warranty, representation, covenant or agreement made by Adimab in this Agreement, or (b) the gross negligence or intentional misconduct of any Adimab Indemnitee; except, in each case, to the extent such Losses result from (i) [**].

8.2 Indemnification by Arsanis. Arsanis hereby agrees to Indemnify Adimab, its Affiliates and its and their directors, officers, agents and employees (collectively, "**Adimab Indemnitees**") from and against any and all Losses they may suffer as the result of Third-Party Claims arising out of or relating to (a) the breach by Arsanis of any warranty, representation, covenant or agreement made by Arsanis in this Agreement, (b) the gross negligence or intentional misconduct of any Arsanis Indemnitee, (c) the research, testing, development, manufacture, use, handling, storage, sale, offer for sale, import or other disposition by or on behalf of Arsanis or any of its Affiliates or Licensees or the Foundation of any Licensed Antibody or Product, or (d) the use by Arsanis or its Affiliates or Licensees or the Foundation of any Excluded Technology; except, in each case, to the extent such Losses result from (i) [**].

8.3 Indemnification Procedures. The obligation of a Party (the "**Indemnifying Party**") under Section 8.1 *(Indemnification By Adimab)* or Section 8.2 *(Indemnification By Arsanis*) (as applicable) to Indemnify the other Party (the "**Indemnified Party**") and its associated indemnitees – *i.e.,* the Adimab Indemnitees or Arsanis Indemnitees, as applicable (the "**Indemnitees**") – is conditioned on: (a) the Indemnified Party providing the Indemnifying Party prompt written notice of any Third-Party Claim giving rise to an indemnification obligation hereunder, (b) the Indemnified Party and its Indemnitees permitting the Indemnifying Party to assume direction and control of the defense of the Third-Party Claim (including the right to settle the Third-Party Claim solely for monetary consideration) using counsel reasonably satisfactory to the Indemnified Party, (c) the Indemnified Party and its Indemnitees cooperating as requested (at the expense of the Indemnifying Party) in the defense of the Third-Party Claim, and (d) the Indemnified Party and its Indemnitees not compromising or settling such Third-Party Claim without the Indemnifying Party's prior written consent. The Indemnifying Party shall not agree to any settlement of such Third-Party Claim or consent to any judgment in respect thereof that does not include a complete and unconditional release of the Indemnified Party and its Indemnitees from all liability with respect thereto, that imposes any liability or obligation on the Indemnified Party or its Indemnitees or that acknowledges fault by the Indemnified Party or any Indemnitee, without the prior written consent of the Indemnified Party or such Indemnitee, as applicable. If the Parties cannot agree as to the application of the foregoing Sections 8.1 *(Indemnification by Adimab)* and 8.2 *(Indemnification by Arsanis),* each may conduct separate defenses of the Third-Party Claim, and each Party reserves the right to claim indemnity from the other in accordance with this Article 8 (*Indemnification*) upon the resolution of the underlying Third-Party Claim.

ARTICLE 9

TERM; TERMINATION.

9.1 Term. The term (the "**Term**") of this Agreement shall commence on the Effective Date and, unless this Agreement is earlier terminated as set forth below in this Article 9 (*Term; Termination*), shall expire upon (a) the expiration of the Evaluation Term in the event that the Option is not exercised prior to expiration of the Evaluation Term; or (b) in the event that the Option is exercised, on the expiration of the last-to-expire Royalty Term for any and all Products. Upon expiration of the Term pursuant to clause (b) of this Section 9.1 (*Term*), the License shall become royalty-free, fully-paid, irrevocable and perpetual.

9.2 Termination for Material Breach.

(a) Material Breach Other Than Breach of Diligence Obligation. Subject to Section 9.2(c) *(Dispute Regarding Breach),* and except in the case of a material breach covered by Section 9.2(b) (*Material Breach of Diligence Obligations),* each Party shall have the right, in the event of material breach of this Agreement by the other Party, to terminate this Agreement upon written notice to the other Party if such other Party is in material breach of this

Agreement and has not cured such breach within [**] days (or [**] days with respect to any payment breach) after notice from the terminating Party requesting cure of the breach. Any such termination shall become effective at the end of such [**] day period (or [**] day period with respect to any payment breach) unless the breaching Party has cured such breach prior to the end of such period. Notwithstanding the foregoing or Section 9.5 (*Effect of Expiration or Termination*) to the contrary, but without limiting Adimab's rights under Section 9.2(b) (*Material Breach of Diligence Obligations*), after initiation of the first clinical trial of a Product, Adimab may not terminate this Agreement pursuant to this Section 9.2(a) (Material Breach Other Than Breach of Diligence Obligations), except in the case of uncured material payment breach by Arsanis, but for clarity, Adimab may pursue any and all remedies that may be available to it at law or in equity as a result of such breach by Arsanis.

(b) Material Breach of Diligence Obligation. If Adimab in good faith believes that Arsanis has failed to comply with its obligations under Section 3.5 *(Diligence),* Adimab shall so notify Arsanis and, within [**] days thereafter, Arsanis and Adimab will meet and discuss the matter in good faith and attempt to reach mutual agreement as to whether or not Arsanis is in material breach of Section 3.5 *(Diligence)* and, if so, to agree upon a mutually acceptable plan for Arsanis to regain compliance with Section 3.5 *(Diligence)* within a reasonable period. Following such meeting, if either (i) the Parties do not reach mutual agreement within such [**] day period, or (ii) the Parties mutually agree on a plan for Arsanis to regain compliance with Section 3.5 (*Diligence*) but Arsanis fails to regain such compliance within the agreed period, then subject to Section 9.2(c) (*Dispute Regarding Breach)* below, Adimab will have the right, at its sole discretion, to terminate this Agreement.

(c) Dispute Regarding Breach. Any right to terminate this Agreement under this Section 9.2 (*Termination For Material Breach*) shall be stayed and the cure period tolled in the event that, during any cure period, the Party alleged to have been in material breach shall have initiated dispute resolution in accordance with Section 10.4 (*Dispute*) with respect to the alleged breach, which stay and tolling shall continue until such dispute has been resolved in accordance with Section 10.4 (Dispute).

9.3 Termination for Convenience. Arsanis may terminate this Agreement for any reason or for no reason upon sixty (60) days' written notice to Adimab.

9.4 Commitments Regarding RSV Antibodies. The Parties agree that if Arsanis or any of its Licensees develops or commercializes any RSV Antibody or Product, then Arsanis shall pay to Adimab the fees set forth in Article 4 *(Financial Terms),* including the Option Fee (if not previously paid), Milestone Payments and Royalty Payments, as applicable, on all RSV Antibodies developed or commercialized by Arsanis or any of its Licensees as (or as if) a Product under this Agreement. Arsanis shall include in each Licensee Agreement an obligation on the part of the applicable Licensee, in the event that Arsanis is unwilling or unable to pay to Adimab any Milestone Payments and Royalty Payments that become due hereunder with respect to RSV Antibodies developed or commercialized by such Licensee (because, for example, of the dissolution of Arsanis for bankruptcy or other reasons), to make such payments directly to Adimab; *provided, however*, that: (a) if such Licensee achieves a Milestone Event for which a Milestone Payment is payable by Arsanis hereunder and pays to Arsanis a milestone payment with respect to such Milestone Event, but Arsanis fails to remit to Adimab the corresponding

Milestone Payment, then such Licensee shall have no liability to Adimab for such Milestone Payment; and (b) if such Licensee pays royalties to Arsanis on particular Net Sales of Products by such Licensee, but Arsanis fails to remit to Adimab the corresponding Royalty Payment with respect to those Net Sales, then such Licensee shall have no liability to Adimab for such Royalty Payment.

9.5 Effect of Expiration or Termination.

(a) Any Termination. Upon any termination of this Agreement prior to its expiration, all licenses and rights granted by either Party to the other Party pursuant to this Agreement (including the Research License, the Option and the License) shall automatically terminate and revert to the granting Party, and all other rights and obligations of the Parties under this Agreement shall terminate; in each case, except as expressly provided below in this Section 9.5 *(Effect of Expiration or Termination)* or elsewhere in this Article 9 *(Term; Termination)*.

(b) Expiration Without Option Exercise, or Termination by Adimab For Material Breach or by Arsanis For Convenience. Solely in the event of expiration of this Agreement pursuant to clause (a) of Section 9.1 *(Term),* or termination of this Agreement by Adimab pursuant to Section 9.2 *(Termination for Material Breach),* or by Arsanis pursuant to Section 9.3 *(Termination for Convenience),* the following provisions shall apply, subject, in all cases, to Section 9.5(c) (*Survival of Licensee Agreements)* and Section 9.5(d) *(Foundation Rights):*

(i) Termination of Licenses. As applicable:

(1) Prior to Option Exercise. In the case of expiration of this Agreement pursuant to clause (a) of Section 9.1 (Term), or termination of this Agreement during the Evaluation Term either by Adimab pursuant to Section 9.2 (Termination for Material Breach) or by Arsanis pursuant to Section 9.3 (Termination for Convenience), the Research License and the Option shall terminate and be of no further force or effect.

(2) After Option Exercise. In the case of or termination of this Agreement during the Post-Exercise Term either by Adimab pursuant to Section 9.2 (Termination for Material Breach) or by Arsanis pursuant to Section 9.3 (Termination for Convenience):

(A) Termination But For Fully-Paid Products. The License shall terminate and be of no further force or effect; *provided, however,* that if the License with respect to a particular Product in a particular country had become royalty-free, fully-paid, irrevocable and perpetual by virtue of the expiration of the Royalty Term for such Product in such country prior to such termination (such Product in such country, a "Fully-Paid Product"), then the License with respect to such Fully-Paid Product shall survive such termination; and

(B) Assignment of RSV Antibody Patents. Effective as of such termination, Arsanis shall, and it hereby does, assign to Adimab all right, title and interest in and to all RSV Antibody Patents;

(ii) Adimab Materials and RSV Antibodies. Within [**] days after such termination, Arsanis shall (1) either return to Adimab or destroy (at Adimab's direction and expense) all Adimab Materials and all Adimab RSV Antibodies remaining in the possession of Arsanis (other than Fully-Paid Products), and (2) except as otherwise mutually agreed by the Parties in writing, destroy all quantities of Arsanis Derived Antibodies in the possession of Arsanis (other than Fully-Paid Products);

(iii) Non-Exclusive Unblocking License to Adimab. Effective as of such termination, Arsanis shall, and it hereby does, grant to Adimab, a non-exclusive, worldwide, royalty-free, fully-paid license, with the right to sublicense through multiple tiers, under Blocking Arsanis Patents solely to make, have made, use, sell, have sold, offer for sale and import Adimab RSV Antibodies and products comprising or containing Adimab RSV Antibodies (but excluding Fully-Paid Products, if any) in the Field. For clarity, the sole purpose of the license that may be granted pursuant to this Section 9.5(b)(iii) (*Non-Exclusive Unblocking License to Adimab*) is to provide Adimab with freedom to operate under Blocking Arsanis Patents solely with respect to the manufacture, use, sale, offer for sale and import of Adimab RSV Antibodies and products comprising or containing Adimab RSV Antibodies (excluding Fully-Paid Products) in the Field, and this Section 9.5(b)(iii) (*Non-Exclusive Unblocking License to Adimab*) does not, and shall not be construed to, obligate Arsanis to disclose any Blocking Arsanis Patent or the Arsanis Invention(s) claimed therein to Adimab;

(iv) Right of Negotiation for Exclusive License and Product Transfer to Adimab. Effective as of such termination, Arsanis shall, and it hereby does, grant to Adimab, a right of first negotiation, exercisable within [**] days after termination, to obtain, upon commercially reasonable terms and conditions to be negotiated in good faith by the Parties:

(1) Exclusive License. An exclusive, worldwide, royalty-bearing license, with the right to sublicense through multiple tiers, under the Blocking Arsanis Patents, Other Arsanis Patents and Arsanis Know-How, in each case, solely to develop, make, have made, use, sell, have sold, offer for sale and import RSV Antibodies and Products (excluding Fully-Paid Products) in the Field; *provided, however*, that, to the extent that Blocking Arsanis Patents, Other Arsanis Patents or Arsanis Know-How includes Patents or Know-How licensed to Arsanis by a Third Party that is subject to royalty or milestone payment obligations to such Third Party with respect to any RSV Antibody or Product, then Arsanis shall so notify Adimab, together with a true, complete and correct description of such royalty and milestone payment obligations, and the inclusion of such Patents or Know-How in the Blocking Arsanis Patents, Other Arsanis Patents or Arsanis Know-How (as applicable) shall be subject to Adimab's agreeing in writing to pay, and promptly paying, all royalty and milestone payments that become due to such Third Party by reason of the development, manufacture, use, sale, offer for sale or import of RSV Antibodies and Products by or on behalf of Adimab or its Affiliates, licensees or sublicensees (in addition to the mutually agreed compensation payable to Arsanis for the grant of rights described in this Section 9.5(b)(iv) (*Exclusive Unblocking License and Regulatory Transfer to Adimab))*;

(2) Regulatory Filings and Approvals. The transfer and assignment to Adimab of all Arsanis Regulatory Filings, including INDs and NDAs, and all Arsanis Approvals, including Marketing Approvals, in each case for RSV Antibodies and Products (other than Fully-Paid Products) in the Field controlled by Arsanis or any of its Affiliates; and

(3) Other Transfers. The transfer and assignment or sublicense of such other elements as may be necessary or useful for Adimab to continue the development and commercialization of RSV Antibodies and Products as conducted by Arsanis prior to such termination, including, for example, transferring (to the extent requested by Adimab) formal relationships with manufacturing organizations, patient groups and payors that, in each case, are specific to RSV Antibodies and Products, as well as other Product-specific items such as pharmacovigilance databases, and data related to indication, use, risks, and benefits.

(v) Prohibition on Further Use. Arsanis and its Affiliates shall not, and shall not grant any license or other right to, or otherwise cause or permit, any Third Party to, develop, manufacture or commercialize any RSV Antibody or Product (other than Fully-Paid Products).

(c) Survival of License Agreements. In the event that (i) Arsanis has entered into a Licensee Agreement consistent with the terms of this Agreement (including the provisions of Section 3.2 (*Licensees and Sublicensees))*, (ii) this Agreement is terminated, and (iii) such Licensee Agreement is in effect at the time of such termination, then such Licensee Agreement will survive such termination of this Agreement; *provided, however*, that the Licensee assumes all of Arsanis' obligations hereunder with respect to the Licensed Antibodies and Products covered by such Licensee Agreement (including those obligations set forth in Section 3.5 (*Diligence*), Section 3.7 (*Disclosure Regarding Arsanis Efforts*), and Section 9.4 (*Commitments Regarding RSV Antibodies*), and pays to Adimab all amounts that would have been due to Adimab from Arsanis as a result of Licensee's activities (including those obligations set forth in Article 4 (*Financial Terms*)).

(d) Foundation Rights. Notwithstanding any other provision of this Agreement to the contrary, the Parties acknowledge and agree that any and all Foundation Rights that have accrued or become effective prior to any expiration of this Agreement pursuant to clause (a) of Section 9.1 *(Term)* or the effective date of any termination of this Agreement prior to its expiration pursuant to clause (b) of Section 9.1 *(Term)* shall survive such expiration or termination of this Agreement and remain in full force and effect in accordance with the terms of the Grant Documents. Adimab further acknowledges and agrees that, to the extent that (i) the RSV Antibody Patents are assigned back to Adimab, (ii) the Evaluation Term Patents (if any) are assigned to Adimab, (iii) Evaluation Term Data and Sequence information for Arsanis Derived Antibodies created during the Evaluation Term are disclosed to Adimab, and/or (iv) any Blocking Arsanis Patents, Other Arsanis Patents or Arsanis Know-How are licensed to Adimab, the foregoing shall remain subject to the Foundation Rights to the same extent as they were immediately prior to such expiration or termination, and Adimab shall be bound by the Global Access Commitment with respect thereto.

9.6 Accrued Obligations; Survival. Neither expiration nor any termination of this Agreement shall relieve either party of any obligation or liability accruing prior to such expiration or termination, nor shall expiration or any termination of this Agreement preclude either party from pursuing all rights and remedies it may have under this Agreement, at law or in equity, with respect to breach of this Agreement. In addition, the parties' rights and obligations under Sections 2.9 (*Effect of Expiration of Option Without Exercise*), 3.4 *(Acknowledgment Regarding Arsanis Derived Antibodies*), 3.8 *(Acknowledgment of Foundation Rights*), 4.4 (*Quarterly Payment Timings*) through 4.11 (*Late Payments*) (with respect to payment obligations outstanding or having accrued as the effective date of termination or expiration), 5.1 (*Ownership and Inventorship*), 5.2 (*Assignment*), 6.1 (*General Confidentiality Obligations*), 6.2 (*Exclusions from Nondisclosure Obligation*), 6.3 (*Authorized Disclosures*), 6.4 (*Terms of Agreement*), 6.5 *(Return of Confidential Information*), 6.7 *(Certain Data*), 7.3 (*Disclaimer of Warranties*), 7.4 *(Limitation of Liability*), 9.4 *(Commitments Regarding RSV Antibodies*), 9.5 *(Effect of Expiration or Termination*) and 9.6 *(*Accrued Obligations; Survival), and Articles 1 (*Definitions*), 8 (*Indemnification*) and 10 (*Miscellaneous*) shall survive any expiration or termination of this Agreement.

ARTICLE 10

MISCELLANEOUS.

10.1 No Implied Licenses. No right or license under any Patent, Know-How or other intellectual property of either Party is granted or shall be deemed to have been granted under this Agreement by implication. All such rights or licenses are or shall be granted only as expressly provided in this Agreement.

10.2 Bankruptcy Code. All rights and licenses granted under or pursuant to this Agreement are, and shall otherwise be deemed to be, for purposes of Section 365(n) of Title 11 of the United States Code and other similar laws in any jurisdiction outside the US (collectively, the "**Bankruptcy Laws**"), licenses of rights to be "intellectual property" as defined under the Bankruptcy Laws. If a case is commenced during the Term by or against a Party under Bankruptcy Laws then, unless and until this Agreement is rejected as provided in such Bankruptcy Laws, such Party (in any capacity, including debtor-in-possession) and its successors and assigns (including a trustee) shall perform all of the obligations provided in this Agreement to be performed by such Party. If a case is commenced during the Term by or against a Party under the Bankruptcy Laws, this Agreement is rejected as provided in the Bankruptcy Laws and the other Party elects to retain its rights hereunder as provided in the Bankruptcy Laws, then the Party subject to such case under the Bankruptcy Laws (in any capacity, including debtor-in-possession) and its successors and assigns (including a Title 11 trustee), shall provide to the other Party copies of all Information necessary for such other Party to prosecute, maintain and enjoy its rights under the terms of this Agreement promptly upon such other Party's written request therefor. All rights, powers and remedies of the non-bankrupt Party as provided herein are in addition to and not in substitution for any and all other rights, powers and remedies now or hereafter existing at law or in equity (including the Bankruptcy Laws) in the event of the commencement of a case by or against a Party under the Bankruptcy Laws.

10.3 Independent Contractors. The Parties shall perform their obligations under this Agreement as independent contractors. Nothing contained in this Agreement shall be construed to be inconsistent with such relationship or status. This Agreement and the Parties' relationship in connection with it shall not constitute, create or in any way be interpreted as a joint venture, fiduciary relationship, partnership, or agency of any kind.

10.4 Dispute Resolution.

(a) Initial Dispute Resolution. Subject to Section 10.4(c) (*Court Actions),* either Party may refer any dispute in connection with this Agreement ("**Dispute**") not resolved by discussion of the Alliance Managers to senior executives of the Parties (for Adimab, its CEO or his designee and for Arsanis, its CEO or his designee) for good-faith discussions over a period of not less than [**] days (the "Senior Executives Discussions"). Each Party will make its executives reasonably available for such discussions.

(b) Disputes Not Resolved Between the Parties.

(i) Arbitration. Subject to Section 10.4(c) (*Court Actions*) below, any Dispute that is not resolved under Section 10.4(a) (*Initial Dispute Resolution*) within the period specified above shall be resolved by final and binding arbitration administered by JAMS (the "**Administrator**") in accordance with its then-effective Comprehensive Arbitration Rules and Procedures (the "**Rules**"), except to the extent any such Rule conflicts with the express provisions of this Section 10.4(b) (*Arbitration*). (Capitalized terms used but not otherwise defined in this Agreement shall have the meanings provided in the Rules.) The Arbitration shall be conducted by three (3) neutral arbitrators, each of whom shall be a lawyer with at least fifteen (15) years of experience with a law firm or corporate law department and at least ten (10) years representing (either as outside counsel or in-house counsel) companies in the pharmaceutical or biotechnology industry in connection with licensing transactions; *provided, however*, that no such individual shall be a current or former employee or director, or a current stockholder, of either party or any of their respective Affiliates. Each party shall appoint one arbitrator, and the two so-appointed arbitrators shall jointly nominate the third arbitrator. The arbitration and all associated discovery proceedings and communications shall be conducted in English, and the arbitration shall be held in New York, New York.

(ii) Hearing; Decision. The Hearing shall commence within [**] days after the discovery cutoff. The arbitrators shall require that each party submit concise written statements of position and shall permit the submission of rebuttal statements, subject to reasonable limitations on the length of such statements to be established by the arbitrators. The Hearing shall be no longer than [**] business days in duration. The arbitrators shall also permit the submission of expert reports. The arbitrators shall render the Award within [**] days after the arbitrators declares the Hearing closed, and the Award shall include a written statement describing the essential findings and conclusions on which the Award is based, including the calculation of any damages awarded. The arbitrators will, in rendering their decision, apply the substantive law of the State of New York, excluding its conflicts of laws principles with the exception of sections 5-1401 and 5-1402 of New York General Obligations Law. The arbitrators' authority to award special, incidental, consequential or punitive damages shall be subject to the limitation set forth in Section 7.4 *(Limitations on Liability)*. The Award rendered by the arbitrators shall be final, binding and non-appealable, and judgment may be entered upon it in any court of competent jurisdiction.

(iii) Costs. Each Party shall bear its own costs and expenses and attorneys' fees and an equal share of the arbitrators' fees and any administrative fees or arbitration, unless in each case the arbitrators order otherwise, which they are hereby empowered, authorized and instructed to do if they determine that to be fair and appropriate.

(iv) Confidentiality of Process and Awards. Except to the extent necessary to confirm an award or as may be permitted by Section 6.3 (*Authorized Disclosures*) or Section 6.6(a) (*Press Releases*), neither Party shall disclose the existence, content or results of an arbitration under this Agreement without the prior written consent of the other Party.

(**v) Statute of Limitations**. In no event shall an arbitration be initiated after the date when commencement of a legal or equitable proceeding based on the subject matter of the Dispute would be barred by the applicable statute of limitations under New York law.

(c) Court Actions. Nothing contained in this Agreement shall deny either Party the right to seek injunctive or other equitable relief from a court of competent jurisdiction in the context of a bona fide emergency or prospective irreparable harm, and such an action may be filed and maintained notwithstanding any ongoing discussions between the Parties or any ongoing arbitration proceeding. In addition, either Party may bring an action in any court of competent jurisdiction to resolve disputes pertaining to the validity, construction, scope, enforceability, infringement or other violations of Patents or other intellectual property rights, and no such claim shall be subject to arbitration pursuant to Section 10.4(b) (*Disputes Not Resolved Between the Parties*).

10.5 Governing Law. This Agreement shall be governed by and interpreted in accordance with the laws of the State of New York, excluding its conflicts of laws principles with the exception of sections 5-1401 and 5-1402 of New York General Obligations Law.

10.6 Entire Agreement. This Agreement (including its Exhibits) set forth all the covenants, promises, agreements, warranties, representations, conditions and understandings between the Parties with respect to the subject matter hereof and supersedes and terminates all prior agreements and understandings between the Parties with respect to such subject matter. No subsequent alteration, amendment, change or addition to this Agreement shall be binding upon the Parties unless reduced to writing and signed by the respective authorized officers of the Parties.

10.7 Assignment. Except as expressly provided hereunder, neither this Agreement nor any rights or obligations hereunder may be assigned or otherwise transferred by either Party without the prior written consent of the other Party (which consent shall not be unreasonably withheld); *provided, however,* that:

(a) either party may assign this Agreement and its rights and obligations hereunder without the other party's consent:

(i) in connection with the transfer or sale of all or substantially all of the business of such party to which this Agreement relates to a Third Party ("**Third Party Acquirer**"), whether by merger, sale of stock, sale of assets or otherwise (each, a "**Sale Transaction**"); *provided, however*, that in the event of a Sale Transaction (whether this Agreement is actually assigned or is assumed by the Third Party Acquirer or the surviving corporation resulting from such Sale Transaction by operation of law (*e.g.*, in the context of a reverse triangular merger)), intellectual property rights of the Third Party Acquirer that existed prior to the Sale Transaction shall not be included in the technology licensed or assigned hereunder or otherwise subject to this Agreement; or

(ii) to an Affiliate; *provided, however*, that the assigning party shall remain liable and responsible to the non-assigning party hereto for the performance and observance of all such duties and obligations by such Affiliate; and

(b) Adimab may assign or transfer its rights to receive payments under this Agreement (but none of its obligations or liabilities), without Arsanis' consent, to an Affiliate or to a Third Party in connection with the sale of, monetization of, transfer of, or obtaining financing on the basis of the payments due to Adimab under this Agreement or debt or project financing in connection with this Agreement.

This Agreement shall be binding upon and shall inure to the benefit of the Parties and their respective successors and permitted assigns. Any assignment of this Agreement not made in accordance with this Agreement is prohibited hereunder and shall be null and void.

10.8 Severability. If one or more of the provisions in this Agreement are deemed unenforceable by law, then such provision shall be deemed stricken from this Agreement and the remaining provisions shall continue in full force and effect, and the Parties shall substitute for the unenforceable provision an enforceable provision that conforms as nearly as possible with the original intent of the Parties.

10.9 Force Majeure. A Party shall be excused from liability for the failure or delay in performance of such Party's obligations under this Agreement to the extent that such performance is prevented by a Force Majeure. Such excuse from liability shall be effective only to the extent and duration of the Force Majeure event(s) causing the failure or delay in performance. The affected Party shall notify the other Party of such Force Majeure event(s) as soon as reasonably practicable and shall use reasonable efforts to resume performance of its obligations under this Agreement as soon as reasonably practicable.

10.10 Notices. Any notice required or permitted to be given under this Agreement shall be in writing, shall specifically refer to this Agreement and shall be deemed to have been sufficiently given for all purposes if mailed by first class certified or registered mail, postage prepaid, delivered by express delivery service or personally delivered. Unless otherwise specified in writing, the mailing addresses of the Parties shall be as described below.

If to Adimab:

Adimab, LLC
7 Lucent Drive
Lebanon, NH 03766
Attention: General Counsel

with a required copy to:

Attention: Head, Business Development at the same address.

In the case of Arsanis:

Arsanis Inc.
890 Winter Street
Suite 230
Waltham, MA 02451-1472
Attention: CEO

10.11 Construction. This Agreement has been prepared jointly and shall not be strictly construed against either Party. Ambiguities, if any, in this Agreement shall not be construed against any Party, irrespective of which Party may be deemed to have authored the ambiguous provision.

10.12 Headings. The headings for each Article and Section in this Agreement have been inserted for convenience of reference only and are not intended to limit or expand on, nor to be used to interpret, the meaning of the language contained in the particular Article or Section.

10.13 No Waiver. Any delay in enforcing a Party's rights under this Agreement or any waiver as to a particular default or other matter shall not constitute a waiver of such Party's rights to the subsequent enforcement of its rights under this Agreement, excepting only as to an express written and signed waiver as to a particular matter for a particular period of time executed by an authorized officer of the waiving Party.

10.14 Performance by Affiliates. A Party may perform some or all of its obligations under this Agreement through Affiliate(s) or may exercise some or all of its rights under this Agreement through Affiliates. However, each Party shall remain responsible and be guarantor of the performance by its Affiliates and shall cause its Affiliates to comply with the provisions of this Agreement in connection with such performance as if such Party were performing such obligations itself, and references to a Party in this Agreement shall be deemed to also reference such Affiliate. In particular and without limitation, all Affiliates of a Party that receive Confidential Information of the other Party pursuant to this Agreement shall be governed and bound by all obligations set forth in Article 6 *(Confidentiality; Publicity),* and shall (to avoid doubt) be subject to the intellectual property assignment and other intellectual property provisions of Article 5 *(Intellectual Property)* as if they were the original Party to this Agreement (and be deemed included in the actual Party to this Agreement for purposes of all intellectual property-related definitions).

10.15 Counterparts. This Agreement may be executed in one or more identical counterparts, each of which shall be deemed to be an original, and which collectively shall be deemed to be one and the same instrument. In addition, signatures may be exchanged by facsimile or PDF.

[*Remainder of Page Left Intentionally Blank; Signature Page Follows*]

IN WITNESS WHEREOF, the Parties have by duly authorized persons executed this Agreement to be effective as of the Effective Date.

ARSANIS INC.:	**ADIMAB, LLC:**
By: /s/ Michael P. Gray	By: /s/ Tillman Gerngross
Title: Chief Financial Officer	Title: Tillman Gerngross
Date: February 24, 2017	Date: 2/25/2017

EXHIBITS LIST

A –ADIMAB RSV ANTIBODIES

B –RSV ANTIBODY PATENTS

C –PRESS RELEASE

EXHIBIT A

Adimab RSV Antibodies

Confidential Materials omitted and filed separately with the Securities and Exchange Commission. A total of 3 pages were omitted. [**]

Exhibit B

RSV Antibody Patents

[**]

EXHIBIT C

Press Release

DRAFT- NOT FOR IMMEDIATE RELEASE

Arsanis and Adimab Enter Into License Agreement to Target Respiratory Syncytial Virus (RSV) With Monoclonal Antibodies

Arsanis awarded up to $9.3 million from the Bill & Melinda Gates Foundation to advance RSV antibody program towards the clinic

WALTHAM, MA., US, VIENNA, Austria, and LEBANON, NH., US – [February __, 2017] – Arsanis, Inc., a clinical-stage biopharmaceutical company developing targeted monoclonal antibodies for pre-emptive and post-infection treatment of serious infectious diseases, and Adimab, LLC, the global leader in the discovery and optimization of fully human monoclonal and bispecific antibodies, announced today they have entered into an agreement under which Arsanis has secured the exclusive, worldwide license to antibodies targeting respiratory syncytial virus (RSV) that were discovered by Adimab. Arsanis will initially focus on the selection of a lead RSV antibody candidate and has received a grant of up to $9.3 million from the Bill & Melinda Gates Foundation to advance the selected antibody to IND filing.

“Arsanis’ partnerships with Adimab and the Gates Foundation will allow us to apply our deep expertise in the discovery and development of anti-infective antibodies to advance highly potent human monoclonal antibodies for the prevention of RSV infection,” said Rene Russo, Pharm.D., BCPS, President and Chief Executive Officer, Arsanis. “We believe this approach has the potential to address a significant global need for effective and accessible RSV therapeutics in both developed and developing countries.”

Under the agreement with Adimab, Arsanis has exclusively licensed a panel of RSV antibodies for the purpose of evaluating and selecting the best therapeutic leads under an exclusive global development and commercialization license. Adimab will be entitled to receive license fees and development milestones, as well as a royalty on net sales.

“We are very pleased that Arsanis and the Gates Foundation are collaborating on this important program. Through our B cell isolation approach, Adimab has identified highly potent antibodies against a number of infectious disease targets. The RSV antibodies licensed to Arsanis include some of the most potent RSV neutralizers reported to date,” said Guy Van Meter, VP of Business Development at Adimab. “This new agreement expands an already successful relationship with Arsanis, under which Arsanis’ lead program ASN100 for *S. aureus* pneumonia, currently in a Phase 2 clinical study, was discovered.”

About Respiratory Syncytial Virus (RSV)

RSV is a highly contagious virus that causes infections in both the upper and lower respiratory tract. RSV infects nearly every child at least once by the age of two years and is a major cause of hospitalization due to respiratory infection in children, the elderly, and immunocompromised patients. RSV infection typically results in cold-like symptoms but can lead to more serious respiratory illnesses such as croup, pneumonia, bronchiolitis, and in extreme cases, death. RSV infection in the pediatric and adult populations account for more than 300,000 hospitalizations per year in the U.S. In the developing world, RSV is responsible for 30 million cases of acute respiratory tract infection and 200,000 deaths per year. As a result, there is a significant need for novel therapeutics to prevent RSV infection.

About Arsanis, Inc.

Arsanis is a clinical-stage biotechnology company leading the development of targeted monoclonal antibodies (mAbs) for pre-emptive therapy and treatment of serious infectious diseases. The company's current programs address pathogenic processes selectively, aiming to preserve the healthy microbiome and potentially allowing Arsanis to address critical infections without contributing to the problem of resistance. The company is building a broad product pipeline addressing the most important infectious diseases that threaten patients globally. Its lead clinical program, ASN100, is aimed at serious *Staphylococcus aureus* infections and is being evaluated in a Phase 2 clinical study for the prevention of *S. aureus* pneumonia in high-risk patients.

Arsanis is a U.S. company headquartered in Waltham, Massachusetts, with European research and preclinical development operations headquartered in Vienna, Austria (Arsanis Biosciences GmbH). For more information, please visit the Arsanis website at www.arsanis.com.

About Adimab

Adimab has established antibody discovery collaborations with many leading pharmaceutical companies, such as Merck, Novo Nordisk, Biogen, GSK, Roche, Novartis, Eli Lilly, Genentech, Celgene, Gilead, Kyowa Hakko Kirin, Takeda and Sanofi. In addition, Adimab has partnered with several smaller publicly traded companies, such as Acceleron, Merrimack Pharmaceuticals, Kite, Five Prime, as well as leading venture-backed companies including Jounce, Mersana, Alector, Surface Oncology, Potenza, Tizona, Tusk and several academic institutions such as Memorial Sloan Kettering and MD Anderson. The Adimab antibody discovery and optimization platform has also been internalized by several large pharma partners; *Adi-inside* partners include Merck, Novo Nordisk, Biogen and GSK.

Adimab's integrated antibody discovery and optimization platform provides unprecedented speed from antigen to purified, full-length human IgGs. Adimab offers fundamental advantages by delivering diverse panels of therapeutically relevant antibodies that meet the most aggressive standards for affinity, epitope coverage, species cross-reactivity and developability. Adimab enables its partners to rapidly expand their biologics pipelines through a broad spectrum of technology access arrangements. For more information, please visit the Adimab website at http://www.adimab.com.

Arsanis Contacts:

Media Contact:
Ten Bridge Communications
Krystle Gibbs
krystle@tenbridgecommunications.com, 508-479-6358

Investor Contact:
Michael Gray
Chief Financial and Chief Business Officer
mike.gray@arsanis.com, 781-819-5201

Adimab Contact:
Guy Van Meter
Vice President, Business Development
Guy.vanmeter@adimab.com, 603-653-5775

Confidential Materials omitted and filed separately with the
Securities and Exchange Commission. Double asterisks denote omissions.

GRANT AGREEMENT
Investment ID OPP1170296

AGREEMENT SUMMARY & SIGNATURE PAGE

GRANTEE INFORMATION

Name:	Arsanis, Inc
Tax Status:	Not exempt from federal income tax under U.S. IRC § 501(c)(3) You confirm that the above information is correct and agree to notify the Foundation immediately of any change.
Expenditure Responsibility:	This Agreement is subject to "expenditure responsibility" requirements under the U.S. Internal Revenue Code.
Mailing Address:	890 Winter Street Suite 230 Waltham, MA 02451-1472 United States
Primary Contact:	[**]

FOUNDATION INFORMATION

Mailing Address:	P. O. Box 23350, Seattle, WA 98102, U.S.A.
Primary Contact:	[**]

AGREEMENT INFORMATION

Title:	Respiratory Syncytial Virus (RSV) Program Proposal
"Charitable Purpose":	To fund pre-clinical development of monoclonal antibodies (mAbs) for the prevention of respiratory syncytial virus (RSV) infection in newborns
"Start Date":	Date of last signature
"End Date":	August 31, 2019
This Agreement includes and incorporates by this reference:	This Agreement Summary & Signature Page and: • Grant Amount and Reporting & Payment Schedule (Attachment A) • Terms and Conditions (Attachment B) • List of Developing Countries (Attachment C) • Project Information (Submitted January 13, 2017) • Project Plan (date submitted February 8, 2017) • Budget (date submitted February 3, 2017)

THIS AGREEMENT is between Arsanis, Inc ("*You*" or "*Grantee*") and the Bill & Melinda Gates Foundation ("*Foundation*"), and is effective as of the date of last signature. Each party to this Agreement may be referred to individualy as a *"Party"* and together as the "*Parties.*" As a condition of this grant, the Parties enter into this Agreement by having their authorized representatives sign below.

BILL & MELINDA GATES FOUNDATION

/s/ Trevor Mundel

By: Trevor Mundel
Title: President of Global Health
Date February 10, 2017

ARSANIS, INC

/s/ Mike Gray

By: Mike Gray
Title: Chief Financial and Chief Business Officer
Date February 20, 2017

GRANT AGREEMENT
Investment ID OPP1170296

ATTACHMENT A
GRANT AMOUNT AND REPORTING & PAYMENT SCHEDULE

GRANT AMOUNT

The Foundation will pay You up to the total grant amount specified in the Reporting & Payment Schedule below. The Foundation's Primary Contact must approve in writing any Budget cost category change of more than [**]%.

REPORTING & PAYMENT SCHEDULE

For the avoidance of doubt, the Foundation will make the first payment in full subject to the applicable milestone and compliance with this Agreement, but the subsequent payment is an "up to" amount and may be reduced in the Foundation's discretion based on its assessment of Your completion of, or progress against, targets and milestones.

REPORTING

You will submit reports according to the Reporting & Payment Schedule using the Foundation's templates or forms, which the Foundation will make available to You and which may be modified from time to time. For a progress or final report to be considered satisfactory, it must demonstrate meaningful progress against the targets or milestones for that investment period. If meaningful progress has not been made, the report should explain why not and what adjustments You are making to get back on track. Please notify the Foundation's Primary Contact if You need to add or modify any targets or milestones. The Foundation must approve any such changes in writing. You agree to submit other reports the Foundation may reasonably request.

REPORTING & PAYMENT SCHEDULE

Investment Period	*Milestone or Reporting Deliverable*	*Due By*	*Payment Date*	*Payment Amount (U.S.$)*
	Countersigned Grant Agreement	March 1, 2017		
	Confirmation of execution of Option Agreement enabling access to IP for the Project and consistent with Global Access and this Agreement	Within [**] days after Countersigned Grant Agreement	Within [**] days after receipt Confirmation of Option Agreement	$[**]
Start date to End Date	Quarterly Financial & Progress Updates	Quarterly		

	Global Access Strategy satisfactory to the Foundation **Updated Financial Statements** **Product Development Summary and Status** **Candidate Target Product Profile Revised Budget, including Sub-award Budget** [**]	[**]	[**]	Up to $[**]
[**]	[**]	[**]		
[**]	[**] [**] [**]	[**] [**] [**]	[**]	[**]
Start Date through End Date	Final Report	Within [**] days of End Date		
Total Grant Amount				**Up to $9,330,878**

GO/NO-GO MILESTONE(S)

You will provide the results of the "go/no-go" milestone(s) identified in the Reporting & Payment Schedule by the applicable due date. During the course of the project The Foundation will then determine, in its sole discretion, whether to provide continued funding under this Agreement. If the Foundation determines that it will not continue funding, the Foundation will terminate this Agreement in accordance with its terms.

ATTACHMENT B
TERMS & CONDITIONS

This Agreement is subject to the following terms and conditions.

PROJECT SUPPORT

PROJECT DESCRIPTION AND CHARITABLE PURPOSE

The Foundation is awarding You this grant to carry out the project described in the Project Plan and Project Information Sheet (collectively, "*Project*") in order to further the Charitable Purpose.

MANAGEMENT OF FUNDS

USE OF FUNDS

You may not use funds provided under this Agreement ("'*Grant Funds*") for any purpose other than the Project. You may not use Grant Funds to reimburse any expenses You incurred prior to the Start Date.

INVESTMENT OF FUNDS

You must invest Grant Funds in highly liquid investments with the primary objective of preservation of principal (e.g., interest-bearing bank accounts or a registered money market mutual fund) so that the Grant Funds are available for the Project. Together with any progress or final reports required under this Agreement, You must report the amount of any currency conversion gains (or losses) and the amount of any interest, or other income generated by the Grant Funds (collectively, "*Income*"). Any Income must be used for the Project.

GLOBAL ACCESS

GLOBAL ACCESS COMMITMENT

You will conduct and manage the Project and the Funded Developments in a manner that ensures Global Access. Your Global Access commitments will survive the term of this Agreement. "*Funded Developments*" means the products, services, processes, technologies, materials, software, data, other innovations, and intellectual property resulting from the Project (including modifications, improvements, and further developments to Background Technology). "*Background Technology*' means any and all products, services, processes, technologies, materials, software, data, or other innovations, and intellectual property created by You or a third party prior to or outside of the Project used as part of the Project. "*Global Access*" means: (a) the knowledge and information gained from the Project will be promptly and broadly disseminated; and (b) the Funded

Developments will be made available and accessible at an affordable price (i) to people most in need within developing countries, or (ii) in support of the U.S. educational system and public libraries, as applicable to the Project.

GLOBAL ACCESS MILESTONES

To further define Your Global Access commitments, You are required to complete a Global Access Strategy and any other Global Access activities and documentation listed in the Reporting & Payment Schedule. The Global Access Strategy should address the following concepts with respect to all Funded Developments: (a) identification of Background Technology at the outset and during the Project and specific strategies to ensure access to such Background Technology; (b) agreements and/or procedures for transfers of materials and data among Project Collaborators or third parties relevant to the Project; (c) reporting processes for the creation of Funded Developments to both the Project management team and to the Foundation as well as the publishing and dissemination of the knowledge and information gained from the Project; (d) strategies to secure, manage and allocate intellectual property rights associated with the Funded Developments or Background Technology in a way that ensures Global Access while providing incentives for future potential private sector participation; and (e) anticipated development, commercialization and sustainability strategies during and after the Project to ensure that Global Access can be met.

You may not materially change the plans and strategies contained in any Global Access documents after they have been approved by the Foundation without the Foundation's prior written approval. You will provide the Foundation with updates to the Global Access Strategy during each year of the Project describing any new or modified approaches with respect to Funded Developments and Background Technology, and related agreements, taking into account any new product, technology, and commercialization developments and/or market information. "*Global Access Strategy*" means a written document, subject to the Foundation's approval, describing how You intend to achieve Global Access given the particular circumstances of the Project. "*Project Collaborators*" means all current and future subgrantees, subcontractors, partners, agents, affiliates, or other parties who provides any input to the Project.

LICENSE TO THE FOUNDATION

For the purpose of achieving Global Access, You grant the Foundation a nonexclusive, perpetual, worldwide, royalty-free, fully paid up, sublicensable license to: make, use, sell, offer to sell, import, distribute, copy, modify, create derivative works, publicly perform and display the Funded Developments and any Background Technology incorporated into a Funded Development or required to use a Funded Development for the benefit of people in Developing Countries. In the event You demonstrate to the satisfaction of the Foundation that Global Access can best be achieved without such a license (or a license of different scope), such as by the provision of a Global Access Strategy satisfactory to the Foundation, the Foundation and You will make good faith efforts to modify or terminate this license, as appropriate. As used herein, Developing Countries shall mean any GAVI-eligible countries as described in Attachment C and any GAVI graduating countries (see http://www.gavi.org/country/).

PUBLICATION

For the purpose of achieving Global Access, You will seek prompt publication of any Funded Developments consisting of data and results in a peer-reviewed journal, treatise, or trade publication, as applicable. Publication may be delayed for a reasonable period for the sole purpose of seeking patent protection, provided the patent application is drafted, filed, and managed in a manner that best furthers the Charitable Purpose. You will also use good faith efforts to ensure that Your subgrantees, and subcontractors, agents, and affiliates, as applicable, likewise seek prompt publication of any Funded Developments consisting of data and results.

PUBLICATION IN PEER-REVIEWED JOURNALS

If You seek publication of Funded Developments in a peer-reviewed journal, such publication shall be under "open access" terms and conditions consistent with the Foundation's Open Access Policy available at: www.gatesfoundation.org/How-We-Work/General-Information/Open-Access-Policy, which may be modified from time to time.

INTELLECTUAL PROPERTY REPORTING

During the term of this Agreement and for [**] years after, You will submit upon request annual intellectual property reports related to the Funded Developments, Background Technology, and any related agreements using the Foundation's templates or forms, which the Foundation may modify from time to time.

SUBGRANTS AND SUBCONTRACTS

SUBGRANTS AND SUBCONTRACTS

You have the exclusive right to select subgrantees and subcontractors to assist with the Project.

RESPONSIBILITY FOR OTHERS

You are responsible for (a) all acts and omissions of any of Your trustees, directors, officers, employees, subgrantees, subcontractors, contingent workers, agents, and affiliates assisting with the Project, and (b) ensuring their compliance with the terms of this Agreement.

PROHIBITED ACTIVITIES

ANTI-TERRORISM

You will not use funds provided under this Agreement, directly or indirectly, in support of activities (a) prohibited by U.S. laws related to combatting terrorism; (b) with persons on the List of Specially Designated Nationals (www.treasury.gov/sdn) or entities owned or controlled by such persons; or (c) in or with countries or territories against which the U.S. maintains comprehensive sanctions (currently, Cuba, Iran, (North) Sudan, Syria, North Korea, and the Crimea Region of Ukraine), including paying or reimbursing the expenses of persons from such countries or territories, unless such activities are fully authorized by the U.S. government under applicable law and specifically approved by the Foundation in its sole discretion.

ANTI-CORRUPTION; ANTI-BRIBERY

You will not offer or provide money, gifts, or any other things of value directly or indirectly to anyone in order to improperly influence any act or decision relating to the Foundation or the Project, including by assisting any party to secure an improper advantage. Training and information on compliance with these requirements are available at www.learnfoundationlaw.org.

POLITICAL ACTIVITY AND ADVOCACY

You may not use Grant Funds to influence the outcome of any election for public office or to carry on any voter registration drive. You acknowledge that the Foundation has not earmarked Grant Funds to support lobbying activity or to otherwise support attempts to influence local, state, federal, or foreign legislation. Your strategies and activities, and any materials produced with Grant Funds, must comply with applicable local, state, federal, or foreign lobbying law. You agree to comply with all lobbying, gift, and ethics rules applicable to the Project.

PUBLICITY

PUBLICITY BY THE FOUNDATION

The Foundation may include information about the award of this grant, including Your name, in its periodic public reports and may make such information available on its website and as part of press releases, public reports, speeches, newsletters, tax returns, and other public disclosures.

PUBLICITY BY YOU

You must obtain the Foundation's prior written approval before: (a) issuing a press release or other public announcement regarding this grant; and (b) any other public use of the Foundation's name or logo. Please email Your request to: grantee.comms@.gatesfoundation.org two weeks in advance to provide the Foundation an opportunity to review and comment. Detailed guidelines are available at: www.gatesfoundation.org/grantseeker/documents/guidelines communications for grantees.doc.

PUBLICITY BY OTHERS

You and Your subgrantees, subcontractors, contingent workers, agents, or affiliates may not state or otherwise imply to third parties that the Foundation directly funds or otherwise endorses their activities.

OTHER

COMPLIANCE WITH LAWS

In carrying out the Project, You will comply with all applicable laws, regulations, and rules and will not infringe, misappropriate, or violate the intellectual property, privacy, or publicity rights of any third party.

COMPLIANCE WITH REQUIREMENTS

You will conduct, control, manage, and monitor the Project in compliance with all applicable ethical, legal, regulatory, and safety requirements, including applicable international, national, local, and institutional standards ("*Requirements*"). You will obtain and maintain all necessary approvals, consents, and reviews before conducting the applicable activity. As a part of Your annual progress report to the Foundation, you must report whether the Project activities were conducted in compliance with all Requirements.

If the Project involves:

a. any protected information (including personally identifiable, protected health, or third-party confidential), You will not disclose this information to the Foundation without obtaining the Foundation's prior written approval and all necessary consents to disclose such information;

b. children or vulnerable subjects, You will obtain any necessary consents and approvals unique to these subjects; and/or

c. any trial involving human subjects, You will adhere to current Good Clinical Practice as defined by the International Council on Harmonisation (ICH) E-6 Standards (or local regulations if more stringent) and will obtain applicable trial insurance.

Any activities by the Foundation in reviewing documents and providing input or funding does not modify Your responsibility for determining and complying with all Requirements for the Project.

RELIANCE

You acknowledge that the Foundation is relying on the information You provide in reports and during the course of any due diligence conducted prior to the Start Date and during the term of this Agreement. You represent that the Foundation may continue to rely on this information and on any additional information You provide regarding activities, progress, and Funded Developments.

INDEMNIFICATION

If the Project involves clinical trials, trials involving human subjects, post-approval studies, field trials involving genetically modified organisms, experimental medicine, or the provision of medical/health services ("*Indemnified Activities*"), You will indemnify, defend, and hold harmless the Foundation and its trustees, employees, and agents ("*Indemnified Parties*") from and against any and all demands, claims, actions, suits, losses, damages (including property damage, bodily injury, and wrongful death), arbitration and legal proceedings, judgments, settlements, or costs or expenses (including reasonable attorneys' fees and expenses) (collectively, "*Claims*") arising out of or relating to the acts or omissions, actual or alleged, of You or Your employees, subgrantees, subcontractors, contingent workers, agents, and affiliates with respect to the Indemnified Activities. You agree that any activities by the Foundation in connection with the Project, such as its review or proposal of suggested modifications to the Project, will not modify or waive the Foundation's rights under this paragraph. An Indemnified Party may, at its own expense, employ separate counsel to monitor and participate in the defense of any Claim. Your indemnification obligations are limited to the extent permitted or precluded under applicable federal, state or local laws, including federal or state tort claims acts, the Federal Anti-Deficiency Act, state governmental immunity acts, or state constitutions. Nothing in this Agreement will constitute an express or implied waiver of Your governmental and sovereign immunities, if any.

INSURANCE

You will maintain insurance coverage sufficient to cover the activities, risks, and potential omissions of the Project in accordance with generally-accepted industry standards and as required by law. You will ensure Your subgrantees and subcontractors maintain insurance coverage consistent with this section.

TERM AND TERMINATION

TERM

This Agreement commences on the Start Date and continues until the End Date, unless terminated earlier as provided in this Agreement.

TERMINATION

The Foundation may modify, suspend, or discontinue any payment of Grant Funds or terminate this Agreement if: (a) the Foundation is not reasonably satisfied with Your progress on the Project; (b) there are significant changes to Your leadership or other factors that the Foundation reasonably believes may threaten the Project's success; (c) there is a change in Your control; (d) there is a change in Your tax status; or (e) the Project is no longer aligned with the programmatic strategy; (f) You fail to comply with this Agreement.

RETURN OF FUNDS

Any Grant Funds that have not been used for, or committed to, the Project upon expiration or termination of this Agreement must be returned promptly to the Foundation, applied to another Foundation-funded project (current or under consideration), or applied to another mutually-agreed upon charitable project, as directed in writing by the Foundation. Any Income that has not been used for, or committed to, the Project must be either applied to another Foundation-funded project (current or under consideration) or applied to another mutually-agreed upon charitable project, as directed in writing by the Foundation.

RECORD KEEPING

You will maintain adequate accounting records related to the Project. You will make such records available to enable the Foundation to monitor and evaluate how Grant Funds have been used.

SURVIVAL

A Party's obligations under this Agreement will be continuous and survive expiration or termination of this Agreement as expressly provided in this Agreement or otherwise required by law or intended by their nature.

GENERAL

ENTIRE AGREEMENT AND AMENDMENTS

This Agreement contains the entire agreement of the Parties and supersedes all prior and contemporaneous agreements concerning its subject matter. Except as specifically permitted in this Agreement, no modification, amendment, or waiver of any provision of this Agreement will be effective unless in writing and signed by authorized representatives of both Parties.

NOTICES AND APPROVALS

Written notices, requests, and approvals under this Agreement must be delivered by mail or email to the other Party's primary contact specified on the Agreement Summary & Signature Page, or as otherwise directed by the other Party.

SEVERABILITY

Each provision of this Agreement must be interpreted in a way that is enforceable under applicable law. If any provision is held unenforceable, the rest of the Agreement will remain in effect.

ASSIGNMENT

You may not assign, or transfer by operation of law or court order, any of Your rights or obligations under this Agreement without the Foundation's prior written approval. This Agreement will bind and benefit any permitted successors and assigns.

COUNTERPARTS AND ELECTRONIC SIGNATURES

Except as may be prohibited by applicable law or regulation, this Agreement and any amendment may be signed in counterparts, by facsimile, PDF, or other electronic means, each of which will be deemed an original and all of which when taken together will constitute one agreement. Facsimile and electronic signatures will be binding for all purposes.

ATTACHMENT C
DEVELOPING COUNTRIES

Afghanistan
Angola
Armenia
Azerbaijan
Bangladesh
Benin
Bhutan
Bolivia
Burkina Faso
Burundi
Cambodia
Cameroon
Central African Republic
Chad
Comoros
Congo Republic
Cote d'Ivoire
Cuba
Democratic Republic of Congo
Djibouti
Eritrea
Ethiopia
Gambia
Georgia
Ghana
Guinea
Guinea Bissau
Guyana
Haiti
Honduras
India
Indonesia
Kenya
Kiribati
Korea DPR
Kyrgyz Republic
Lao PDR
Lesotho
Liberia
Madagascar
Malawi
Mali
Mauritania
Moldova
Mongolia
Mozambique
Myanmar
Nepal
Nicaragua
Niger
Nigeria
Pakistan
Papua New Guinea
Rwanda
Sao Tome e Principe
Senegal
Sierra Leone
Solomon Islands
Somalia
Sri Lanka
Republic of Sudan
South Sudan
Tajikistan
Tanzania
Timor Leste
Togo
Uganda
Ukraine
Uzbekistan
Viet Nam
Yemen
Zambia
Zimbabwe

Certain countries in this Attachment C may be subject to U.S. comprehensive embargo restrictions at present or in the future. The Parties acknowledge that such restrictions could preclude one or both Parties' ability to include such countries in any efforts under this GACA.

Innovative Technology Solutions

The Innovative Technology Solutions (ITS) team has a unique process and approach to making and managing investments. Please note that other foundation investments in which you may also be involved will not use the same process and approach.

PROJECT INFORMATION - GRANTS

The purpose of this document is for you to provide organizational and project details to support your proposal to the foundation.

Foundation Information			
Opportunity ID	OPP1170296		
Program Officer	[**]	Program Coordinator	[**]
General Information			
Investment Title	RSV Pre-Clinical Program		
Short Description	Discovery, lead selection, pre-clinical development, and IND-enabling toxicology studies for monoclonal antibodies (mAbs) targeting respiratory syncytial virus (RSV). Goal is to achieve a product profile that supports Global Access objectives (e.g. low-cost, single dose prophylaxis).		
Organization	Arsanis, Inc.		
Investment Duration (months)	30		
Requested Amount (U.S.$)	$8.8 Million	**Total Project Cost (U.S. $)**	$9.4 Million
Organization Legal Name[1]	Arsanis, Inc.		
Mailing Address			
Street Address 1	890 Winter Street	**Primary Contact Name**	[**]
Street Address 2	Suite 230	**Primary Contact Title**	[**]
Street Address 3		**Primary Contact Email**	[**]
City	Waltham	**Primary Contact Phone**	[**]
State / Province	MA		
Zip / Postal Code	02451-1472	**Authorized Signer Name**	Mike Gray
Country	US	**Authorized Signer Title**	CFO and CBO
Website (if applicable)	www.arsanis.com	**Authorized Signer Email**	mike.gray@arsanis.com

[1] Legal Name will be used in the agreement and should match the name on the bank account that receives the grant funds (assuming fully executed agreement).

Tax Status (if known and applicable) Refer to Tax Status Definitions	Non-Exempt Organization – C Corporation	**Organization's Total Revenue for Most Recent Audited Financial Year (U.S.$)**	No sales revenue
U.S. Employer Identification Number (EIN) (if applicable)	27-3181608		

Charitable Purpose & Public Description

Describe the charitable purpose of the project. This statement will be used to inform the public description of this project. Please limit to one sentence, begin with "to" and do not include a period at the end. *Example: "This grant will be used [to fund new schools and assist other organizations in the design of new schools]"*

This grant will be used to fund pre-clinical development of monoclonal antibodies (mAbs) for the prevention of respiratory syncytial virus (RSV) infection in newborns, which is responsible for over 30 million cases of acute lower respiratory infection and 200,000 deaths per year in the developing world.

Conduct & Control of the Project

In answering the questions in this section, please consider all Project activities, such as those involving: confidential or protected information (including personally identifiable information or protected health information); the inclusion of children or vulnerable populations; research involving human subjects; clinical trials; post-approval studies; field trials; experimental medicine; provision of medical services (diagnostic, prophylactic or treatment); product development; use of genetically modified organisms, human tissue, animals, radioactive isotopes, pathogenic organisms, recombinant nucleic acids, select agents or toxins (www.selectagents.gov), dual-use technology (http://export.gov/regulation/eg_main_018229.asp), or any substance, organism, or material that is toxic or hazardous; use of aircraft, unmanned vehicle systems, drones or satellites; and the import, export, transfer, approvals, consents, records, data, specimens, images, and materials related to any of the forgoing.

1. Please confirm that your organization:

a) will maintain the expertise necessary to conduct, control, manage, and monitor all aspects of the Project in compliance with all applicable ethical, legal, regulatory, and safety requirements, including applicable international, national, local, and institutional standards and policies and is responsible for determining and complying with these requirements and standards;

b) will not disclose any confidential or protected information to the Foundation without obtaining prior written approval from the foundation and all necessary consents to disclose such information;

c) acknowledges that any activities by the Foundation in reviewing documents, providing input or funding does not modify your organization's responsibility for determining and complying with all applicable ethical, legal, regulatory, and safety requirements for the Project in all places;

d) will maintain insurance coverage sufficient to cover the activities, risks, and potential omissions of the Project in accordance with generally-accepted standards and as required by law (for instance, general, professional, clinical trial, product liability, medical malpractice, workers' compensation, or otherwise);

e) will not transfer any biological materials, chemicals, reagents, hazardous materials or the like to the Foundation. Confirmed X

Not confirmed_____(please explain)

2. Does the Project involve any of the following: clinical trial, other trial involving human subjects, post-approval study, experimental medicine, genetically modified organism, or the provision of medical/health services?

No X

Yes_____(Ifyes, please list all approvals and consents required for each site and describe the timeframe in which your organization will acquire the necessary approvals and consents.)

3. Please identify the name of the entity that will be the sponsor/responsible party of any clinical trials, studies involving human subjects, experimental medicine studies, post-approval studies, products, or regulatory filings contemplated by the Project. Note that the Foundation will not serve as the sponsor/responsible party nor accept delegation of any of these responsibilities. If the Project will not involve such activities, please indicate not applicable or N/A below.

Arsanis,Inc.

Global Access & Open Access

In order to establish that the projects we fund are charitable and will have a positive impact on the intended beneficiaries of our work, the foundation requires the projects it funds be conducted and managed in a manner that ensures Global Access and Open Access.

"Global Access" is a foundation policy requiring that: (a) the knowledge and information gained from the project will be promptly and broadly disseminated; and (b) the Funded Developments will be made available and accessible at an affordable price (i) to people most in need within developing countries, or (ii) in support of the U.S. educational system and public libraries, as applicable to the project.

"Funded Developments" means the products, services, processes, technologies, materials, software, data, other innovations, and intellectual property resulting from the project, including modifications, improvements, and further developments to Background Technology.

"Background Technology" means any and all products, services, processes, technologies, materials, software, data, or other innovations, and intellectual property created by You or a third party prior to or outside of the project used as part of the project.

Additional information about Global Access (including examples and case studies) can be found at http://globalaccess.gatesfoundation.org/.

"Open Access"is a foundation policy that sets the requirements, terms and conditions for publication of Funded Developments in a peer-reviewed journal. Additional Information on the foundation's Open Access Policy for peer-reviewed publications and underlying data can be found at www.gatesfoundation.org/How-We-Work/General-Information/Open-Access-Policy. Note: the foundation will pay directly for reasonable fees to effect publication on "open access" terms; such fees should not be included in the project budget (See the Open Access Policy FAQs for further detail).

a) Knowledge and Information

Describehow the knowledge and information gained from the project will be promptly and broadly disseminated (including how you will comply with the foundation's Open Access Policy, discussed above).

Arsanis will promptly and broadly disseminate the output of Funded Developments in compliance with the Open Access Policy and Arsanis internal policies. Our primary approaches are publication in peer-reviewed journals and presentations (e.g. abstracts, oral sessions) at scientific congresses. In some circumstances, timing of disclosures may be gated by the need to provide for relevant intellectual property protections prior to such disclosures.

b) Funded Developments (Indicate "not applicable," as appropriate)

i. Describe any Funded Developments that may ultimately result from the project, including any Background Technology that will be used or incorporated in the proposed project. If applicable, briefly explain how the Funded Developments will be made available and accessible at an affordable price to the intended beneficiaries. The use of commonly-available, off-the-shelf products (such as Microsoft Excel, Adobe, etc.) need not be disclosed.

Funded Developments that may ultimately result from the project include:

- Monoclonal antibody (mAb) drug candidates targeting RSV infection.
- Pre-clinical data and regulatory filings that support the initiation of human studies of these mAbs.
- Manufacturing know-how for the production of GMP mAb drug product.
- Intellectual property (including patents and know-how) covering the mAbs.

Background technology that may be incorporated in the project includes:

- Arsanis know-how related to the discovery and optimization of mAbs.
- RSV mAb sequences (patents and know-how) that may be in-licensed by Arsanis from Adimab, LLC upon exercise of the Adimab license described below.
- Technologies (patents and know-how) related to the optimization of RSV mAbs in-licensed by Arsanis from third parties.
- Technologies (patents and know-how) related to the manufacture of RSV mAbs in-licensed by Arsanis from third parties.

ii. Please confirm that you will make the Funded Developments – including any Background Technology incorporated into or required to use the Funded Developments – available to achieve the proposed project's goals and Global Access. If you foresee any obstacles to achieving Global Access (e.g., third party rights, broad access, time frame, affordability) please briefly summarize the obstacles and the specific steps that you will take to address them.

Arsanis will make the Funded Developments available to achieve the project's goals and Global Access as agreed upon with BMGF.

Potential obstacles include:

[**]

c) If one or more of the following applies, please click the following link to complete an Intellectual Property (IP) Report:

- Creation of Funded Developments will likely involve new IP rights (Note: copyrights in works intended to be published in accordance with the Open Access Policy need not be disclosed);
- Use of Background Technology requires access to existing IP rights; or
- For-Profit entities are engaged in the project.

Note: For login purposes, please use the email address to which this Proposal Narrative was sent. To delegate permissions to another member of your project team, or for any questions regarding the IP Report, please contact GlobalAccess@gatesfoundation.org.

Privacy and Non-Confidentiality Notice

The foundation is required by the IRS to publish a list of its grants. We may also provide a general description of our grants and contracts on our web sites, in press releases, and in other marketing materials. Subject to the foundation's Privacy Policy, the foundation may also share information you provide to us (either orally or in writing) with third parties, including external reviewers, key partners and co-founders. This document is subject to the foundation's Terms of Use.

Confidential Materials omitted and filed separately with the Securities and Exchange Commission.
A total of 22 pages were omitted. [**]

QUICK START GUIDE

This page provides a quick overview of the BMGF budget template to orient you before getting started.
As you populate the sheets, you will find direct links to specific instructions with examples throughout the template.
The full instruction document can be accessed here.
Frequently Asked Questions (FAQs) can be accessed here.

Grantee Input Sheets
These first three sheets need to be filled out by the grantee for every grant.

Optional: Grantees can comment on the auto-generated preliminary payment schedule here.

General Information	→	Budget Details	→	Financial Summary & Reporting	→	Payment & Reporting Schedule
*Enter the required basic information into this sheet **before** populating any of the other sheets.*		*For each of the 6 expense categories, enter the items that collectively make up the grant budget into this sheet.*		*Review the summary tables from the Budget Detail sheet and add further information (where applicable). This sheet is also used to enter actuals expenditures and projections as part of reporting.*		*This sheet is used by the grantee to review an auto-generated preliminary payment schedule and by BMGF to make any changes before incorporating it into the grant agreement.*

Important information for working with the template

Legend for cell formatting

Input **cells are colored** according to the following scheme. At the time of budgeting, populate only light yellow cells.

Enter information into light yellow cells
Enter actual expenditures into green cells
Blue cells will be populated by BMGF

Hints for specific data entry fields

For some fields, a **red triangle in the upper right corner** indicates that a hint is available when hovering the mouse over the cell.

Error checking

For some cells, an automatic error check will show its **value in red** if it appears to be populated incorrectly or if the calculation yields a result that is inconsistent with another value.

Incorrect entry
01-Jan-15

Inconsistent result
$ 124,237

Cash vs. Projected Actuals (Accruals)

All **actual** amounts reported should be based on ***cash spent***, not PROJECTED (or ACCRUED) for the remainder of the period.

Copying data into the template

Use **Paste Values** whenever transferring data from an external source into the template. If not, the template can become corrupted

START HERE

In addition to the three sheets described above, there are ***several additional sheets*** *included in the template, some of them optional and/or hidden. Grantees* ***do not need to use*** *these additional sheets, but for transparency, you will find an overview below.*

If you would like to include additional information (or are asked for it by BMGF) in this file, it is ***OK to add extra sheets*** *for this purpose. However, please* ***do not make any changes to the structure, formatting or formulas of the existing sheets.***

BMGF Work Sheets

These three sheets are primarily used by BMGF to analyze and manage the grant. Grantees can provide input in the Payment & Reporting Schedule sheet. You may use them yourself, but please do not enter or alter any data or formulas

Payment & Reporting Schedule

This sheet is used by the grantee to review an auto-generated preliminary payment schedule and by BMGF to make any changes before incorporating it into the grant agreement.

Analytics

Contains two analytic features: a set of Basic Charts and a Comparison Tool

Budget Pivot
(typically hidden)

Excel Pivot table that can be used to analyze the data in the Budget Detail sheet.

Historic or Background Information

These sheets are used by BMGF to preserve historic information throughout the grant or for administrative purposes. Please do not make any changes to these sheets.

[Historic Budget Details]
0, 1 or more sheets (typically hidden)

If a grant budget revision takes place, the previous version of the Budget Detail sheet can be preserved as a separate sheet for reference.

Historic Budget Summaries
(typically hidden)

If grant budget revisions take place, this sheet can be used to preserve previous versions of the Budget Summary for reference.

Config
(typically hidden)

Used for administrative purposes to populate dropdown lists etc. throughout the template.

BILL & MELINDA GATES foundation

AMENDMENT 1 to GRANT AGREEMENT Investment ID OPP1170296

AMENDMENT SUMMARY & SIGNATURE PAGE

AMENDMENT INFORMATION

Agreement to be Amended:	Grant agreement between the Bill & Melinda Gates Foundation and Arsanis Inc, effective February 20, 2017, and bearing Investment ID OPP1170296
Amendment Purpose:	No-cost Extension and Revised Payment & Reporting Schedule
Amendment Date:	Date of this email
New End Date:	October 31, 2019
This Amendment includes and incorporates into the Agreement by this reference:	This Amendment Summary & Signature Page and: - Attachment A-1

THIS AMENDMENT amends, and is made part of, the above-referenced Agreement and is effective as of the date of this email. Capitalized terms not defined in this Amendment will have the meaning provided in the Agreement. Except as modified by this Amendment, all other terms and conditions of the Agreement remain in full force and effect. In the event of a conflict between the Agreement and this Amendment, the terms of this Amendment will prevail.
As provided in the Agreement, Your countersignature is not required.

ATTACHMENT A-1

TERM
This Amendment approves Your request for a no-cost extension to the Agreement. The term of the Agreement is extended to the new End Date specified on the Amendment Summary & Signature Page.

UPDATED REPORTING PAYMENT SCHEDULE
This Amendment notifies You that the reporting and payment schedule for Your grant has changed. Your updated Reporting & Payment Schedule is deleted and replaced with the following:

REPORTING & PAYMENT SCHEDULE

Investment Period	Target, Milestone, or Reporting Deliverable	Due By	Payment Date	Payment Amount (U.S.$)
	Paid		[**]	[**]
Start Date to End Date	Quarterly Financial & Progress Updates	Quarterly		
	Global Access Strategy satisfactory to the Foundation	[**]	[**]	[**]
	Updated Financial Statements			
	Product Development Summary and Status - Candidate Target Product Profile, Revised Budget, including Sub-award Budget			
	[**]			

[**]	[**]	[**]		
	[**]	[**]	[**]	[**]
[**]	[**]	[**]		

BILL & MELINDA GATES foundation

	[**]	[**]
Start Date to End Date	Final Report	[**]
		Amended Total Grant Amount $9,330,878.00

Exhibit 10.21

Confidential Materials omitted and filed separately with the
Securities and Exchange Commission. Double asterisks denote omissions.

Execution Version

April 24, 2017

Arsanis, Inc.
890 Winter Street, Suite 230
Waltham, MA 02451-1472
Attention: President and Chief Executive Officer

Re: Strategic Relationship between the Bill & Melinda Gates Foundation and Arsanis, Inc.

Ladies and Gentlemen:

This letter agreement (including all appendices and attachments hereto, the "**Letter Agreement**") is entered into in connection with the investment by the Bill & Melinda Gates Foundation (the "**Foundation**"), a Washington charitable trust that is a tax-exempt private foundation, of eight million dollars ($8,000,000.00) (the "**Foundation Investment**") in Series D Preferred Stock of Arsanis, Inc. (the "**Company**") at a purchase price of $3.2457 per share in accordance with the terms of a Series D Preferred Stock Purchase Agreement dated April 24, 2017 (the "**Purchase Agreement**"). The Foundation is making the Foundation Investment to induce the Company to perform the Global Access Commitments set forth herein, and the Company acknowledges and agrees that it would not undertake such Global Access Commitments absent the Foundation Investment. The Foundation Investment will be made in accordance with the provisions of the Purchase Agreement and this Letter Agreement (collectively, and together with any additional agreements that may be executed in connection with the Foundation Investment, in each case as amended from time to time in accordance with their terms, the "**Investment Documents**"). The Foundation Investment is conditioned upon the execution and delivery of the applicable Investment Documents by the parties thereto, the delivery to the Foundation of an amendment to the Adimab Agreement (defined below) that is acceptable to the Foundation, and the Foundation obtaining a written legal opinion from tax counsel that the Foundation Investment will qualify as a program-related investment under the Code.

In consideration of the Foundation making the Foundation Investment on the terms and conditions stated herein and in the Investment Documents, and for other good and valuable consideration, the parties hereto hereby irrevocably agree as follows:

1. Definitions. For the purposes of this Letter Agreement the following terms have the meanings indicated.

"**Actual Production Costs**" means (a) the Company's recognized cost of goods sold as calculated in accordance with the Company's usual and customary accounting methods, which are in accordance with GAAP, minus (b) the amount of any funding provided by the Foundation or any Foundation-supported Entity directly allocable to the production, supply and distribution of such product (except to the extent such funding has been deducted from the cost of goods sold as calculated under the foregoing clause (a)).

"**Adimab**" means Adimab, LLC.

"**Adimab Agreement**" means that certain Collaboration Agreement between Adimab and the Company, with an Effective Date of May 1, 2011, as amended by that certain Amendment Number One to the Collaboration Agreement, dated February 11, 2013, further amended by that certain Amendment Number Two to the Collaboration Agreement, dated January 16, 2014, further amended by that certain Amendment Number Three to the Collaboration Agreement, dated January 22, 2015, and further amended by that certain Amendment Number Four to the Collaboration Agreement, dated April 21, 2017, and as supplemented by the Adimab Option Exercise Letters.

"**Adimab Confidential Information**" means Confidential Information (as that term is defined in the Adimab Agreement) of Adimab.

"**Adimab Option Exercise Letters**" means, collectively, the letters from Dr. Eszter Nagy of the Company to Dr. Tillman Gerngross of Adimab, dated, respectively, May 28, 2013, January 29, 2014, and April 24, 2014, including the attachments thereto.

"**Affiliate**" means, as to any person or entity any person or entity that, directly or indirectly, controls, is controlled by or is under common control with such person or entity at any time and for so long as that control exists, where "control" (for purposes of this definition of "Affiliate" only) means having the decision-making authority as to the person or entity and, further, where that control will be deemed to exist where a person or entity owns more than 50% of the equity (or that lesser percentage that is the maximum allowed to be owned by a foreign corporation in a particular jurisdiction) entitled to vote regarding composition of the board of directors or other body entitled to direct the affairs of the person or entity.

"**ASN100 Product Candidate**" means the Company's product consisting of a combination of two fully human IgG_1 isotype antibody components (ASN-1 and ASN-2) intended for prevention and/or treatment of disease in subjects colonized or infected with *S. aureus*.

"**Charitability Default**" has the meaning given in Section 5(b).

"**Charitable Purpose**" has the meaning given in Section 2(a).

"**Claim**" has the meaning given in Section 14.

"**Code**" means the U.S. Internal Revenue Code of 1986, as amended.

"**Company**" has the meaning given in the introductory paragraph.

"**Company Developed mAbs**" has the meaning given in Section 3(c)(ii).

"**Company IP**" means all intellectual property and other proprietary rights, worldwide, owned (or purported to be owned), applied for, used, licensed by, or under obligation of assignment to the Company.

"**Developing Countries**" means those countries described on Appendix 1.

"**Direct Competitor**" means any individual or entity engaged in, or which presently intends to engage in, the research, development, manufacture, or commercialization of any mAb product used to diagnose, treat, prevent or cure an infectious disease.

"**Discovery Projec**t" has the meaning given in Section 3(d)(i).

"**Exchange Act**" means the Securities Exchange Act of 1934, as amended.

"**Fair Market Value**" means (a) if the Foundation Stock is freely tradable, the closing price of the Foundation Stock on the most recent day the Foundation Stock was traded on the applicable exchange prior to the closing date of the redemption or purchase or (b) if the Foundation Stock is not freely tradable, the then current fair market value as determined by a mutually agreed upon (such agreement not to be unreasonably withheld) independent third-party appraiser.

"**Foundation**" has the meaning given in the introductory paragraph.

"**Foundation Field**" means the prevention of neonatal sepsis caused by *S. aureus* and/or other bacterial pathogens and excluding all other therapeutic and prophylactic indications.

"**Foundation Investmen**t" has the meaning given in the introductory paragraph.

"**Foundation Stock**" has the meaning given in Section 5(c).

"**Foundation-supported Entity**" means an entity selected by the Foundation for participation in a project that receives funding, directly or indirectly, from the Foundation, collaborates with the Foundation, or both, for the purpose of accomplishing the Foundation's charitable objectives.

"**Funded Developments**" means the products, technologies, materials, processes, and other intellectual property and intellectual property rights developed using funds from the Foundation or a Foundation-supported Entity or developed in connection with the Company's conduct of a Program.

"**Global Access**" means that (a) knowledge gained using the Foundation's funding is promptly and broadly disseminated and (b) the products and technologies developed or supported with the Foundation's funding will be made available and accessible at an affordable price to people most in need in Developing Countries.

"**Global Access Commitments**" has the meaning given in Section 3.

"**Global Health License**" has the meaning given in Section 3(l)(i).

"**Indemnitees**" has the meaning given in Section 14.

"**Investment Documents**" has the meaning given in the introductory paragraph.

"**Letter Agreement**" has the meaning given in the introductory paragraph.

"**mAb**" means monoclonal antibody.

"**Neonatal** *S. aureus* **Sepsis Candidate**" has the meaning given in Section 3(a).

"**Neonatal** *S. aureus* **Sepsis Candidate Development Program**" has the meaning given in Section 3(b).

"**Neonatal** *S. aureus* **Sepsis Discovery Project**" has the meaning given in Section 3(a).

"**Neonatal Sepsis Cocktail**" has the meaning given in Section 3(c)(i).

"**Neonatal Sepsis Cocktail Development Program**" has the meaning given in Section 3(c)(i).

"**Optioned Antibodies**" means, collectively, the mAbs specified in the Adimab Option Exercise Letters.

"**Platform Technology**" means the Company's mAb research, discovery, development, and production capabilities, including those sourced from its partners. For clarity, Platform Technology includes technologies, materials, know-how and intellectual property owned, controlled, or in licensed by the Company or its Affiliates, whether existing at closing of the Foundation Investment or later developed, owned, controlled or in licensed by the Company or its Affiliates.

"**Product**" means any drug, therapeutic, vaccine, diagnostic, or prophylactic developed pursuant to a Program.

"**Program**" means the Neonatal *S. aureus* Sepsis Discovery Project, the Neonatal *S. aureus* Sepsis Candidate Development Program, the Neonatal Sepsis Cocktail Development Program and any Discovery Project.

"**Progress Review Group**" has the meaning given in Section 3(i).

"**Purchase Agreement**" has the meaning given in the introductory paragraph.

"**Reasonable Efforts**" means at least the same level of resources, time, efforts, and expediency that the Company would apply to obtaining a compound or technology that is material to the research, development or launch of the Company's lead commercial products.

"**Sale Transaction**" means (a) the acquisition, directly or indirectly, after the date of this Letter Agreement, by any person or group (within the meaning of Section 13(d)(3) of the Exchange Act) of beneficial ownership of securities of the Company possessing more than 50% of the total combined voting power of all outstanding voting securities of the Company, (b) a merger, consolidation or other similar transaction involving the Company, except for a transaction in which the holders of the outstanding voting securities of the Company immediately prior to such

merger, consolidation or other transaction hold, in the aggregate, securities possessing more than 50% of the total combined voting power of all outstanding voting securities of the surviving entity immediately after such merger, consolidation or other transaction, or (c) an assignment, sale, transfer or exclusive license of all or substantially all of the Company's assets, whether by merger, stock transfer, or otherwise.

"**SOW**" means a scope of work.

"**Third Party Development Program Election**" has the meaning given in Section 3(f)(i)(D).

"**Trigger Event**" has the meaning given in Section 3(l)(ii).

"**TPM**" has the meaning given in Section 3(e).

"**TPP**" means a target product profile.

"**Withdrawal Right**" has the meaning given in Section 5(c).

2. Charitable Purposes and Use of Funds.

(a) The Foundation is making the Foundation Investment as a "program-related investment" within the meaning of Section 4944(c) of the Code. The Foundation's primary purpose in making the Foundation Investment is to further significantly the accomplishment of the Foundation's charitable purposes, including the relief of the poor, distressed, and underprivileged, the advancement of science, and the promotion of health by seeking to secure Global Access to new, low-cost drugs (both therapeutics and prophylactics) developed (in whole or in part) by the Company and directed at pathogens that disproportionately affect people in Developing Countries (collectively, the "**Charitable Purpose**"). In furtherance of the Charitable Purpose, the Foundation Investment will secure the Global Access Commitments described below.

(b) The proceeds from the Foundation Investment will be used solely to support the Company's *Staphylococcus aureus (S. aureus)* antibody development program, including the Neonatal S. aureus Sepsis Discovery Project described below.

The proceeds from the Foundation Investment will not be required to be segregated in a separate account nor required to be used for dedicated employees or facilities.

3. Global Access Commitments.

In furtherance of the Charitable Purpose and Global Access, the Company agrees to the following (collectively "**Global Access Commitments**"):

(a) **Neonatal** *S. aureus* **Sepsis Discovery Project**. The Company will diligently conduct the Neonatal *S. aureus* Sepsis Discovery Project. "**Neonatal** *S. aureus* **Sepsis Discovery Project**" means the Company's research, development, and use of the Platform Technology to generate and test in pre-clinical animal studies a candidate product for the prevention of neonatal sepsis caused by *S. aureus* and excluding all other therapeutic and prophylactic indications (such candidate product, the "**Neonatal** *S. aureus* **Sepsis Candidate**") in accordance with the TPP and SOW attached as Appendix 2.

(b) **Neonatal** ***S. aureus*** **Sepsis Candidate Development Program**. Once the Neonatal *S. aureus* Sepsis Discovery Project is complete in accordance with the SOW, the Foundation will have the right, at its discretion, to continue providing funding to the Company (directly or through a Foundation-supported Entity) to advance the Neonatal *S. aureus* Sepsis Candidate through launch of a final product for the prevention of neonatal sepsis caused by *S. aureus* and excluding all other therapeutic and prophylactic indications (the "**Neonatal** ***S. aureus*** **Sepsis Candidate Development Program**"). The Neonatal *S. aureus* Sepsis Candidate Development Program may include applicable research, development, launch and associated activities conducted by the Company or a partner, if and to the extent these activities are reasonably requested by the Foundation. If requested by the Foundation, the Neonatal *S. aureus* Sepsis Candidate Development Program would be co-funded by additional equity investments (subject to requisite approval by the Company's board of directors and/or stockholders) or grants from the Foundation pursuant to the Foundation's standard grant making terms and processes. The specific level and allocation of funding responsibilities between the parties (and potentially Foundation-supported Entities) for the Neonatal *S. aureus* Sepsis Candidate Development Program will be mutually agreed in good faith in writing by the parties to fairly allocate the expected benefits between Developing Countries and developed countries; provided, that in no event will the funding responsibilities be allocated in a manner that is reasonably likely to result in a material adverse effect on the Company's business or operations. Any agreements for the Neonatal *S. aureus* Sepsis Candidate Development Program will include a proposal describing the relevant work (including specific global access commitments) and other related documents acceptable to the Foundation, and will include a mutually-agreed upon TPP and SOW.

(c) **Neonatal Sepsis Cocktail Development Program.**

(i) The Foundation will also have the right, at its discretion, to provide funding to the Company (directly or through a Foundation-supported Entity) to develop a combination mAb product for use in the Foundation Field (such combination mAb product, the "**Neonatal Sepsis Cocktail**"), which Neonatal Sepsis Cocktail may include the Neonatal *S. aureus* Sepsis Candidate, mAbs developed under Discovery Projects (defined below), and/or components in-licensed from other entities in accordance with the terms below (the "**Neonatal Sepsis Cocktail Development Program**"). The Neonatal Sepsis Cocktail Development Program may include applicable research, development, launch and associated activities conducted by the Company or a partner, if and to the extent these activities are reasonably requested by the Foundation. If requested by the Foundation, the Neonatal Sepsis Cocktail Development Program would be co-funded by additional equity investments (subject to requisite approval by the Company's board of directors and/or stockholders) or grants from the Foundation pursuant to the Foundation's standard grant making terms and processes. The specific level and allocation of funding responsibilities between the parties (and potentially Foundation-supported Entities) for the Neonatal Sepsis Cocktail Development Program will be mutually agreed in good faith in writing by the parties to fairly allocate the expected benefits between Developing Countries and developed countries; provided, that in no event will the funding responsibilities be allocated in a manner that is reasonably likely to result in a material adverse effect on the Company's business or operations.

(ii) Other than the Neonatal S. aureus Sepsis Candidate and mAbs developed under Discovery Projects, no mAbs developed by the Company independently from any collaboration with the Foundation (including in collaboration with any third-party) ("**Company Developed mAbs**") will be included in the Neonatal Sepsis Cocktail unless mutually-agreed upon by the Company and the Foundation under separate agreements, for which reasonable financial and other terms will be negotiated in good faith by the Foundation and the Company taking into account principles of Global Access.

(iii) Any grant agreements for the Neonatal Sepsis Cocktail Development Program will include a proposal describing the relevant work (including specific global access commitments) and other related documents acceptable to the Foundation (and, in the case of any Company Developed mAbs, mutually acceptable to the Foundation and the Company), and will include a mutually-agreed upon TPP and SOW.

(d) **Discovery Projects.**

(i) The Company will also utilize the Platform Technology to conduct up to two Discovery Projects at the Foundation's reasonable discretion and subject to the terms below. "**Discovery Project**" means a project proposed by the Foundation or a Foundation-supported Entity and conducted by the Company utilizing the Platform Technology to identify mAb candidates against a target pathogen or antigens associated with a target pathogen, in accordance with a mutually-agreed upon SOW and TPP, and potentially to further develop such candidates.

(ii) Each Discovery Project will be funded and conducted pursuant to the Foundation's standard grant making terms and processes, which would include a proposal prepared in good faith by the Company (which will be submitted within [**] days after the Foundation's initial request to the Company) describing the relevant work to be conducted by the Company and other related documents acceptable to the Foundation. At the request of the Foundation, such grant agreements will include a non-exclusive license to resulting product candidates and related technology resulting from the applicable Discovery Project (including the right to sublicense or a direct license grant to Foundation-supported Entities); provided, that the scope of the license to the related technology will include only that technology that is necessary for the development, production or distribution or sale of the relevant product candidate within the field of use prescribed for such product candidate in the applicable TPP. Notwithstanding the foregoing, except as otherwise provided below, the Foundation will not practice the license for sale or distribution of any product candidate outside of the Developing Countries unless the Company or a licensee thereof commits a material breach of any of the Global Access Commitments in regard to such product candidate. For clarity, the Company agrees that this license may be practiced outside of Developing Countries (other than to sell, have sold, offer for sale or otherwise transfer to an end user of such product or product candidate) solely for activities that are in furtherance of the sale or other distribution of product candidates in Developing Countries.

(iii) If the Foundation requests that the Company continue development of a candidate identified through a Discovery Project, the Company will consider in good faith and the parties will negotiate in good faith the terms of the applicable grant documents for such work. To the extent the parties agree to continue support of a Discovery Project beyond the

discovery phase, the specific level and allocation of additional funding responsibilities for such Discovery Project will be mutually agreed in good faith in writing by the parties based on a fair allocation of the expected benefits between Developing Countries and developed countries, provided that in no event will the funding responsibilities be allocated in a manner that is reasonably likely to result in a material adverse effect on the Company's business or operations.

(e) **Third Party Manufacturer**s. If the Foundation determines, in consultation with the Progress Review Group, during the Neonatal *S. aureus* Sepsis Candidate Development Program, Neonatal Sepsis Cocktail Development Program, or any Discovery Project that working with a third-party manufacturer ("**TPM**") is reasonably necessary to achieve the price and volume commitments described below, the Company will agree to license and transfer the necessary technology and other intellectual property to such TPM (subject to such TPM entering into reasonable agreements with the Company with respect to confidentiality and use of the technology and licenses solely for the purposes contemplated herein) in order to allow the production of Products for the Developing Countries. The Foundation will be responsible for the reasonable costs payable for the license and technology transfer of the necessary intellectual property to such TPM.

(f) **Licenses from Company.**

(i) At the request of the Foundation, the grant or funding agreements for the Neonatal *S. aureus* Sepsis Candidate Development Program and Neonatal Sepsis Cocktail Development Program will also include a non-exclusive license to (i) the Neonatal *S. aureus* Sepsis Candidate and (ii) candidates or products developed under the Neonatal *S. aureus* Sepsis Candidate Development Program or Neonatal Sepsis Cocktail Development Program, for use in the Foundation Field, in each case with related technology (including the right to sublicense or a direct license grant to Foundation-supported Entities); provided that the scope of the license to the related technology will include only that technology that is necessary for the development, production and/or distribution or sale of the relevant product. For the avoidance of doubt, the Foundation, Foundation-supported Entities, and Foundation sublicensees will not directly or indirectly develop or commercialize the Neonatal *S. aureus* Sepsis Candidate or products developed under the Neonatal *S. aureus* Sepsis Candidate Development Program or Neonatal Sepsis Cocktail Development Program outside of the Foundation Field. The license will be presently granted, but the Foundation may not exercise its rights (including its sublicense rights) under the license to any background intellectual property of the Company unless at least one of the following occurs:

(A) any Trigger Event;

(B) the Company commits a material breach of the relevant grant agreement that is not cured within [**] days after written notice thereof;

(C) the Company is unwilling to unable or ceases to promptly conduct or complete in any material respect the Neonatal *S. aureus* Sepsis Candidate Development Program or Neonatal Sepsis Cocktail Development Program, as applicable; or

(D) the Foundation (after discussion with the Progress Review Group) reasonably determines that the Company does not have the personnel, capability, technology, rights or other resources to conduct or complete the Global Access Commitments in connection with the Neonatal *S. aureus* Sepsis Candidate Development Program or Neonatal Sepsis Cocktail Development Program in any material respect, including the price and volume commitments described below (any exercise of such license pursuant to this clause (i)(D), a "**Third Party Development Program Election**").

(ii) If the Foundation intends to make a Third Party Development Program Election, it will give the Company prompt written notice thereof. If the Company disagrees with the Foundation's determination to make a Third Party Development Program Election, the parties will engage in good faith discussions and negotiations for a period of [**] days from the date of the Foundation's written notice in an attempt to resolve such disagreement, and the Foundation will not be entitled to make a Third Party Development Program Election during such [**]-day period. Following such [**]-day period, the Foundation will be entitled to make a Third Party Development Program Election by delivery of written notice to the Company thereof.

(iii) The license described in this Section 3(f) will be subject to payment by the Foundation or a Foundation sublicensee of the applicable royalty (if any) set forth in and calculated under the Adimab Agreement as of the Effective Date (payable to Adimab, either through Company or, at Company's election, directly to Adimab), to the extent such royalty is then payable to Adimab under the Adimab Agreement, as a result of the exercise of this license. In addition, if the Foundation exercises its rights under the license pursuant to a Third Party Development Program Election, the parties will negotiate in good faith the payment of a reasonable royalty to the Company on sales of the applicable Product outside of the Developing Countries.

(g) **Licenses to Company**. The Foundation Investment will be conditioned on the Company's receipt and continuation of all necessary licenses and rights with respect to the Platform Technology needed to perform the Global Access Commitments. To the extent that a license to a mAb or other component is necessary for the development, manufacture, or commercialization of a Product (other than with respect to the Platform Technology), which component would be impracticable for the Company to develop, the Company will use Reasonable Efforts to obtain a cost effective and affordable license to such component from a third party and/or to collaborate with a third party to develop or manufacture such component, in order to enable completion of the applicable product in accordance with the Global Access Commitments, including the price and volume commitments. The Foundation will be responsible for the costs payable to the third party for the license or collaboration to the extent necessary for this product in Developing Countries; provided, that the Foundation consents in writing to the terms of the applicable license or collaboration agreement before the execution of the agreement and the terms allow the Company to transfer or sublicense any license to the Foundation or a Foundation supported Entity in the event of a Trigger Event.

(h) **Pricing and Volume Commitments**. The Company will work with the Foundation to develop (by the time of completion of Phase II clinical trials) and execute a manufacturing and supply plan that will enable to be met the reasonably expected demand in Developing Countries for any Products. The expected demand will be determined by the Foundation and the Company based upon review of the Foundation's target markets for the applicable product and other relevant considerations, including cost-effectiveness. The price of the relevant Products in Developing Countries will be such that the Products are affordable to low income individuals in the Developing Countries, and in no case would the price charged by the Company to the relevant procurer or distributor of such products exceed Actual Production Costs plus [**]%. For clarity, the Company will in no event be required to offer the applicable Product to a procurer or distributor at a price that would be less than Actual Production Costs. The manufacturing and supply plan could involve the use of manufacturing partners and support from donors, and the specific level and allocation of funding responsibilities in such plan will be decided as mutually agreed in good faith in writing by the parties based on a fair allocation of the expected benefits between Developing Countries and developed countries. The Foundation will have the right to inspect the Company's records to verify the Actual Production Costs. These commitments do not apply to sales of Products used outside of the Developing Countries.

(i) **Progress Review Group**. The Company and the Foundation will each designate up to [**] individuals to be part of a progress review group (the "**Progress Review Group**") that will provide a forum for discussion of the progress of the Company's *S. aureus* antibody development program (including antibodies being developed for use in developed countries) and the Funded Developments. The Progress Review Group will meet via teleconference at least [**] (unless both parties agree that any [**]meeting will be conducted via teleconference). With the agreement of both parties and subject to the execution of appropriate confidentiality agreements, third parties may be invited from time to time to participate in certain Progress Review Group discussions.

(j) **Publication; Access to Data and Information**. The Company (in addition to the publication requirements of any applicable grants from the Foundation):

(i) will publish the results and information developed in connection with each Program within a reasonable period of time after such information or results are obtained, subject to reasonable delays or limitations on content of such publications that are necessary to protect intellectual property and trade secrets or other proprietary know-how covering the Platform Technology itself and subject to third party confidentiality obligations;

(ii) will promptly provide to the Foundation from time to time, upon the Foundation's reasonable request and subject to customary confidentiality restrictions, access to data and information regarding the Company's *S. aureus* antibody development programs (including raw data and regarding antibodies being developed for use in developed countries and for any indication, subject to the Foundation agreeing to appropriate confidentiality obligations) and each Program, and the reasonably contemplated use of the Platform Technology for such programs; and

(iii) will promptly provide to the Foundation from time to time, upon the Foundation's request, rights to share such non-public data and information regarding each Program, and the reasonably contemplated use of the Platform Technology for such Programs, subject to the reasonable need to protect confidential information (including, in the event that the Foundation proposes to share any such data or information with any Direct Competitor, such

disclosure to a Direct Competitor shall be permitted only to the extent that the Foundation or a Foundation-supported Entity is collaborating with such competitor, and limited to the disclosure of data or information directly relating to the development, production or commercialization of a Product, as applicable to such collaboration) and to avoid untimely public disclosures that may bar access to patent protection or public disclosures that may undermine trade secret protection or may impact the market competitiveness of a Company product.

All publications must be made in accordance with "open access" terms and conditions consistent with the Foundation's Open Access Policy available at: http://www.gatesfoundation.org/How- We-Work/General-Information/Open-Access-Policy, which may be modified from time to time.

If any publication or presentation contains Adimab Confidential Information, the Company may submit such publication or presentation for prior review and approval by Adimab for patentability and protection of Adimab Confidential Information as provided in Section 6.8 (and subject to Section 6.2) of the Adimab Agreement. The Company may not proceed with such publications or presentations containing Adimab Confidential Information unless approved of in advance in writing by Adimab in accordance with Section 6.8 of the Adimab Agreement. The Company will use reasonable efforts to obtain such approval. The Company will provide to Adimab the opportunity to review, in accordance with Section 6.8 of the Adimab Agreement, any proposed abstracts, manuscripts or summaries of public presentations that contain Adimab Confidential Information.

(k) **No Inconsistent Rights**. The Company will not grant to a third party any rights or enter into any arrangements or agreements that would limit or restrict the Foundation's rights to the Global Access Commitments.

(l) **Global Health License.**

(i) **Global Health License**. Subject to Section 3(ii), in connection with and relating to each Program, and to the extent not already licensed to the Foundation hereunder, the Company hereby grants the Foundation and/or Foundation-supported Entities, a worldwide, nonexclusive, non-terminable, perpetual, irrevocable, royalty-free (except as specified below) license (with the right to sublicense) to the (A) Funded Developments and (B) and the background intellectual property of the Company that is necessary for or is used in the Platform Technology or Programs to use, reproduce, modify, make, distribute, sell, offer-for-sale, import, and otherwise dispose of products and services directed at pathogens or other targets subject to the Programs, which license is limited, in relation to each Product or Program with respect to which it is practiced by the Foundation, to the field of use set forth in the agreement(s) applicable to such Product or Program (the "Global Health License"). The Global Health License will be subject to payment by the Foundation or a Foundation sublicensee of the applicable royalty (if any) set forth in and calculated in accordance with the Adimab Agreement as of the Effective Date (payable to Adimab, either through Company or, at Company's election, directly to Adimab), to the extent such royalty is then payable to Adimab under the Adimab Agreement, as a result of the exercise of Global Health License.

(ii) **Trigger Events**. The Global Health License is presently granted and effective. However, the Foundation will not practice its rights under the Global Health License (including its sublicensing rights) unless a Trigger Event occurs and then only with respect to the Product or Program affected by the Trigger Event. Accordingly, if a Trigger Event applies only to a particular Product or Program, the Foundation will have the right to exercise the Global Health License only for such Product or Program. "**Trigger Event**" means:

(A) a Charitability Default; or

(B) the Company (i) institutes any bankruptcy, insolvency, appointment of a receiver and/or trustee or reorganization (in either case for the release of financially distressed debtors), general assignment for the benefit of creditors, winding-up, dissolution, liquidation or similar proceeding relating to it under the laws of any jurisdiction or any such proceeding is instituted against the Company which remains undismissed or unstayed for a period of 90 days or (ii) ceases to conduct business in the ordinary course.

If either the Foundation or the Company becomes aware of a Trigger Event it will promptly notify the other party in writing of the occurrence of such Trigger Event.

(m) **Cooperation; Technology Transfer**. In connection with the exercise of any license hereunder or under a grant agreement (as applicable), the Company will take further actions, including technology transfer (subject to the transferee agreeing to appropriate confidentiality obligations), as would be commercially reasonable industry practice at the time with respect to providing a biotechnology license to a third party, to accommodate that the Foundation, the Foundation's sublicensees, and/or the relevant Foundation-supported Entity can effectively exercise the applicable license or sublicense and use the related technology (including the right to reference regulatory filings related to the applicable products).

(n) **Sufficient Rights; Inventory.**

(i) The Company represents and warrants that: (A) the Company owns or possesses, or believes it can acquire on commercially reasonable terms, all necessary rights required in order to perform its obligations and grant the licenses hereunder, (B) Arsanis mAbs ASN-1, ASN-2, and ASN-3 are included in the Optioned Antibodies and ASN-1 and ASN-2 are the mAbs that comprise the ASN100 Product Candidate, and (C) each of the Option Exercise Letters was delivered to and acknowledged by Adimab during the relevant Option Term (as defined in the Adimab Agreement) applicable to each of the Optioned Antibodies.

(ii) The Company represents and warrants that, as of the Effective Date, it has in inventory or has a contractual right to obtain a sufficient amount of the ASN100 Product Candidate and placebo therefor to timely complete the presently ongoing Phase II clinical study of the ASN100 Product Candidate.

(o) The Arsanis mAbs ASN-1, ASN-2, and ASN-3 are considered Program- Benefitted Antibodies (as defined in the Adimab Agreement) under the Adimab Agreement and (B) the Foundation Investment is a Program Transaction (as defined in the Adimab Agreement) under the Adimab Agreement.

(p) **Adimab Agreement**. The Foundation agrees that, if the Foundation or any Foundation-supported Entity grants a sublicense to a third party under any license granted hereunder by the Company to any rights covered by the Adimab Agreement, then the sublicense agreement will be made in a manner that is consistent with and subject to the applicable terms of the Adimab Agreement to the extent required by Section 3.3 of the Adimab Agreement. Prior to entering into any such sublicense to conduct activities in furtherance of the development, research, sale, distribution or other disposition of Products for the benefit of people outside of the Developing Countries, the Foundation shall provide a copy of the sublicense agreement to the Company and the Foundation shall incorporate comments from the Company as necessary to ensure compliance with the Adimab Agreement through multiple tiers. The Company must provide comments within [**] business days and will be deemed to have no comments if such comments are not provided within such [**] business-day period.

Without limiting the foregoing, any such sublicense will provide the Foundation with the right to terminate the sublicensee's rights to any rights covered by the Adimab Agreement or this Agreement granted under the sublicense for uncured material breach of the sublicense agreement as it pertains to those rights. To the extent the sublicense includes rights other than rights covered by the Adimab Agreement or this Agreement, such termination will not apply to such other rights and neither Adimab nor the Company will be entitled to enforce any termination of such rights. In addition, the sublicense agreement will state that both Adimab and the Company are intended third party beneficiaries of the relevant terms of the sublicense agreement that affect or relate to any rights or obligations of the Company under this Agreement or the Company or Adimab under the Adimab Agreement, as the case may be, including with respect to indemnification, with the right to enforce those terms, including the right to enforce the termination of the sublicense. With respect to a sublicense to conduct activities in furtherance of the development, research, sale, distribution or other disposition of Products for the Developing Countries, notwithstanding anything in the Adimab Agreement to the contrary, the sublicense agreement will not (i) restrict or limit the identity or form of the sublicensee, (ii) impose royalty or financial obligations (other than the [**]% royalty specified in the Adimab Agreement as of the Effective Date of this Letter Agreement), (iii) restrict or limit the Foundation Field or place additional restrictions on the scope of the rights granted under any of the licenses as described in this Letter Agreement, or (iv) require the sublicensee to grant intellectual property rights or licenses to Adimab or the Company (except with respect to improvements to the Adimab platform intellectual property). Within [**] days after executing a sublicense agreement, the Foundation will provide a copy of the relevant terms of the sublicense agreement to the Company with the right to disclose to Adimab. Except with respect to the sublicenses for the benefit of people outside the Developing Countries as described above in this Section 3(p), the Company will have the right to review but not to approve of the relevant terms of the sublicense agreement. The Company will promptly notify the Foundation in writing of any concerns regarding the terms of the sublicense agreement. Under no circumstances will the Foundation be responsible for the acts or omissions of any sublicensee of any tier, including for breach of the sublicense agreement or otherwise. For clarity, the Foundation does not and will not indemnify nor defend Adimab or the Company for acts or omissions of sublicensees of any tier, but shall ensure that any sublicense agreement includes the indemnification obligations on terms set forth in the Adimab Agreement and for the benefit of both the Company and Adimab and to which the Company and Adimab are third party beneficiaries. For clarity, neither Adimab nor the

Company will have the right to audit the records of the Foundation but shall ensure that any sublicense agreement includes the audit provisions on terms set forth in the Adimab Agreement and for the benefit of both the Company and Adimab and to which the Company and Adimab are third party beneficiaries. At the request of the Foundation, the Company will use good faith and reasonable efforts to work with the Foundation to help ensure that the sublicenses can be used for the achievement of the Charitable Purpose without undue restrictions. These efforts include using good faith and reasonable efforts to promptly request and obtain waivers or consents from Adimab.

(q) **Duration of Global Access Commitments**. The Global Access Commitments will be ongoing and will continue for as long as the Foundation exists, except that (i) the Company's obligation to accept Discovery Projects will terminate five years following the closing of the Foundation Investment (such five-year period will be extended to accommodate initiation of any Discovery Projects that may be under discussion by the Parties at the end of such period) and (ii) the Global Access Commitments shall expire in relation to a Program at such time as the Foundation or a Foundation-supported Entity has not, during the previous seven-year period, provided funding to the Company in furtherance of such Program; provided that, if a product developed (in whole or in part) with Foundation funding continues to be developed or available in Developing Countries, the Global Access Commitments will be ongoing and will continue with respect to such product.

(r) **Confidentiality**. The confidentiality obligations set forth in the Nondisclosure Agreement between the Foundation and the Company dated of even date herewith shall be incorporated herein by reference.

4. Survival of Global Access Commitments.

In the event of (i) a Sale Transaction, or (ii) the sale, exclusive license, or other transfer of the Platform Technology owned or controlled by the Company or the Funded Developments, the Global Access Commitments will survive and be assumed in full by the purchaser, transferee, licensee, or acquirer and the Company will take the necessary actions to effect such assumption. The Foundation will have the right to review the provisions of the written agreement with such third party that relate to the assumption of the Global Access Commitments to confirm that the Global Access Commitments will survive and be fully assumed by the third party and will continue to be directly enforceable by the Foundation. For clarity, notwithstanding anything to the contrary in this Letter Agreement, the Foundation's rights hereunder that exist on the date of the Sale Transaction or sale, exclusive license, or other transfer of the Platform Technology or the Funded Developments will not be terminated by such transaction.

5. Withdrawal Right.

(a) The Withdrawal Right described and defined in this Section 5 will be triggered only as a result of a Charitability Default.

(b) A "**Charitability Default**" will occur if the Company (i) is in material breach of any of the Global Access Commitments, including the material failure to conduct the Programs as described above, other than for reasons of regulatory, technical or scientific failure not within

the reasonable control of the Company and not known to the Company at or before closing of the Foundation Investment, (ii) fails to comply with the restrictions in Sections 2 and 9 of this Letter Agreement on the use of proceeds from the Foundation Investment, or (iii) fails to comply with the other related U.S. legal obligations set forth in this Letter Agreement, including the requirements set forth in Sections 6, 9, 11, and 12. Each party agrees to promptly notify the other party in writing if it becomes aware of a Charitability Default and the Company will thereafter promptly provide to the Foundation a proposed strategy to remedy the Charitability Default. Notwithstanding the foregoing, the Foundation will not lose any rights or remedies solely as a result of a failure to notify the Company after it becomes aware of a Charitability Default.

(c) If the Company fails to cure the Charitability Default within [**] days of the Foundation's written notice of such Charitability Default, and if the Foundation holds any securities of the Company issued in connection with the Foundation Investment, including securities issued in respect of or upon conversion or exercise of such securities (collectively, the "**Foundation Stock**"), the Company will have the obligation, if required by the Foundation, to (i) redeem all of the Foundation Stock; provided, that such redemption will be made only to the extent permitted by applicable law and only to the extent that such redemption does not render the Company insolvent, or (ii) locate a third party that will purchase the Foundation Stock ((i) and (ii), the "**Withdrawal Right**"). If the Company is unable to redeem all of the Foundation Stock, and no third party purchases the Foundation Stock, then the Company will use its best efforts to effect the Withdrawal Right, consistent with the Code and applicable law, as soon as practicable. During the period when the Company is unable to exercise its obligation to redeem or find a purchaser of the Foundation Stock, the Company will not pay dividends on any of its capital stock, redeem the capital stock of any other stockholder of the Company (excluding repurchases of stock from former employees, officers, directors, consultants or other persons who performed services for the Company or any subsidiary in connection with the cessation of such employment or service at the lower of the original purchase price or the then-current fair market value thereof) or otherwise make any other distribution to any other stockholder of the Company (other than shares of common stock or stock options issued to employees or directors of, or consultants or advisors to, the Company or any of its subsidiaries pursuant to a plan, agreement or arrangement approved by the Board of Directors of the Company).

(d) For redemption or purchase by the Company or a third party pursuant to Section 5(c), the Foundation Stock will be valued at the greater of (i) the original purchase price attributable to such shares plus a [**]% per annum compounding interest rate calculated from the date of issuance of the Foundation Stock through the date of redemption or purchase or (ii) Fair Market Value.

(e) Notwithstanding any exercise of the Withdrawal Right by the Foundation, the Foundation's rights under the Global Access Commitments will survive.

6. Required Reporting; Audit Rights.

(a) In addition to reports required to be delivered to the Foundation under the Investment Documents, the Company will furnish, or cause to be furnished, to the Foundation the following reports and certifications:

(i) within [**] days after the end of each of the Company's fiscal years during which the Foundation owns any securities in the Company, a certificate from the Company signed by an officer of the Company and substantially in the form attached to this Letter Agreement as Appendix 3, certifying that the requirements of the Foundation Investment set forth in this Letter Agreement were met during the immediately preceding fiscal year, describing the use of the proceeds of the Foundation Investment and evaluating the Company's progress toward achieving the Global Access Commitments;

(ii) within [**] days after the end of the Company's fiscal year during which the Foundation ceases to own any securities in the Company, a certificate from the Company signed by an officer of the Company and substantially in the form attached to this Letter Agreement as Appendix 4, certifying that the requirements of the Foundation Investment set forth in this Letter Agreement were met during the term of the Foundation Investment, describing the use of the proceeds of the Foundation Investment and evaluating the Company's progress toward achieving the Global Access Commitments;

(iii) any other information respecting the operations, activities and financial condition of the Company as the Foundation may from time to time reasonably request to discharge any expenditure responsibility, within the meaning of Sections 4945(d)(4) and 4945(h) of the Code, of the Foundation with respect to the Foundation Investment, and to otherwise monitor the charitable benefits intended to be served by the Foundation Investment. The Foundation will reimburse the Company for any reasonable third-party expenses incurred by the Company in order to prepare any information the Company is required to prepare solely as a result of this Section 6(a)(iii); and

(iv) full and complete financial reports of the type ordinarily required by commercial investors under similar circumstances to the extent required pursuant to Treasury Regulation 53.4945-5(b)(4).

(b) At the Foundation's reasonable request, the Company will provide the Foundation with a summary of scientific data and progress to date on all Programs and any Platform Technology related to the foregoing, and the considerations made by the Company with respect to accessibility, affordability and cost-effectiveness of the applicable Products for people and payors in Developing Countries, in addition to the information that may be required under any grant agreements or other funding agreements.

(c) Without limiting the foregoing, at the Foundation's request, the Company will permit the Foundation or its representatives to inspect (at a reasonable time and location) the scientific records of the Company relating to each Program with due regard to the reasonable need to protect trade secrets covering the Platform Technology.

(d) The Company will maintain books and records adequate to provide information ordinarily required by commercial investors under similar circumstances, including accounting records and copies of any reports submitted to the Foundation related to each Program. The Company will retain such books, records, and reports for [**] years after the Foundation ceases to hold Company securities and will make such books, records, and reports available to the Foundation at reasonable times to enable the Foundation to monitor and evaluate how the Foundation's funds have been used.

(e) The Company will permit employees or agents of the Foundation at any reasonable time and upon reasonable prior notice, during normal business hours, to examine or audit the Company's books and accounts of record and to make copies and memoranda of the same, in each case at the Foundation's expense to audit the Company's compliance with the use of the Foundation Investment and the Global Access Commitments. If the Company maintains any records (including computer generated records and computer software programs for the generation of such records) in the possession of a third party, the Company, upon request of the Foundation, will notify such party to permit the Foundation free access to such records at all reasonable times and to provide the Foundation with copies of any records it may reasonably request in connection with such audit, request or inquiry, all at the Foundation's expense.

7. Board Observer.

As long as the Foundation or an Affiliate thereof owns any Foundation Stock, the Foundation shall be entitled to designate one person to attend all meetings of the Company's Board of Directors and committees thereof in a nonvoting observer capacity and the Company shall give such representative copies of all notices, minutes, consents, and other materials that it provides to its directors at the same time and in the same manner as provided to such directors; provided that the Company reserves the right to withhold any information and to exclude such representative from any meeting or portion thereof if access to such information or attendance at such meeting could adversely affect the attorney-client privilege between the Company and its counsel or result in a potential conflict of interest on the part of the Foundation.

8. Assignment.

Notwithstanding anything in this Letter Agreement or any Investment Document to the contrary, the Foundation will have the right to assign this Letter Agreement or transfer the Foundation Stock to (a) any successor charitable organization of the Foundation from time to time that is a tax exempt organization as described in Section 501(c)(3) of the Code, or (b) any tax exempt organization as described in Section 501(c)(3) of the Code controlled by one or more trustees of the Foundation. The Foundation will notify the Company of any such assignment, including the identity of the assignee, in a timely manner. For the avoidance of doubt, if the Foundation transfers the Foundation Stock as permitted by this Section 8, the Foundation may assign to any such transferee all of its rights attached to such Foundation Stock, including the Withdrawal Right.

9. Prohibited Uses.

The Company will not expend any proceeds of the Foundation Investment to carry on propaganda or otherwise to attempt to influence legislation, to influence the outcome of any specific public election or to carry on, directly or indirectly, any voter registration drive, or to participate or intervene in any political campaign on behalf of or in opposition to any candidate for public office within the meaning of Section 4945(d) of the Code. The proceeds of the Foundation Investment will not (a) be earmarked to be used for any activity, appearance or

communication associated with the activities described in the foregoing sentence, nor (b) be intended for the direct benefit, and will not benefit, any person having a personal or private interest in the Foundation, including descendants of the founders of the Foundation, or persons related to or controlled by, directly or indirectly, such private interests.

For the avoidance of doubt, the Company will not use the funds received from the Foundation to pay a dividend or redeem shares.

10. Disqualified Person.

Neither the Company nor (to the best knowledge of the Company) any stockholder of the Company is a "disqualified person" with respect to the Foundation (as the term "disqualified person" is defined in Section 4946(a) of the Code). The Foundation does not, and one or more disqualified persons with respect to the Foundation do not, directly or indirectly, control the Company.

11. Anti-Terrorism.

The Company will not use any portion of the Foundation Investment, directly or indirectly, in support of activities (a) prohibited by U.S. laws related to combatting terrorism; (b) with persons on the List of Specially Designated Nationals (www.treasury.gov/sdn) or entities owned or controlled by such persons; or (c) with countries or territories against which the U.S. maintains comprehensive sanctions (currently, Cuba, Iran, (North) Sudan, Syria, North Korea, and the Crimean Region of Ukraine), unless such activities are fully authorized by the U.S. government under applicable law and specifically approved by the Foundation in its sole discretion.

12. Anti-Corruption and Anti-Bribery.

The Company will not offer or provide money, gifts, or any other things of value directly or indirectly to anyone in order to improperly influence any act or decision relating to the Foundation or any activities contemplated by this Letter Agreement or the Company's organizational documents (e.g., certificate of incorporation), including by assisting any party to secure an unlawful advantage. Training and information on compliance with these requirements are available at www.learnfoundationlaw.org.

13. Public Reports; Use of Name.

The Foundation may include information on this investment in its periodic public reports and may make the investment public at any time on its web page and as part of press releases, public reports, speeches, newsletters and other public document, and to the extent required by applicable law or regulation. Any announcement of the Foundation Investment by any other party, including the Company, its representatives, directors, stockholders and agents, or any investor, will require the Foundation's prior written approval. Such parties will also obtain the Foundation's prior written approval for any other use of the Foundation's name or logo in any respect; provided, however, that the Company may use the Foundation's name for any uses that have been pre-approved in writing by the Foundation. Notwithstanding the foregoing, the Foundation's name and logo will not be used by any party in any manner to market, sell or otherwise promote the Company, its products, services and/or business.

14. Indemnification.

The Company will indemnify, hold harmless, and defend the Foundation and its co-chairs, trustees, directors, officers, employees, agents, and representatives other than Foundation sublicensees (collectively, the "**Indemnitees**") from and against any and all third party causes of action, claims, suits, legal proceedings, judgments, settlements, damages, penalties, losses, liabilities and costs (including reasonable attorneys' fees and costs) (each a "**Claim**") finally awarded to such third party by a court of competent jurisdiction against any of the Indemnitees or agreed to as part of a monetary settlement of the Claim and arising out of or relating to: (a) bodily injury, death or property damage caused by the acts or omissions of the Company, including any development or commercialization or distribution activities carried out by the Company (including any failure to comply with applicable laws, regulations or rules in connection therewith), or by any Product (other than those Claims caused by commercialization or other activities conducted by a Foundation sublicensee) developed, manufactured, tested, sold, licensed, or supplied by or on behalf of the Company or any or its Affiliates, successors or assigns or any of their respective contractors, licensors, or distributors; or (b) any Claim that the Platform Technology, any Funded Development or any Product (other than those Claims caused by commercialization or other activities conducted by a Foundation sublicensee) infringes upon a patent, proprietary, or other intellectual property right of a third party; in each case, except to the extent arising out of or relating to the negligence, fraud or willful misconduct of the Foundation or its sublicensees; any failure by the Foundation or its sublicensees to comply in any material respect with applicable laws, regulations or rules; breach by the Foundation of this Letter Agreement or by any sublicensee under its agreement(s) with the Foundation; or any modification of Product or the formulation or administration thereof where such modification was not approved in writing or made by or on behalf of the Company or any of its Affiliates, successors or assigns. The Foundation will give the Company prompt written notice of any Claim subject to indemnification; provided, that the Foundation's failure to promptly notify the Company will not affect the Company's indemnification obligations except to the extent that the Foundation's delay prejudices the Company's ability to defend the Claim. The Company will have sole control over the defense and settlement of each and every Claim, with counsel of its own choosing which is reasonably acceptable to the Foundation; provided, that the Company conducts the defense actively and diligently at the sole cost and expense of the Company and provided further that the Company will not enter into any settlement that adversely affects any Indemnitee without the applicable Indemnitee's prior written consent, such consent not to be unreasonably withheld, conditioned or delayed. The Foundation will provide the Company, upon request, with reasonable cooperation in connection with the defense and settlement of the Claim. Subject to the Company's rights above to control the defense and settlement of Claims, the Foundation and any Indemnitee may, at its own expense, employ separate counsel to monitor and participate in the defense of any Claim under this Section 14.

The parties will not be liable to each other, except in connection with any claims of infringement or misappropriation, for any indirect, incidental, consequential, or special damages (including lost revenues, lost savings, or lost profits suffered by such other party) suffered by such other party arising under or in connection with this Letter Agreement, regardless of the

form of action, whether in contract or tort, and regardless of whether the party knew of the possibility that such damages could result; provided, that to the extent an Indemnitee is entitled to be indemnified hereunder for Claims of third parties and such third party has been awarded indirect, incidental, consequential, reliance, or special damages (including lost revenues, lost savings, or lost profits), the Company's indemnification obligations to the Indemnitee will extend to and include such third party's indirect, incidental, consequential, reliance, or special damages (including lost revenues, lost savings, or lost profits). The parties further agree that under no circumstances will any party be liable to the other party (or to any Indemnitee) more than once for the same losses arising under or in connection with this Letter Agreement.

15. Insurance.

The Company agrees to maintain insurance coverage sufficient to cover the activities, risks, and potential omissions in respect of the Programs in accordance with generally-accepted industry standards and as required by law. The Company will ensure all subcontractors maintain insurance coverage consistent with this paragraph.

16. Compliance with Laws and Requirements; Responsibility.

The Company will comply with all applicable laws and regulations, including intellectual property laws. The Company will conduct, control, manage, and monitor the Programs in compliance with all applicable ethical, legal, regulatory, and safety requirements, including applicable international, national, local, and institutional standards. The Company will obtain and maintain all necessary approvals, consents, and reviews before conducting the applicable activity. If the project involves:

(a) any protected information (including personally identifiable, protected health, or third party confidential), the Company will not disclose this information to the Foundation without obtaining the Foundation's prior written approval and all necessary consents to disclose such information;

(b) children or vulnerable subjects, the Company will obtain any necessary consents and approvals unique to these subjects; or

(c) any trial involving human subjects, the Company will adhere to current Good Clinical Practice as defined by the International Council on Harmonisation (ICH) E-6 Standards (or local regulations if more stringent) and will obtain applicable trial insurance.

The Company will be solely responsible and liable for all activities related to the conduct by or on behalf of the Company or any or its Affiliates, successors or assigns or any of their respective direct contractors, licensors, or distributors of the Programs. For avoidance of doubt, as between the Foundation and the Company, the Company will have responsibility for all clinical trials conducted by the Company or any of its Affiliates, successors or assigns or any of their respective direct contractors, licensors, or distributors of the Programs under this Letter Agreement. Any activities by the Foundation in reviewing documents and providing input or funding do not modify the Company's responsibility, including responsibility for determining and complying with the provisions of this Section 16.

17. Entire Agreement; Modification.

The terms and conditions set forth in this Letter Agreement are in addition to the provisions stated in the other Investment Documents and the terms and conditions of this Letter Agreement will prevail over any inconsistent provision in any other Investment Document. No change, modification or waiver of any term or condition of this Letter Agreement will be valid unless it is in writing, it is signed by the party to be bound, and it expressly refers to this Letter Agreement.

18. Authority; Governing Law.

Each of the signatories below covenants, represents and warrants that he, she or it had all authority necessary to execute this Letter Agreement and that, on execution, this Letter Agreement will be fully binding and enforceable in accordance with its terms, and that no other consents or approvals of any other person or third parties are required or necessary for this Letter Agreement to be so binding. This Letter Agreement will be governed by the laws of the State of Delaware, excluding its conflicts of laws provisions.

19. Counterparts.

This Letter Agreement may be executed in one or more counterparts, each of which will be deemed an original, but all of which will be deemed to be and constitute one and the same instrument.

20. Construction.

Section headings are not to be considered part of this Letter Agreement, are included solely for convenience, are not intended to be full or accurate descriptions of the content thereof, and will not effect the construction of this Letter Agreement. The words “include,” “includes” and “including” will be considered to be followed by the words “without limitation”.

[Signature Page Follows]

The parties have caused this Letter Agreement to be executed as of the date first set forth above.

Arsanis, Inc.

By: /s/ Rene Russo
Name: Rene Russo
Title: President and Chief Executive Officer

Bill & Melinda Gates Foundation

By: /s/ Jim Bromley
Name: Jim Bromley
Title: Chief Financial Officer

Appendix 1
Developing Countries

"**Developing Countries**" means the following list of countries, which includes (i) countries eligible for GAVI support as of 2016, (ii) countries in the process of transitioning out of GAVI support in 2016, and (iii) Botswana, Brazil, Philippines, South Africa and Thailand. "**Developing Countries**" also means any countries reasonably requested by the Foundation that are part of the Foundation's strategies to which the Company consents in writing, such consent not to be unreasonably withheld and subject to the consent of Adimab, as applicable.

- Afghanistan
- Angola
- Armenia
- Azerbaijan
- Bangladesh
- Benin
- Bolivia
- Botswana
- Brazil
- Burkina Faso
- Burundi
- Cambodia
- Cameroon
- Central African Republic
- Chad
- Comoros
- Congo, Dem Republic of
- Cote d'Ivoire
- Cuba
- Djibouti
- Eritrea
- Ethiopia
- Gambia
- Georgia
- Ghana
- Guinea
- Guinea Bissau
- Guyana
- Haiti
- India
- Indonesia
- Kenya
- Kiribati
- Korea, DPR
- Kyrgyz Republic
- Lao PDR
- Lesotho
- Liberia
- Madagascar
- Malawi
- Mali
- Mauritania
- Moldova
- Mozambique
- Myanmar
- Nepal
- Nicaragua
- Niger
- Nigeria
- Pakistan
- Philippines
- Papua New Guinea
- Rwanda
- Sao Tome e Principe
- Senegal
- Sierra Leone
- Solomon Islands
- Somalia
- Republic of Sudan
- South Africa
- South Sudan
- Tajikistan
- Tanzania, United Republic of
- Thailand
- Timor Leste
- Togo
- Uganda
- Uzbekistan
- Vietnam
- Yemen
- Zambia
- Zimbabwe

Appendix 2

SOW/TPP

[attached]

Confidential Materials omitted and filed separately with the Securities and Exchange Commission. A total of 11 pages were omitted. [**]

Appendix 3

OFFICER'S CERTIFICATE

ARSANIS, INC.

[DATE]

This certificate is being delivered by Arsanis, Inc., a Delaware corporation (the "Company"), pursuant to Section 6(a) of the Letter Agreement between the Company and the Bill & Melinda Gates Foundation dated as of April 24, 2017 (the "Letter Agreement"). Capitalized terms used but not otherwise defined herein have the meanings ascribed to them in the Letter Agreement.

The Company certifies as follows:

1. During the fiscal year ended [DATE], the Company met the requirements of the Foundation Investment as set forth in the Letter Agreement that were required to be complied with or performed by the Company during such time period.

2. Attached as Exhibit A to this certificate is a description of the Company's use of proceeds of the Foundation Investment during the fiscal year ended [DATE].

3. Attached as Exhibit B to this certificate is the Company's evaluation of the Company's progress with respect to each Program, including information regarding progress against the Global Access Commitments (as set forth in the Investment Documents) during the fiscal year ended [DATE].

IN WITNESS WHEREOF, the undersigned has executed this certificate and has caused this certificate to be delivered on the date first above written.

Arsanis, Inc.

By: _____

Name:
Title:

Appendix 4

OFFICER'S CERTIFICATE

ARSANIS, INC.

[DATE]

This certificate is being delivered by Arsanis, Inc., a Delaware corporation (the "Company"), pursuant to Section 6(b) of the Letter Agreement between the Company and the Bill & Melinda Gates Foundation dated as of April 24, 2017 (the "Letter Agreement"). Capitalized terms used but not otherwise defined herein have the meanings ascribed to them in the Letter Agreement.

The Company certifies as follows:

1. During the term of the Foundation Investment, the Company met the requirements of the Foundation Investment as set forth in the Letter Agreement that were required to be complied with or performed by the Company during such time period.

2. Attached as Exhibit A to this certificate is a description of the Company's use of proceeds of the Foundation Investment during the term of the Foundation Investment.

3. Attached as Exhibit B to this certificate is the Company's evaluation of the Company's progress with respect to each Program, including information regarding progress against the Global Access Commitments (as set forth in the Investment Documents) during the term of the Foundation Investment.

IN WITNESS WHEREOF, the undersigned has executed this certificate and has caused this certificate to be delivered on the date first above written.

Arsanis, Inc.

By: _____

Name:
Title:

LOAN AND SECURITY AGREEMENT

THIS LOAN AND SECURITY AGREEMENT (this "**Agreement**") dated as of December 7, 2012 (the "**Effective Date**") between **SILICON VALLEY BANK**, a California corporation with a loan production office located at 275 Grove Street, Suite 2-200, Newton, Massachusetts 02466 ("**Bank**"), and **ARSANIS, INC.**, a Delaware corporation ("**Borrower**"), provides the terms on which Bank shall lend to Borrower and Borrower shall repay Bank. The parties agree as follows:

1 ACCOUNTING AND OTHER TERMS

Accounting terms not defined in this Agreement shall be construed following GAAP. Calculations and determinations must be made following GAAP. Capitalized terms not otherwise defined in this Agreement shall have the meanings set forth in Section 13. All other terms contained in this Agreement, unless otherwise indicated, shall have the meaning provided by the Code to the extent such terms are defined therein.

2 LOAN AND TERMS OF PAYMENT

2.1 Promise to Pay. Borrower hereby unconditionally promises to pay Bank the outstanding principal amount of all Credit Extensions and accrued and unpaid interest thereon as and when due in accordance with this Agreement.

2.1.1 Term Loan.

(a) Availability. Subject to the terms and conditions of this Agreement, Bank shall make one (1) advance (the "**Term Loan A Advance**") available to Borrower in an amount of Five Hundred Thousand Dollars ($500,000.00) on the Effective Date. Subject to the terms and conditions of this Agreement, during the Draw Period, Bank shall make advances (each, a "**Term Loan B Advance**" and collectively, "**Term Loan B Advances**") available to Borrower in an aggregate amount of up to Two Million Dollars ($2,000,000.00). Each Term Loan B Advance must be in an amount equal to at least Two Hundred Fifty Thousand Dollars ($250,000.00). The Term Loan A Advance and Term Loan B Advances are hereinafter referred to singly as a "**Term Loan Advance**" and collectively as the "**Term Loan Advances**." After repayment, no Term Loan Advance may be reborrowed.

(b) Interest Period. Commencing on the first Payment Date of the month following the month in which the Funding Date for the applicable Term Loan Advance occurs, and continuing on each Payment Date thereafter, Borrower shall make monthly payments of interest, in arrears, on the principal amount of each Term Loan Advance at the rate set forth in Section 2.2(a).

(c) Repayment. Commencing on October 1, 2013, and continuing on the Payment Date of each month thereafter, Borrower shall repay each Term Loan Advance in (i) thirty (30) equal installments of principal, plus (ii) monthly payments of accrued interest at the rate set forth in Section 2.2(a). All outstanding principal and accrued and unpaid interest with respect to the Term Loan Advances, and all other outstanding Obligations with respect to the Term Loan Advances, are due and payable in full on the Maturity Date.

(d) Permitted Prepayment. Borrower shall have the option to prepay all (but not less than all) of the Term Loan Advances, provided Borrower (i) provides written notice to Bank of its election to prepay the Term Loan Advances at least thirty (30) days prior to such prepayment, and (ii) pays, on the date of such prepayment (A) all outstanding principal plus accrued interest under the Term Loan Advances, (B) the Final Payment, and (C) all other sums, if any, that shall have become due and payable, including interest at the Default Rate with respect to any past due amounts.

(e) Mandatory Prepayment Upon an Acceleration. If the Term Loan Advances are accelerated following the occurrence of an Event of Default or otherwise, Borrower shall immediately pay to Bank an amount equal to the sum of: (i) all outstanding principal plus accrued interest under the Term Loan Advances, (ii) the Final Payment, and (iii) all other sums, if any, that shall have become due and payable, including interest at the Default Rate with respect to any past due amounts.

2.2 Payment of Interest on the Credit Extensions.

(a) Interest Rate. Subject to Section 2.2(b), the principal amount outstanding for each Term Loan Advance shall accrue interest at a fixed per annum rate equal to the Prime Rate, which interest shall be determined by Bank on the Funding Date of the applicable Term Loan Advance and shall be payable monthly in accordance with Section 2.2(e) below.

(b) Default Rate. Immediately upon the occurrence and during the continuance of an Event of Default, Obligations shall bear interest at a rate per annum which is four percentage points (4.00%) above the rate that is otherwise applicable thereto (the "**Default Rate**") unless Bank otherwise elects from time to time in its sole discretion to impose a smaller increase. Fees and expenses which are required to be paid by Borrower pursuant to the Loan Documents (including, without limitation, Bank Expenses) but are not paid when due shall bear interest until paid at a rate equal to the highest rate applicable to the Obligations. Payment or acceptance of the increased interest rate provided in this Section 2.2(b) is not a permitted alternative to timely payment and shall not constitute a waiver of any Event of Default or otherwise prejudice or limit any rights or remedies of Bank.

(c) Computation; 360-Day Year. In computing interest, the date of the making of any Credit Extension shall be included and the date of payment shall be excluded; *provided*, *however*, that if any Credit Extension is repaid on the same day on which it is made, such day shall be included in computing interest on such Credit Extension. Interest shall be computed on the basis of a 360-day year for the actual number of days elapsed.

(d) Debit of Accounts. Bank may debit any of Borrower's deposit accounts, including the Designated Deposit Account, for principal and interest payments or any other amounts Borrower owes Bank when due. These debits shall not constitute a set-off.

(e) Interest Payment Date. Unless otherwise provided, interest is payable monthly on the Payment Date.

2.3 Fees. Borrower shall pay to Bank:

(a) Commitment Fee. A fully earned, non-refundable commitment fee of Five Thousand Dollars ($5,000.00), on the Effective Date;

(b) Final Payment. The Final Payment, when due hereunder; and

(c) Bank Expenses. All Bank Expenses (including reasonable attorneys' fees and expenses for documentation and negotiation of this Agreement) incurred through and after the Effective Date, when due.

2.4 Payments. All payments (including prepayments) to be made by Borrower under any Loan Document shall be made in immediately available funds in U.S. Dollars, without setoff or counterclaim, before 3:00 p.m. Eastern time on the date when due. Payments of principal and/or interest received after 3:00 p.m. Eastern time are considered received at the opening of business on the next Business Day. When a payment is due on a day that is not a Business Day, the payment shall be due the next Business Day, and additional fees or interest, as applicable, shall continue to accrue until paid.

3 CONDITIONS OF LOANS

3.1 Conditions Precedent to Initial Credit Extension. Bank's obligation to make the initial Credit Extension is subject to the condition precedent that Bank shall have received, in form and substance satisfactory to Bank, such documents, and completion of such other matters, as Bank may reasonably deem necessary or appropriate, including, without limitation:

(a) duly executed original signatures to the Loan Documents;

(b) duly executed original signatures to the Warrant;

(c) duly executed original signatures to the Pledge Agreement;

(d) duly executed original signatures to the Stock Power and original stock certificates;

(e) duly executed original signatures to the Control Agreement(s);

(f) Borrower's Operating Documents and a good standing certificate of Borrower certified by the Secretary of State of the State of Delaware as of a date no earlier than thirty (30) days prior to the Effective Date;

(g) Certificates of foreign qualification/good standing of Borrower (for all other states in which Borrower is qualified to do business), certified by the applicable Secretary of State as of a date no earlier than thirty (30) days prior to the Effective Date;

(h) Secretary's Corporate Borrowing Certificate for Borrower;

(i) certified copies, dated as of a recent date, of financing statement searches, as Bank shall request, accompanied by written evidence (including any UCC termination statements) that the Liens indicated in any such financing statements either constitute Permitted Liens or have been or, in connection with the initial Credit Extension, will be terminated or released;

(j) the Perfection Certificate of Borrower, together with the duly executed original signature thereto;

(k) a legal opinion of Borrower's counsel dated as of the Effective Date together with the duly executed original signature thereto;

(1) evidence satisfactory to Bank that the insurance policies required by Section 6.5 hereof are in full force and effect, together with appropriate evidence showing lender loss payable and/or additional insured clauses or endorsements in favor of Bank;

(l) satisfactory review of License Agreement between Austrian Subsidiary and Borrower;

(m) duly executed original signatures to the Collateral Assignment of License Agreement; and

(n) payment of the fees and Bank Expenses then due as specified in Section 2.3 hereof.

3.2 Conditions Precedent to all Credit Extensions. Bank's obligations to make each Credit Extension, including the initial Credit Extension, is subject to the following conditions precedent:

(a) except as otherwise provided in Section 3.4, timely receipt of an executed Payment/Advance Form;

(b) the representations and warranties in this Agreement shall be true, accurate, and complete in all material respects on the date of the Payment/Advance Form and on the Funding Date of each Credit Extension; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date, and no Event of Default shall have occurred and be continuing or result from the Credit Extension. Each Credit Extension is Borrower's representation and warranty on that date that the representations and warranties in this Agreement remain true, accurate, and complete in all material respects; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date; and

(c) in Bank's reasonable discretion, there has not been any material impairment in the general affairs, management, results of operation, financial condition or the prospect of repayment of the Obligations, or any material adverse deviation by Borrower from the most recent business plan of Borrower presented to and accepted by Bank.

3.3 Covenant to Deliver. Borrower agrees to deliver to Bank each item required to be delivered to Bank under this Agreement as a condition precedent to any Credit Extension. Borrower expressly agrees that a Credit Extension made prior to the receipt by Bank of any such item shall not constitute a waiver by Bank of Borrower's obligation to deliver such item, and the making of any Credit Extension in the absence of a required item shall be in Bank's sole discretion.

3.4 Procedures for Borrowing. Subject to the prior satisfaction of all other applicable conditions to the making of a Credit Extension set forth in this Agreement, to obtain a Credit Extension, Borrower shall notify Bank (which notice shall be irrevocable) by electronic mail, facsimile, or telephone by 12:00 p.m. Eastern time two (2) Business Days prior to the proposed Funding Date. Together with any such electronic or facsimile notification, Borrower shall deliver to Bank by electronic mail or facsimile a completed Payment/Advance Form executed by a Responsible Officer or his or her designee. Bank may rely on any telephone notice given by a person whom Bank believes is a Responsible Officer or designee. Bank shall credit the Credit Extension to the Designated Deposit Account. Bank may make Credit Extensions under this Agreement based on instructions from a Responsible Officer or his or her designee.

4 CREATION OF SECURITY INTEREST

4.1 Grant of Security Interest. Borrower hereby grants Bank, to secure the payment and performance in full of all of the Obligations, a continuing security interest in, and pledges to Bank, the Collateral, wherever located, whether now owned or hereafter acquired or arising, and all proceeds and products thereof.

Borrower acknowledges that it previously has entered, and/or may in the future enter, into Bank Services Agreements with Bank. Regardless of the terms of any Bank Services Agreement, Borrower agrees that any amounts Borrower owes Bank thereunder shall be deemed to be Obligations hereunder and that it is the intent of Borrower and Bank to have all such Obligations secured by the first priority perfected security interest in the Collateral granted herein (subject only to Permitted Liens that expressly have superior priority to Bank's Lien in this Agreement).

If this Agreement is terminated, Bank's Lien in the Collateral shall continue until the Obligations (other than inchoate indemnity obligations) are satisfied in full, and at such time, Bank shall, at Borrower's sole cost and expense, terminate its security interest in the Collateral and all rights therein shall revert to Borrower. In the event (a) all Obligations (other than inchoate indemnity obligations), except for Bank Services, are satisfied in full, and (b) this Agreement is terminated, Bank shall terminate the security interest granted herein upon Borrower providing cash collateral acceptable to Bank in its good faith business judgment for Bank Services, if any. In the event such Bank Services consist of outstanding Letters of Credit, Borrower shall provide to Bank cash collateral in an amount equal to (i) one hundred five percent (105.0%) of the face amount of all such Letters of Credit denominated in Dollars, and (ii) one hundred ten percent (110.0%) of the Dollar Equivalent of the face amount of all such Letters of Credit denominated in a Foreign Currency plus, in each case, all interest, fees, and costs due or to become due in connection therewith (as estimated by Bank in its good faith business judgment), to secure all of the Obligations relating to such Letters of Credit.

4.2 Priority of Security Interest. Borrower represents, warrants, and covenants that the security interest granted herein is and shall at all times continue to be a first priority perfected security interest in the Collateral (subject only to Permitted Liens that expressly have superior priority to Bank's Lien under this Agreement). If Borrower shall acquire a commercial tort claim, Borrower shall promptly notify Bank in a writing signed by Borrower of the general details thereof and grant to Bank in such writing a security interest therein and in the proceeds thereof, all upon the terms of this Agreement, with such writing to be in form and substance reasonably satisfactory to Bank.

4.3 Authorization to File Financing Statements. Borrower hereby authorizes Bank to file financing statements, without notice to Borrower, with all appropriate jurisdictions to perfect or protect Bank's interest or rights hereunder, including a notice that any disposition of the Collateral, by either Borrower or any other Person, shall be deemed to violate the rights of Bank under the Code. Such financing statements may indicate the Collateral as "all assets of the Debtor" or words of similar effect, or as being of an equal or lesser scope, or with greater detail, all in Bank's discretion.

5 REPRESENTATIONS AND WARRANTIES

Borrower represents and warrants as follows:

5.1 Due Organization, Authorization; Power and Authority. Borrower and each of its Subsidiaries are duly existing and in good standing as Registered Organizations in their respective jurisdictions of formation and are qualified and licensed to do business and are in good standing in any other jurisdiction in which the conduct of their respective business or ownership of property requires that they be qualified except where the failure to do so could not reasonably be expected to have a material adverse effect on Borrower's business. In connection with this Agreement, Borrower has delivered to Bank a completed certificate signed by Borrower, entitled "Perfection Certificate". Borrower represents and warrants to Bank that (a) Borrower's exact legal name is that indicated on the Perfection Certificate and on the signature page hereof; (b) Borrower is an organization of the type and is organized in the jurisdiction set forth in the Perfection Certificate; (c) the Perfection Certificate accurately sets forth Borrower's organizational identification number or accurately states that Borrower has none; (d) the Perfection Certificate accurately sets forth Borrower's place of business, or, if more than one, its chief executive office as well as Borrower's mailing address (if different than its chief executive office); (e) Borrower (and each of its predecessors) has not, in the past five (5) years, changed its jurisdiction of formation, organizational structure or type, or any organizational number assigned by its jurisdiction; and (f) all other information set forth on the Perfection Certificate pertaining to Borrower and each of its Subsidiaries is accurate and complete (it being understood and agreed that Borrower may from time to time update certain information in the Perfection Certificate after the Effective Date to the extent permitted by one or more specific provisions in this Agreement). If Borrower is not now a Registered Organization but later becomes one, Borrower shall promptly notify Bank of such occurrence and provide Bank with Borrower's organizational identification number.

The execution, delivery and performance by Borrower of the Loan Documents to which it is a party have been duly authorized, and do not (i) conflict with any of Borrower's organizational documents, (ii) contravene, conflict with, constitute a default under or violate any material Requirement of Law, (iii) contravene, conflict or violate any applicable order, writ, judgment, injunction, decree, determination or award of any Governmental Authority by which Borrower or any of its Subsidiaries or any of their property or assets may be bound or affected, (iv) require any action by, filing, registration, or qualification with, or Governmental Approval from, any Governmental Authority (except such Governmental Approvals which have already been obtained and are in full force and effect), or (v) constitute an event of default under any material agreement by which Borrower is bound. Borrower is not in default under any agreement to which it is a party or by which it is bound in which the default could reasonably be expected to have a material adverse effect on Borrower's business.

5.2 Collateral. Borrower has good title to, has rights in, and the power to transfer each item of the Collateral upon which it purports to grant a Lien hereunder, free and clear of any and all Liens except Permitted Liens. Borrower has no deposit accounts other than the deposit accounts with Bank, the deposit accounts, if any, described in the Perfection Certificate delivered to Bank in connection herewith, or of which Borrower has given Bank notice and taken such actions as are necessary to give Bank a perfected security interest therein.

The Collateral is not in the possession of any third party bailee (such as a warehouse) except as otherwise provided in the Perfection Certificate. None of the components of the Collateral shall be maintained at locations other than as provided in the Perfection Certificate or as permitted pursuant to Section 7.2.

All Inventory is in all material respects of good and marketable quality, free from material defects.

Borrower is the sole owner of the Intellectual Property which it owns or purports to own except for (a) non-exclusive licenses granted to its customers in the ordinary course of business, (b) over-the-counter software that is commercially available to the public, and (c) material Intellectual Property licensed to Borrower and noted on the Perfection Certificate. Each Patent which it owns or purports to own and which is material to Borrower's business is valid and enforceable, and no part of the Intellectual Property which Borrower owns or purports to own and which is material to Borrower's business has been judged invalid or unenforceable, in whole or in part. To the best of Borrower's knowledge, no claim has been made that any part of the Intellectual Property violates the rights of any third party except to the extent such claim would not reasonably be expected to have a material adverse effect on Borrower's business.

Except as noted on the Perfection Certificate, Borrower is not a party to, nor is it bound by, any Restricted License.

5.3 Litigation. There are no actions or proceedings pending or, to the knowledge of the Responsible Officers, threatened in writing by or against Borrower or any of its Subsidiaries involving more than, individually or in the aggregate, Fifty Thousand Dollars ($50,000.00).

5.4 Financial Statements; Financial Condition. All consolidated financial statements for Borrower and any of its Subsidiaries delivered to Bank fairly present in all material respects Borrower's consolidated financial condition and Borrower's consolidated results of operations. There has not been any material deterioration in Borrower's consolidated financial condition since the date of the most recent financial statements submitted to Bank.

5.5 Solvency. The fair salable value of Borrower's assets (including goodwill minus disposition costs) exceeds the fair value of its liabilities; Borrower is not left with unreasonably small capital after the transactions in this Agreement; and Borrower is able to pay its debts (including trade debts) as they mature.

5.6 Regulatory Compliance. Borrower is not an "investment company" or a company "controlled" by an "investment company" under the Investment Company Act of 1940, as amended. Borrower is not engaged as one of its important activities in extending credit for margin stock (under Regulations X, T and U of the Federal Reserve Board of Governors). Borrower has complied in all material respects with the Federal Fair Labor Standards Act. Neither Borrower nor any of its Subsidiaries is a "holding company" or an "affiliate" of a "holding company" or a "subsidiary company" of a "holding company" as each term is defined and used in the Public Utility Holding Company Act of 2005. Borrower has not violated any laws, ordinances or rules, the violation of which could reasonably be expected to have a material adverse effect on its business. None of Borrower's or any of its Subsidiaries' properties or assets has been used by Borrower or any Subsidiary or, to the best of Borrower's knowledge, by previous Persons, in disposing, producing, storing, treating, or transporting any hazardous substance other than legally. Borrower and each of its Subsidiaries have obtained all consents, approvals and authorizations of, made all declarations or filings with, and given all notices to, all Government Authorities that are necessary to continue their respective businesses as currently conducted.

5.7 Subsidiaries; Investments. Borrower does not own any stock, partnership interest or other equity securities except for Permitted Investments.

5.8 Tax Returns and Payments; Pension Contributions. Borrower has timely filed all required tax returns and reports, and Borrower has timely paid all foreign, federal, state and local taxes, assessments, deposits and contributions owed by Borrower. Borrower may defer payment of any contested taxes, provided that Borrower (a) in good faith contests its obligation to pay the taxes by appropriate proceedings promptly and diligently instituted and conducted, (b) notifies Bank in writing of the commencement of, and any material development in, the proceedings, (c) posts bonds or takes any other steps required to prevent the governmental authority levying such contested taxes from obtaining a Lien upon any of the Collateral that is other than a "Permitted Lien". Borrower is unaware of any claims or adjustments proposed for any of Borrower's prior tax years which could result in additional taxes becoming due and payable by Borrower. Borrower has paid all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with their terms, and Borrower has not withdrawn from participation in, and has not permitted partial or complete termination of, or permitted the occurrence of any other event with respect to, any such plan which could reasonably be expected to result in any liability of Borrower, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other governmental agency.

5.9 Use of Proceeds. Borrower shall use the proceeds of the Credit Extensions as working capital and to fund its general business requirements and not for personal, family, household or agricultural purposes.

5.10 Full Disclosure. No written representation, warranty or other statement of Borrower in any certificate or written statement given to Bank, as of the date such representation, warranty, or other statement was made, taken together with all such written certificates and written statements given to Bank, contains any untrue statement of a material fact or omits to state a material fact necessary to make the statements contained in the certificates or statements not misleading (it being recognized by Bank that the projections and forecasts provided by Borrower in good faith and based upon reasonable assumptions are not viewed as facts and that actual results during the period or periods covered by such projections and forecasts may differ from the projected or forecasted results).

5.12 Definition of "Knowledge." For purposes of the Loan Documents, whenever a representation or warranty is made to Borrower's knowledge or awareness, to the "best of" Borrower's knowledge, or with a similar qualification, knowledge or awareness means the actual knowledge, after reasonable investigation, of the Responsible Officers.

6 AFFIRMATIVE COVENANTS

Borrower shall do all of the following:

6.1 Government Compliance.

(a) Maintain its and all its Subsidiaries' legal existence and good standing in their respective jurisdictions of formation and maintain qualification in each jurisdiction in which the failure to so qualify would reasonably be expected to have a material adverse effect on Borrower's business or operations. Borrower shall comply, and have each Subsidiary comply, with all laws, ordinances and regulations to which it is subject, noncompliance with which could have a material adverse effect on Borrower's business.

(b) Obtain all of the Governmental Approvals necessary for the performance by Borrower of its obligations under the Loan Documents to which it is a party and the grant of a security interest to Bank in all of its property. Borrower shall promptly provide copies of any such obtained Governmental Approvals to Bank.

6.2 Financial Statements, Reports, Certificates. Deliver to Bank:

(a) Monthly Financial Statements. As soon as available, but no later than thirty (30) days after the last day of each month, a company prepared consolidated and consolidating balance sheet and income statement covering Borrower's consolidated operations and Borrower's and each of its Subsidiary's operations for such month certified by a Responsible Officer and in a form acceptable to Bank (the "**Monthly Financial Statements**");

(b) Monthly Compliance Certificate. Within thirty (30) days after the last day of each month and together with the Monthly Financial Statements, a duly completed Compliance Certificate signed by a Responsible Officer, certifying that as of the end of such month, Borrower was in full compliance with all of the terms and conditions of this Agreement, and setting forth such other information as Bank shall reasonably request;

(c) Annual Audited Financial Statements. As soon as available, but no later than one hundred eighty (180) days after the last day of Borrower's fiscal year (commencing with the fiscal year ending December 31, 2012), audited consolidated financial statements prepared under GAAP, consistently applied, together with an unqualified opinion on the financial statements from an independent certified public accounting firm acceptable to Bank in its reasonable discretion;

(d) Other Statements. Within five (5) days of delivery, copies of all statements, reports and notices made available to Borrower's security holders or to any holders of Subordinated Debt;

(e) SEC Filings. In the event that Borrower becomes subject to the reporting requirements under the Exchange Act within five (5) days of filing, copies of all periodic and other reports, proxy statements and other materials filed by Borrower with the SEC, any Governmental Authority succeeding to any or all of the functions of the SEC or with any national securities exchange, or distributed to its shareholders, as the case may be. Documents required to be delivered pursuant to the terms hereof (to the extent any such documents are included in materials otherwise filed with the SEC) may be delivered electronically and if so delivered, shall be deemed to have been delivered on the date on which Borrower posts such documents, or provides a link thereto, on Borrower's website on the Internet at Borrower's website address;

(f) Legal Action Notice. A prompt report of any legal actions pending or threatened in writing against Borrower or any of its Subsidiaries that could result in damages or costs to Borrower or any of its Subsidiaries of, individually or in the aggregate, Fifty Thousand Dollars ($50,000.00) or more;

(g) Board Projections. As soon as available, but no later than sixty (60) days after the last day of Borrower's fiscal year, and contemporaneously with any updates or changes thereto, Board-approved operating budgets and projections (reflecting projections on a monthly basis) as to the then current fiscal year in a form acceptable to Bank; and

(h) Other Financial Information. Other financial information reasonably requested by Bank.

6.3 Inventory; Returns. Keep all Inventory in good and marketable condition, free from material defects. Returns and allowances between Borrower and its Account Debtors shall follow Borrower's customary practices as they exist at the Effective Date. Borrower must promptly notify Bank of all returns, recoveries, disputes and claims that involve more than One Hundred Thousand Dollars ($100,000.00).

6.4 Taxes; Pensions. Timely file, and require each of its Subsidiaries to timely file, all required tax returns and reports (taking into account applicable extensions) and timely pay, and require each of its Subsidiaries to timely pay, all foreign, federal, state and local taxes, assessments, deposits and contributions owed by Borrower and each of its Subsidiaries, except for deferred payment of any taxes contested pursuant to the terms of Section 5.8 hereof, and shall deliver to Bank, on demand, appropriate certificates attesting to such payments, and pay all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with their terms.

6.5 Insurance. Keep its business and the Collateral insured for risks and in amounts standard for companies in Borrower's industry and location and as Bank may reasonably request. Insurance policies shall be in a form, with companies, and in amounts that are satisfactory to Bank. All property policies shall have a lender's loss payable endorsement showing Bank as lender loss payee and waive subrogation against Bank and shall provide that the insurer must give Bank at least twenty (20) days notice before canceling, amending, or declining to renew its policy. All liability policies shall show, or have endorsements showing, Bank as an additional insured, and all such policies (or the loss payable and additional insured endorsements) shall provide that the insurer shall give Bank at least twenty (20) days notice before canceling, amending, or declining to renew its policy. At Bank's request, Borrower shall deliver certified copies of policies and evidence of all premium payments. Proceeds payable under any policy shall, at Bank's option, be payable to Bank on account of the Obligations. If Borrower fails to obtain insurance as required under this Section 6.5 or to pay any amount or furnish any required proof of payment to third persons and Bank, Bank may make all or part of such payment or obtain such insurance policies required in this Section 6.5, and take any action under the policies Bank deems prudent.

6.6 Operating Accounts.

(a) Maintain (i) all of its operating, depository, and securities accounts with Bank and Bank's Affiliates, and (ii) all of its Subsidiaries' U.S. operating, depository, and securities accounts with Bank and Bank's Affiliates.

(b) Provide Bank five (5) days prior written notice before establishing any Collateral Account at or with any bank or financial institution other than Bank or Bank's Affiliates. For each Collateral Account that Borrower at any time maintains, Borrower shall cause the applicable bank or financial institution (other than Bank) at or with which any Collateral Account is maintained to execute and deliver a Control Agreement or other appropriate instrument with respect to such Collateral Account to perfect Bank's Lien in such Collateral Account in accordance with the terms hereunder which Control Agreement may not be terminated without the prior written consent of Bank. The provisions of the previous sentence shall not apply to deposit accounts exclusively used for payroll, payroll taxes and other employee wage and benefit payments to or for the benefit of Borrower's employees and identified to Bank by Borrower as such.

6.7 Protection of Intellectual Property Rights.

(a) (i) Protect, defend and maintain the validity and enforceability of its Intellectual Property; (ii) promptly advise Bank in writing of material infringements of its Intellectual Property; and (iii) not allow any Intellectual Property material to Borrower's business to be abandoned, forfeited or dedicated to the public without Bank's written consent.

(b) Provide written notice to Bank within ten (10) days of entering or becoming bound by any Restricted License (other than over-the-counter software that is commercially available to the public). Borrower shall take such steps as Bank requests to obtain the consent of, or waiver by, any person whose consent or waiver is necessary for (i) any Restricted License to be deemed "Collateral" and for Bank to have a security interest in it that might otherwise be restricted or prohibited by law or by the terms of any such Restricted License, whether now existing or entered into in the future, and (ii) Bank to have the ability in the event of a liquidation of any Collateral to dispose of such Collateral in accordance with Bank's rights and remedies under this Agreement and the other Loan Documents.

6.8 Litigation Cooperation. From the date hereof and continuing through the termination of this Agreement, make available to Bank, without expense to Bank, Borrower and its officers, employees and agents and Borrower's books and records, to the extent that Bank may deem them reasonably necessary to prosecute or defend any third-party suit or proceeding instituted by or against Bank with respect to any Collateral or relating to Borrower.

6.9 Access to Collateral; Books and Records. Allow Bank, or its agents, at reasonable times, on three (3) Business Days' notice (provided no notice is required if an Event of Default has occurred and is continuing), to inspect the Collateral and audit and copy Borrower's Books. Such inspections or audits shall be conducted no more often than once every six (6) months unless an Event of Default has occurred and is continuing in which case such inspections and audits shall occur as often as Bank shall determine is necessary. The foregoing inspections and audits shall be at Borrower's expense.

6.10 Further Assurances. Execute any further instruments and take further action as Bank reasonably requests to perfect or continue Bank's Lien in the Collateral or to effect the purposes of this Agreement.

7 <u>NEGATIVE COVENANTS</u>

Borrower shall not do any of the following without Bank's prior written consent:

7.1 Dispositions. Convey, sell, lease, transfer, assign, or otherwise dispose of (collectively, "**Transfer**"), or permit any of its Subsidiaries to Transfer, all or any part of its business or property, except for Transfers (a) of Inventory in the ordinary course of business; (b) of worn-out or obsolete Equipment; (c) in connection with Permitted Liens and Permitted Investments; and (d) of non-exclusive licenses, partnerships and joint ventures for the use of the property of Borrower or its Subsidiaries in the ordinary course of business.

7.2 Changes in Business, Management, Ownership, or Business Locations. (a) Engage in or permit any of its Subsidiaries to engage in any business other than the businesses currently engaged in by Borrower and such Subsidiary, as applicable, or reasonably related thereto; (b) liquidate or dissolve; or (c) (i) any Key Person ceases to hold such office with Borrower and a replacement satisfactory to Borrower's Board is not made within ninety (90) days after his or her departure from Borrower; or (ii) enter into any transaction or series of related

transactions in which the stockholders of Borrower who were not stockholders immediately prior to the first such transaction own more than forty percent (40%) of the voting stock of Borrower immediately after giving effect to such transaction or related series of such transactions (other than by the sale of Borrower's equity securities in a public offering or to venture capital investors so long as Borrower identifies to Bank the venture capital investors prior to the closing of the transaction and provides to Bank a description of the material terms of the transaction).

Borrower shall not, without at least thirty (30) days prior written notice to Bank: (1) add any new offices or business locations, including warehouses (unless such new offices or business locations contain less than Twenty-Five Thousand Dollars ($25,000.00) in Borrower's assets or property) or deliver any portion of the Collateral valued, individually or in the aggregate, in excess of Twenty-Five Thousand Dollars ($25,000.00) to a bailee at a location other than to a bailee and at a location already disclosed in the Perfection Certificate, (2) change its jurisdiction of organization, (3) change its organizational structure or type, (4) change its legal name, or (5) change any organizational number (if any) assigned by its jurisdiction of organization. If Borrower intends to deliver any portion of the Collateral valued, individually or in the aggregate, in excess of Twenty-Five Thousand Dollars ($25,000.00) to a bailee, and Bank and such bailee are not already parties to a bailee agreement governing both the Collateral and the location to which Borrower intends to deliver the Collateral, then Borrower will first receive the written consent of Bank, and such bailee shall execute and deliver a bailee agreement in form and substance satisfactory to Bank in its sole discretion.

7.3 Mergers or Acquisitions. Merge or consolidate, or permit any of its Subsidiaries to merge or consolidate, with any other Person, or acquire, or permit any of its Subsidiaries to acquire, all or substantially all of the capital stock or property of another Person. A Subsidiary may merge or consolidate into another Subsidiary or into Borrower.

7.4 Indebtedness. Create, incur, assume, or be liable for any Indebtedness, or permit any Subsidiary (including Austrian Subsidiary) to do so, other than Permitted Indebtedness.

7.5 Encumbrance. Create, incur, allow, or suffer any Lien on any of its property, or assign or convey any right to receive income, including the sale of any Accounts, or permit any of its Subsidiaries to do so, except for Permitted Liens, permit any Collateral not to be subject to the first priority security interest granted herein, or enter into any agreement, document, instrument or other arrangement (except with or in favor of Bank) with any Person which directly or indirectly prohibits or has the effect of prohibiting Borrower or any Subsidiary from assigning, mortgaging, pledging, granting a security interest in or upon, or encumbering any of Borrower's or any Subsidiary's Intellectual Property, except as is otherwise permitted in Section 7.1 hereof and the definition of "Permitted Liens" herein.

7.6 Maintenance of Collateral Accounts. Maintain any Collateral Account except pursuant to the terms of Section 6.6(b) hereof.

7.7 Distributions; Investments. (a) Pay any dividends or make any distribution or payment or redeem, retire or purchase any capital stock; or (b) directly or indirectly make any Investment other than Permitted Investments, or permit any of its Subsidiaries to do so.

7.8 Transactions with Affiliates. Directly or indirectly enter into or permit to exist any material transaction with any Affiliate of Borrower, except for transactions that are in the ordinary course of Borrower's business, upon fair and reasonable terms that are no less favorable to Borrower than would be obtained in an arm's length transaction with a non-affiliated Person.

7.9 Subordinated Debt. (a) Make or permit any payment on any Subordinated Debt, except under the terms of the subordination, intercreditor, or other similar agreement to which such Subordinated Debt is subject, or (b) amend any provision in any document relating to the Subordinated Debt which would increase the amount thereof or adversely affect the subordination thereof to Obligations owed to Bank.

7.10 Compliance. Become an "investment company" or a company controlled by an "investment company", under the Investment Company Act of 1940, as amended, or undertake as one of its important activities extending credit to purchase or carry margin stock (as defined in Regulation U of the Board of Governors of the Federal Reserve System), or use the proceeds of any Credit Extension for that purpose; fail to meet the minimum funding requirements of ERISA, permit a Reportable Event or Prohibited Transaction, as defined in ERISA, to occur; fail to comply with the Federal Fair Labor Standards Act or violate any other law or regulation, if the violation could reasonably be expected to have a material adverse effect on Borrower's business, or permit any of its Subsidiaries to do so; withdraw or permit any Subsidiary to withdraw from participation in, permit partial or complete termination of, or permit the occurrence of any other event with respect to, any present pension, profit sharing and deferred compensation plan which could reasonably be expected to result in any liability of Borrower, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other governmental agency.

8 EVENTS OF DEFAULT

Any one of the following shall constitute an event of default (an "**Event of Default**") under this Agreement:

8.1 Payment Default. Borrower fails to (a) make any payment of principal or interest on any Credit Extension on its due date, or (b) pay any other Obligations within three (3) Business Days after such Obligations are due and payable (which three (3) Business Day cure period shall not apply to payments due on the Maturity Date). During the cure period, the failure to make or pay any payment specified under clause (a) or (b) hereunder is not an Event of Default (but no Credit Extension will be made during the cure period);

8.2 Covenant Default.

(a) Borrower fails or neglects to perform any obligation in Sections 6.2, 6.4, 6.5, 6.6, or 6.7(b), or violates any covenant in Section 7; or

(b) Borrower fails or neglects to perform, keep, or observe any other term, provision, condition, covenant or agreement contained in this Agreement or any Loan Documents, and as to any default (other than those specified in this Section 8) under such other term, provision, condition, covenant or agreement that can be cured, has failed to cure the default within ten (10) days after the occurrence thereof; provided, however, that if the default cannot by its nature be cured within the ten (10) day period or cannot after diligent attempts by Borrower be cured within such ten (10) day period, and such default is likely to be cured within a reasonable time, then Borrower shall have an additional period (which shall not in any case exceed thirty (30) days) to attempt to cure such default, and within such reasonable time period the failure to cure the default shall not be deemed an Event of Default (but no Credit Extensions shall be made during such cure period). Cure periods provided under this section shall not apply, among other things, to financial covenants or any other covenants set forth in clause (a) above;

8.3 Material Adverse Change. A Material Adverse Change occurs;

8.4 Attachment; Levy; Restraint on Business.

(a) (i) The service of process seeking to attach, by trustee or similar process, any funds of Borrower or of any entity under the control of Borrower (including a Subsidiary) on deposit or otherwise maintained with Bank or any Bank Affiliate, or (ii) a notice of lien or levy is filed against any of Borrower's assets by any government agency, and the same under subclauses (i) and (ii) hereof are not, within ten (10) days after the occurrence thereof, discharged or stayed (whether through the posting of a bond or otherwise); provided, however, no Credit Extensions shall be made during any ten (10) day cure period; or

(b) (i) any material portion of Borrower's assets is attached, seized, levied on, or comes into possession of a trustee or receiver, or (ii) any court order enjoins, restrains, or prevents Borrower from conducting any material part of its business;

8.5 Insolvency. (a) Borrower is unable to pay its debts (including trade debts) as they become due or otherwise becomes insolvent; (b) Borrower begins an Insolvency Proceeding; or (c) an Insolvency Proceeding is begun against Borrower and not dismissed or stayed within thirty (30) days (but no Credit Extensions shall be made while of any of the conditions described in clause (a) exist and/or until any Insolvency Proceeding is dismissed);

8.6 Other Agreements. There is, under any agreement to which Borrower is a party with a third party or parties, (a) any default resulting in a right by such third party or parties, whether or not exercised, to accelerate the maturity of any Indebtedness in an amount individually or in the aggregate in excess of Fifty Thousand Dollars ($50,000.00); or (b) any default by Borrower, the result of which could have a material adverse effect on Borrower's business;

8.7 Judgments. One or more final judgments, orders, or decrees for the payment of money in an amount, individually or in the aggregate, of at least Fifty Thousand Dollars ($50,000.00) (not covered by independent third-party insurance as to which liability has been accepted by such insurance carrier) shall be rendered against Borrower and the same are not, within ten (10) days after the entry thereof, discharged or execution thereof stayed or bonded pending appeal, or such judgments are not discharged prior to the expiration of any such stay (provided that no Credit Extensions will be made prior to the discharge, stay, or bonding of such judgment, order, or decree);

8.8 Misrepresentations. Borrower or any Person acting for Borrower makes any representation, warranty, or other statement now or later in this Agreement, any Loan Document or in any writing delivered to Bank or to induce Bank to enter this Agreement or any Loan Document, and such representation, warranty, or other statement is incorrect in any material respect when made;

8.9 Subordinated Debt. Any document, instrument, or agreement evidencing any Subordinated Debt shall for any reason be revoked or invalidated or otherwise cease to be in full force and effect, any Person shall be in breach thereof or contest in any manner the validity or enforceability thereof or deny that it has any further liability or obligation thereunder, or the Obligations shall for any reason be subordinated or shall not have the priority contemplated by this Agreement; or

8.10 Governmental Approvals. Any Governmental Approval shall have been (a) revoked, rescinded, suspended, modified in an adverse manner or not renewed in the ordinary course for a full term or (b) subject to any decision by a Governmental Authority that designates a hearing with respect to any applications for renewal of any of such Governmental Approval or that could result in the Governmental Authority taking any of the actions described in clause (a) above, and such decision or such revocation, rescission, suspension, modification or non-renewal has, or could reasonably be expected to have, a Material Adverse Change.

9 <u>BANK'S RIGHTS AND REMEDIES</u>

9.1 Rights and Remedies. While an Event of Default occurs and continues Bank may, without notice or demand, do any or all of the following:

(a) declare all Obligations immediately due and payable (but if an Event of Default described in Section 8.5 occurs all Obligations are immediately due and payable without any action by Bank);

(b) stop advancing money or extending credit for Borrower's benefit under this Agreement or under any other agreement between Borrower and Bank;

(c) for any Letters of Credit, demand that Borrower (i) deposit cash with Bank in an amount equal to (A) one hundred five percent (105.0%) of the face amount of all such Letters of Credit denominated in Dollars, and (B) one hundred ten percent (110.0%) of the face amount of all such Letters of Credit denominated in a Foreign Currency of the Dollar Equivalent of the aggregate face amount of all Letters of Credit remaining undrawn (plus all interest, fees, and costs due or to become due in connection therewith (as estimated by Bank in its good faith business judgment)), to secure all of the Obligations relating to such Letters of Credit, as collateral security for the repayment of any future drawings under such Letters of Credit, and Borrower shall forthwith deposit and pay such amounts, and (ii) pay in advance all letter of credit fees scheduled to be paid or payable over the remaining term of any Letters of Credit;

(d) terminate any FX Forward Contracts;

(e) settle or adjust disputes and claims directly with Account Debtors for amounts on terms and in any order that Bank considers advisable, notify any Person owing Borrower money of Bank's security interest in such funds, and verify the amount of such account;

(f) make any payments and do any acts it considers necessary or reasonable to protect the Collateral and/or its security interest in the Collateral. Borrower shall assemble the Collateral if Bank requests and make it available as Bank designates. Bank may enter premises where the Collateral is located, take and maintain possession of any part of the Collateral, and pay, purchase, contest, or compromise any Lien which appears to be prior or superior to its security interest and pay all expenses incurred. Borrower grants Bank a license to enter and occupy any of its premises, without charge, to exercise any of Bank's rights or remedies;

(g) apply to the Obligations any (i) balances and deposits of Borrower it holds, or (ii) any amount held by Bank owing to or for the credit or the account of Borrower;

(h) ship, reclaim, recover, store, finish, maintain, repair, prepare for sale, advertise for sale, and sell the Collateral. Bank is hereby granted a non-exclusive, royalty-free license or other right to use, without charge, Borrower's labels, Patents, Copyrights, mask works, rights of use of any name, trade secrets, trade names, Trademarks, and advertising matter, or any similar property as it pertains to the Collateral, in completing production of, advertising for sale, and selling any Collateral and, in connection with Bank's exercise of its rights under this Section, Borrower's rights under all licenses and all franchise agreements inure to Bank's benefit;

(i) place a "hold" on any account maintained with Bank and/or deliver a notice of exclusive control, any entitlement order, or other directions or instructions pursuant to any Control Agreement or similar agreements providing control of any Collateral;

(j) demand and receive possession of Borrower's Books; and

(k) exercise all rights and remedies available to Bank under the Loan Documents or at law or equity, including all remedies provided under the Code (including disposal of the Collateral pursuant to the terms thereof).

9.2 Power of Attorney. Borrower hereby irrevocably appoints Bank as its lawful attorney-in-fact, exercisable upon the occurrence and during the continuance of an Event of Default, to: (a) endorse Borrower's name on any checks or other forms of payment or security; (b) sign Borrower's name on any invoice or bill of lading for any Account or drafts against Account Debtors; (c) settle and adjust disputes and claims about the Accounts directly with Account Debtors, for amounts and on terms Bank determines reasonable; (d) make, settle, and adjust all claims under Borrower's insurance policies; (e) pay, contest or settle any Lien, charge, encumbrance, security interest, and adverse claim in or to the Collateral, or any judgment based thereon, or otherwise take any action to terminate or discharge the same; and (t) transfer the Collateral into the name of Bank or a third party as the Code permits. Borrower hereby appoints Bank as its lawful attorney-in-fact to sign Borrower's name on any documents necessary to perfect or continue the perfection of Bank's security interest in the Collateral regardless of whether an Event of Default has occurred until all Obligations have been satisfied in full and Bank is under no further obligation to make Credit Extensions hereunder. Bank's foregoing appointment as Borrower's attorney in fact, and all of Bank's rights and powers, coupled with an interest, are irrevocable until all Obligations have been fully repaid and performed and Bank's obligation to provide Credit Extensions terminates.

9.3 Protective Payments. If Borrower fails to obtain the insurance called for by Section 6.5 or fails to pay any premium thereon or fails to pay any other amount which Borrower is obligated to pay under this Agreement or any other Loan Document, Bank may obtain such insurance or make such payment, and all amounts so paid by Bank are Bank Expenses and immediately due and payable, bearing interest at the then highest rate applicable to the Obligations, and secured by the Collateral. Bank will make reasonable efforts to provide Borrower with notice of Bank obtaining such insurance at the time it is obtained or within a reasonable time thereafter. No payments by Bank are deemed an agreement to make similar payments in the future or Bank's waiver of any Event of Default.

9.4 Application of Payments and Proceeds Upon Default. If an Event of Default has occurred and is continuing, Bank may apply any funds in its possession, whether from Borrower account balances, payments, proceeds realized as the result of any collection of Accounts or other disposition of the Collateral, or otherwise, to the Obligations in such order as Bank shall determine in its sole discretion. Any surplus shall be paid to Borrower or other Persons legally entitled thereto; Borrower shall remain liable to Bank for any deficiency. If Bank, in its good faith business judgment, directly or indirectly enters into a deferred payment or other credit transaction with any purchaser at any sale of Collateral, Bank shall have the option, exercisable at any time, of either reducing the Obligations by the principal amount of the purchase price or deferring the reduction of the Obligations until the actual receipt by Bank of cash therefor.

9.5 Bank's Liability for Collateral. So long as Bank complies with reasonable banking practices regarding the safekeeping of the Collateral in the possession or under the control of Bank, Bank shall not be liable or responsible for: (a) the safekeeping of the Collateral; (b) any loss or damage to the Collateral; (c) any diminution in the value of the Collateral; or (d) any act or default of any carrier, warehouseman, bailee, or other Person. Borrower bears all risk of loss, damage or destruction of the Collateral.

9.6 No Waiver; Remedies Cumulative. Bank's failure, at any time or times, to require strict performance by Borrower of any provision of this Agreement or any other Loan Document shall not waive, affect, or diminish any right of Bank thereafter to demand strict performance and compliance herewith or therewith. No waiver hereunder shall be effective unless signed by the party granting the waiver and then is only effective for the specific instance and purpose for which it is given. Bank's rights and remedies under this Agreement and the other Loan Documents are cumulative. Bank has all rights and remedies provided under the Code, by law, or in equity. Bank's exercise of one right or remedy is not an election and shall not preclude Bank from exercising any other remedy under this Agreement or other remedy available at law or in equity, and Bank's waiver of any Event of Default is not a continuing waiver. Bank's delay in exercising any remedy is not a waiver, election, or acquiescence.

9.7 Demand Waiver. Borrower waives demand, notice of default or dishonor, notice of payment and nonpayment, notice of any default, nonpayment at maturity, release, compromise, settlement, extension, or renewal of accounts, documents, instruments, chattel paper, and guarantees held by Bank on which Borrower is liable.

10 NOTICES

All notices, consents, requests, approvals, demands, or other communication by any party to this Agreement or any other Loan Document must be in writing and shall be deemed to have been validly served, given, or delivered: (a) upon the earlier of actual receipt and three (3) Business Days after deposit in the U.S. mail, first class, registered or certified mail return receipt requested, with proper postage prepaid; (b) upon transmission, when sent by electronic mail or facsimile transmission; (c) one (1) Business Day after deposit with a reputable overnight courier with all charges prepaid; or (d) when delivered, if hand-delivered by messenger, all of which shall be addressed to the party to be notified and sent to the address, facsimile number, or email address indicated below. Bank or Borrower may change its mailing or electronic mail address or facsimile number by giving the other party written notice thereof in accordance with the terms of this Section 10.

If to Borrower:	Arsanis, Inc. 7 Lucent Drive Lebanon, New Hampshire 03766 Attn: Mr. Jonathan Sheller Fax: (603) 386 6906 Email: jonathan.sheller@arsanis.com
with a copy to:	Foley Hoag LLP 155 Seaport Blvd. Boston, Massachusetts 02210 Attn: Robert L. Birnbaum, Esquire Fax: (617) 832-7000 Email: RLB@foleyhoag.com

If to Bank:	Silicon Valley Bank 275 Grove Street, Suite 2-200 Newton, Massachusetts 02466 Attn: Ms. Christina Zorzi Fax: Email: czorzi@svb.com
with a copy to:	Riemer & Braunstein LLP Three Center Plaza Boston, Massachusetts 02108 Attn: David A. Ephraim, Esquire Fax: (617) 692-3455 Email: DEphraim@riemerlaw.com

11 CHOICE OF LAW, VENUE, AND JURY TRIAL WAIVER

Massachusetts law governs the Loan Documents without regard to principles of conflicts of law. Borrower and Bank each submit to the exclusive jurisdiction of the State and Federal courts in Boston, Massachusetts; provided, however, that nothing in this Agreement shall be deemed to operate to preclude Bank from bringing suit or taking other legal action in any other jurisdiction to realize on the Collateral or any other security for the Obligations, or to enforce a judgment or other court order in favor of Bank. Borrower expressly submits and consents in advance to such jurisdiction in any action or suit commenced in any such court, and Borrower hereby waives any objection that it may have based upon lack of personal jurisdiction, improper venue, or forum non conveniens and hereby consents to the granting of such legal or equitable relief as is deemed appropriate by such court. Borrower hereby waives personal service of the summons, complaints, and other process issued in such action or suit and agrees that service of such summons, complaints, and other process may be made by registered or certified mail addressed to Borrower at the address set forth in Section 10 of this Agreement and that service so made shall be deemed completed upon the earlier to occur of Borrower's actual receipt thereof or three (3) days after deposit in the U.S. mails, proper postage prepaid.

TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, BORROWER AND BANK EACH WAIVE THEIR RIGHT TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION ARISING OUT OF OR BASED UPON THIS AGREEMENT, THE LOAN DOCUMENTS OR ANY CONTEMPLATED TRANSACTION, INCLUDING CONTRACT, TORT, BREACH OF DUTY AND ALL OTHER CLAIMS. THIS WAIVER IS A MATERIAL INDUCEMENT FOR BOTH PARTIES TO ENTER INTO THIS AGREEMENT. EACH PARTY HAS REVIEWED THIS WAIVER WITH ITS COUNSEL.

12 GENERAL PROVISIONS

12.1 Successors and Assigns. This Agreement binds and is for the benefit of the successors and permitted assigns of each party. Borrower may not assign this Agreement or any rights or obligations under it without Bank's prior written consent (which may be granted or withheld in Bank's discretion). Bank has the right, without the consent of or notice to Borrower, to sell, transfer, assign, negotiate, or grant participation in all or any part of, or any interest in, Bank's obligations, rights, and benefits under this Agreement and the other Loan Documents (other than the Warrant, as to which assignment, transfer and other such actions are governed by the terms of the Warrant).

12.2 Indemnification. Borrower agrees to indemnify, defend and hold Bank and its directors, officers, employees, agents, attorneys, or any other Person affiliated with or representing Bank (each, an "Indemnified Person") harmless against: (a) all obligations, demands, claims, and liabilities (collectively, "Claims") claimed or asserted by any other party in connection with the transactions contemplated by the Loan Documents; and (b) all losses or expenses (including Bank Expenses) in any way suffered, incurred, or paid by such Indemnified Person as a result of, following from, consequential to, or arising from transactions between Bank and Borrower contemplated by the Loan Documents (including reasonable attorneys' fees and expenses), except for Claims and/or losses directly caused by such Indemnified Person's gross negligence or willful misconduct.

12.3 Time of Essence. Time is of the essence for the performance of all Obligations in this Agreement.

12.4 Severability of Provisions. Each provision of this Agreement is severable from every other provision in determining the enforceability of any provision.

12.5 Correction of Loan Documents. Bank may correct patent errors and fill in any blanks in the Loan Documents consistent with the agreement of the parties.

12.6 Amendments in Writing; Waiver; Integration. No purported amendment or modification of any Loan Document, or waiver, discharge or termination of any obligation under any Loan Document, shall be enforceable or admissible unless, and only to the extent, expressly set forth in a writing signed by the party against which enforcement or admission is sought. Without limiting the generality of the foregoing, no oral promise or statement, nor any action, inaction, delay, failure to require performance or course of conduct shall operate as, or evidence, an amendment, supplement or waiver or have any other effect on any Loan Document. Any waiver granted shall be limited to the specific circumstance expressly described in it, and shall not apply to any subsequent or other circumstance, whether similar or dissimilar, or give rise to, or evidence, any obligation or commitment to grant any further waiver. The Loan Documents represent the entire agreement about this subject matter and supersede prior negotiations or agreements. All prior agreements, understandings, representations, warranties, and negotiations between the parties about the subject matter of the Loan Documents merge into the Loan Documents.

12.7 Counterparts. This Agreement may be executed in any number of counterparts and by different parties on separate counterparts, each of which, when executed and delivered, is an original, and all taken together, constitute one Agreement.

12.8 Survival. All covenants, representations and warranties made in this Agreement continue in full force until this Agreement has terminated pursuant to its terms and all Obligations (other than inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of this Agreement) have been paid in full and satisfied. Without limiting the foregoing, except as otherwise provided in Section 4.1, the grant of security interest by Borrower in Section 4.1 shall survive until the termination of all Bank Services Agreements. The obligation of Borrower in Section 12.2 to indemnify Bank shall survive until the statute of limitations with respect to such claim or cause of action shall have run.

12.9 Confidentiality. In handling any confidential information, Bank shall exercise the same degree of care that it exercises for its own proprietary information, but disclosure of information may be made: (a) to Bank's Subsidiaries or Affiliates (such Subsidiaries and Affiliates, together with Bank, collectively, "Bank Entities"); (b) to prospective transferees or purchasers of any interest in the Credit Extensions (provided, however, Bank shall use its best efforts to obtain any prospective transferee's or purchaser's agreement to the terms of this provision); (c) as required by law, regulation, subpoena, or other order; (d) to Bank's regulators or as otherwise required in connection with Bank's examination or audit; (e) as Bank considers appropriate in exercising remedies under the Loan Documents; and (f) to third-party service providers of Bank so long as such service providers have executed a confidentiality agreement with Bank with terms no less restrictive than those contained herein. Confidential information does not include information that is either: (i) in the public domain or in Bank's possession when disclosed to Bank, or becomes part of the public domain after disclosure to Bank; or (ii) disclosed to Bank by a third party if Bank does not know that the third party is prohibited from disclosing the information.

Bank Entities may use the confidential information for reporting purposes and the development and distribution of databases and market analyses so long as such confidential information is aggregated and anonymized prior to distribution unless otherwise expressly permitted by Borrower. The provisions of the immediately preceding sentence shall survive the termination of this Agreement.

12.10 Right of Set Off. Borrower hereby grants to Bank, a lien, security interest and right of set off as security for all Obligations to Bank, whether now existing or hereafter arising upon and against all deposits, credits, collateral and property, now or hereafter in the possession, custody, safekeeping or control of Bank or any entity under the control of Bank (including a Bank subsidiary) or in transit to any of them. At any time after the occurrence and during the continuance of an Event of Default, without demand or notice, Bank may set off the same or any part thereof and apply the same to any liability or obligation of Borrower even though unmatured and regardless of the adequacy of any other collateral securing the Obligations. ANY AND ALL RIGHTS TO REQUIRE BANK TO EXERCISE ITS RIGHTS OR REMEDIES WITH RESPECT TO ANY OTHER COLLATERAL WHICH SECURES THE OBLIGATIONS, PRIOR TO EXERCISING ITS RIGHT OF SETOFF WITH RESPECT TO SUCH DEPOSITS, CREDITS OR OTHER PROPERTY OF BORROWER ARE HEREBY KNOWINGLY, VOLUNTARILY AND IRREVOCABLY WAIVED.

12.11 Electronic Execution of Documents. The words "execution," "signed," "signature" and words of like import in any Loan Document shall be deemed to include electronic signatures or the keeping of records in electronic form, each of which shall be of the same legal effect, validity and enforceability as a manually executed signature or the use of a paper-based recordkeeping systems, as the case may be, to the extent and as provided for in any applicable law, including, without limitation, any state law based on the Uniform Electronic Transactions Act.

12.12 Captions. The headings used in this Agreement are for convenience only and shall not affect the interpretation of this Agreement.

12.13 Construction of Agreement. The parties mutually acknowledge that they and their attorneys have participated in the preparation and negotiation of this Agreement. In cases of uncertainty this Agreement shall be construed without regard to which of the parties caused the uncertainty to exist.

12.14 Relationship. The relationship of the parties to this Agreement is determined solely by the provisions of this Agreement. The parties do not intend to create any agency, partnership, joint venture, trust, fiduciary or other relationship with duties or incidents different from those of parties to an arm's-length contract.

12.15 Third Parties. Nothing in this Agreement, whether express or implied, is intended to: (a) confer any benefits, rights or remedies under or by reason of this Agreement on any persons other than the express parties to it and their respective permitted successors and assigns; (b) relieve or discharge the obligation or liability of any person not an express party to this Agreement; or (c) give any person not an express party to this Agreement any right of subrogation or action against any party to this Agreement.

13 <u>DEFINITIONS</u>

13.1 Definitions. As used in the Loan Documents, the word "shall" is mandatory, the word "may" is permissive, the word "or" is not exclusive, the words "includes" and "including" are not limiting, the singular includes the plural, and numbers denoting amounts that are set off in brackets are negative. As used in this Agreement, the following capitalized terms have the following meanings:

"**Account**" is any "account" as defined in the Code with such additions to such term as may hereafter be made, and includes, without limitation, all accounts receivable and other sums owing to Borrower.

"**Account Debtor**" is any "account debtor" as defined in the Code with such additions to such term as may hereafter be made.

"**Affiliate**" is, with respect to any Person, each other Person that owns or controls directly or indirectly the Person, any Person that controls or is controlled by or is under common control with the Person, and each of that Person's senior executive officers, directors, partners and, for any Person that is a limited liability company, that Person's managers and members.

"**Agreement**" is defined in the preamble hereof.

"**Austrian Subsidiary**" means Arsanis Biosciences GmbH (previously Arsanis Arzneimittelforschung GmbH), a company organized under the laws of Austria.

"**Bank**" is defined in the preamble hereof.

"**Bank Entities**" is defined in Section 12.9.

"**Bank Expenses**" are all audit fees and expenses, costs, and expenses (including reasonable attorneys' fees and expenses) for preparing, amending, negotiating, administering, defending and enforcing the Loan Documents (including, without limitation, those incurred in connection with appeals or Insolvency Proceedings) or otherwise incurred with respect to Borrower.

"**Bank Services**" are any products, credit services, and/or financial accommodations previously, now, or hereafter provided to Borrower or any of its Subsidiaries by Bank or any Bank Affiliate, including, without limitation, any letters of credit, cash management services (including, without limitation, merchant services, direct deposit of payroll, business credit cards, and check cashing services), interest rate swap arrangements, and foreign exchange services as any such products or services may be identified in Bank's various agreements related thereto (each, a "**Bank Services Agreement**").

"**Bank Services Agreement**" is defined in the definition of Bank Services.

"**Board**" is Borrower's board of directors.

"**Borrower**" is defined in the preamble hereof.

"**Borrower's Books**" are all Borrower's books and records including ledgers, federal and state tax returns, records regarding Borrower's assets or liabilities, the Collateral, business operations or financial condition, and all computer programs or storage or any equipment containing such information.

"**Business Day**" is any day that is not a Saturday, Sunday or a day on which Bank is closed.

"**Cash Equivalents**" means (a) marketable direct obligations issued or unconditionally guaranteed by the United States or any agency or any State thereof having maturities of not more than one (1) year from the date of acquisition; (b) commercial paper maturing no more than one (1) year after its creation and having the highest rating from either Standard & Poor's Ratings Group or Moody's Investors Service, Inc.; and (c) Bank's certificates of deposit issued maturing no more than one (1) year after issue.

"**Claims**" is defined in Section 12.2.

"**Code**" is the Uniform Commercial Code, as the same may, from time to time, be enacted and in effect in the Commonwealth of Massachusetts; provided, that, to the extent that the Code is used to define any term herein or in any Loan Document and such term is defined differently in different Articles or Divisions of the Code, the definition of such term contained in Article or Division 9 shall govern; provided further, that in the event that, by reason of mandatory provisions of law, any or all of the attachment, perfection, or priority of, or remedies with respect to, Bank's Lien on any Collateral is governed by the Uniform Commercial Code in effect in a jurisdiction other than the Commonwealth of Massachusetts, the term "**Code**" shall mean the Uniform Commercial Code as enacted and in effect in such other jurisdiction solely for purposes of the provisions thereof relating to such attachment, perfection, priority, or remedies and for purposes of definitions relating to such provisions.

"**Collateral**" is any and all properties, rights and assets of Borrower described on Exhibit A.

"**Collateral Account**" is any Deposit Account, Securities Account, or Commodity Account.

"**Commodity Account**" is any "commodity account" as defined in the Code with such additions to such term as may hereafter be made.

"**Collateral Assignment of License Agreement**" is that certain Collateral Assignment of License Agreement dated as of the Effective Date executed by and among Borrower, Austrian Subsidiary, and Bank.

"**Compliance Certificate**" is that certain certificate in the form attached hereto as Exhibit C.

"**Contingent Obligation**" is, for any Person, any direct or indirect liability, contingent or not, of that Person for (a) any indebtedness, lease, dividend, letter of credit or other obligation of another such as an obligation, in each case, directly or indirectly guaranteed, endorsed, co-made, discounted or sold with recourse by that Person, or for which that Person is directly or indirectly liable; (b) any obligations for undrawn letters of credit for the account of that Person; and (c) all obligations from any interest rate, currency or commodity swap agreement, interest rate cap or collar agreement, or other agreement or arrangement designated to protect a Person against fluctuation in interest rates, currency exchange rates or commodity prices; but "Contingent Obligation" does not include endorsements in the ordinary course of business. The amount of a Contingent Obligation is the stated or determined amount of the primary obligation for which the Contingent Obligation is made or, if not determinable, the maximum reasonably anticipated liability for it determined by the Person in good faith; but the amount may not exceed the maximum of the obligations under any guarantee or other support arrangement.

"**Control Agreement**" is any control agreement entered into among the depository institution at which Borrower maintains a Deposit Account or the securities intermediary or commodity intermediary at which Borrower maintains a Securities Account or a Commodity Account, Borrower, and Bank pursuant to which Bank obtains control (within the meaning of the Code) over such Deposit Account, Securities Account, or Commodity Account.

"**Copyrights**" are any and all copyright rights, copyright applications, copyright registrations and like protections in each work or authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret.

"**Credit Extension**" is any Term Loan Advance or any other extension of credit by Bank for Borrower's benefit under this Agreement.

"**Default Rate**" is defined in Section 2.2(b).

"**Deferred Revenue**" is all amounts received or invoiced in advance of performance under contracts and not yet recognized as revenue.

"**Deposit Account**" is any "deposit account" as defined in the Code with such additions to such term as may hereafter be made.

"**Designated Deposit Account**" is Borrower's deposit account, account number xxxxxx0718 maintained with Bank.

"**Dollars**," "**dollars**" or use of the sign "$" means only lawful money of the United States and not any other currency, regardless of whether that currency uses the "$" sign to denote its currency or may be readily converted into lawful money of the United States.

"**Dollar Equivalent**" is, at any time, (a) with respect to any amount denominated in Dollars, such amount, and (b) with respect to any amount denominated in a Foreign Currency, the equivalent amount therefor in Dollars as determined by Bank at such time on the basis of the then-prevailing rate of exchange in San Francisco, California, for sales of the Foreign Currency for transfer to the country issuing such Foreign Currency.

"**Downstreaming Limit Event**" means the occurrence of either: (a) the aggregate amount of Borrower's unrestricted and unencumbered cash maintained with Bank is less than two (2) times the aggregate amount of Borrower's outstanding Obligations to Bank, or (b) an Event of Default.

"**Draw Period**" is the period of time from the Effective Date through the earlier to occur of (a) September 30, 2013, or (b) an Event of Default.

"**Effective Date**" is defined in the preamble hereof.

"**Equipment**" is all "equipment" as defined in the Code with such additions to such term as may hereafter be made, and includes without limitation all machinery, fixtures, goods, vehicles (including motor vehicles and trailers), and any interest in any of the foregoing.

"**ERISA**" is the Employee Retirement Income Security Act of 1974, and its regulations.

"**Event of Default**" is defined in Section 8.

"**Exchange Act**" is the Securities Exchange Act of 1934, as amended.

"**FFG Grant**" means that certain Funding Contract by and between the Austrian Research Promotion Agency and Austrian Subsidiary dated as of July 1, 2011.

"**Final Payment**" is, for each Term Loan Advance, a payment (in addition to and not a substitution for the regular monthly payments of principal plus accrued interest) equal to the original principal amount of such Term Loan Advance extended by Bank multiplied by the Final Payment Percentage, due on the earliest to occur of (a) the Maturity Date, (b) the acceleration of any Term Loan Advance, or (c) the prepayment of a Term Loan Advance pursuant to this Agreement.

"**Final Payment Percentage**" is, for each Term Loan Advance, four percent (4.0%).

"**Foreign Currency**" means lawful money of a country other than the United States.

"**Funding Date**" is any date on which a Credit Extension is made to or for the account of Borrower which shall be a Business Day.

"**FX Forward Contract**" is any foreign exchange contract by and between Borrower and Bank under which Borrower commits to purchase from or sell to Bank a specific amount of Foreign Currency on a specified date.

"**GAAP**" is generally accepted accounting principles set forth in the opinions and pronouncements of the Accounting Principles Board of the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board or in such other statements by such other Person as may be approved by a significant segment of the accounting profession, which are applicable to the circumstances as of the date of determination.

"**General Intangibles**" is all "general intangibles" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made, and includes without limitation, all Intellectual Property, claims, income and other tax refunds, security and other deposits, payment intangibles, contract rights, options to purchase or sell real or personal property, rights in all litigation presently or hereafter pending (whether in contract, tort or otherwise), insurance policies (including without limitation key man, property damage, and business interruption insurance), payments of insurance and rights to payment of any kind.

"**Governmental Approval**" is any consent, authorization, approval, order, license, franchise, permit, certificate, accreditation, registration, filing or notice, of, issued by, from or to, or other act by or in respect of, any Governmental Authority.

"**Governmental Authority**" is any nation or government, any state or other political subdivision thereof, any agency, authority, instrumentality, regulatory body, court, central bank or other entity exercising executive, legislative, judicial, taxing, regulatory or administrative functions of or pertaining to government, any securities exchange and any self-regulatory organization.

"**Indebtedness**" is (a) indebtedness for borrowed money or the deferred price of property or services, such as reimbursement and other obligations for surety bonds and letters of credit, (b) obligations evidenced by notes, bonds, debentures or similar instruments, (c) capital lease obligations, and (d) Contingent Obligations.

"**Indemnified Person**" is defined in Section 12.2.

"**Insolvency Proceeding**" is any proceeding by or against any Person under the United States Bankruptcy Code, or any other bankruptcy or insolvency law, including assignments for the benefit of creditors, compositions, extensions generally with its creditors, or proceedings seeking reorganization, arrangement, or other relief.

"**Intellectual Property**" means all of Borrower's right, title, and interest in and to the following:

(a) its Copyrights, Trademarks and Patents;

(b) any and all trade secrets and trade secret rights, including, without limitation, any rights to unpatented inventions, know-how, operating manuals;

(c) any and all source code;

(d) any and all design rights which may be available to Borrower;

(e) any and all claims for damages by way of past, present and future infringement of any of the foregoing, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the Intellectual Property rights identified above; and

(f) all amendments, renewals and extensions of any of the Copyrights, Trademarks or Patents.

"**Inventory**" is all "inventory" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made, and includes without limitation all merchandise, raw materials, parts, supplies, packing and shipping materials, work in process and finished products, including without limitation such inventory as is temporarily out of Borrower's custody or possession or in transit and including any returned goods and any documents of title representing any of the above.

"**Investment**" is any beneficial ownership interest in any Person (including stock, partnership interest or other securities), and any loan, advance or capital contribution to any Person.

"**Key Person**" is each of Borrower's Chief Scientific Officer, who is Eszter Nagy as of the Effective Date.

"**Letter of Credit**" is a standby or commercial letter of credit issued by Bank upon request of Borrower based upon an application, guarantee, indemnity or similar agreement.

"**License Agreement**" means that certain Amended and Restated Contract Research Agreement dated as of December 6, 2012, by and between Borrower and Austrian Subsidiary.

"**Lien**" is a claim, mortgage, deed of trust, levy, charge, pledge, security interest or other encumbrance of any kind, whether voluntarily incurred or arising by operation of law or otherwise against any property.

"**Loan Documents**" are, collectively, this Agreement, the Warrant, the Perfection Certificate, the Pledge Agreement, the Collateral Assignment of License Agreement, any Bank Services Agreement, any subordination agreement, any note, or notes or guaranties executed by Borrower, and any other present or future agreement between Borrower and/or for the benefit of Bank, all as amended, restated, or otherwise modified.

"**Material Adverse Change**" is (a) a material impairment in the perfection or priority of Bank's Lien in the Collateral or in the value of such Collateral; (b) a material adverse change in the business, operations, or condition (financial or otherwise) of Borrower; or (c) a material impairment of the prospect of repayment of any portion of the Obligations.

"**Maturity Date**" is March 1, 2016.

"**Monthly Financial Statements**" is defined in Section 6.2(a).

"**Obligations**" are Borrower's obligations to pay when due any debts, principal, interest, the Final Payment, Bank Expenses and other amounts Borrower owes Bank now or later, whether under this Agreement, the other Loan Documents (other than the Warrant), or otherwise, including, without limitation, any interest accruing after Insolvency Proceedings begin and debts, liabilities, or obligations of Borrower assigned to Bank, and the performance of Borrower's duties under the Loan Documents (other than the Warrant).

"**Operating Documents**" are, for any Person, such Person's formation documents, as certified with the Secretary of State of such Person's state of formation on a date that is no earlier than 30 days prior to the Effective Date, and, (a) if such Person is a corporation, its bylaws in current form, (b) if such Person is a limited liability company, its limited liability company agreement (or similar agreement), and (c) if such Person is a partnership, its partnership agreement (or similar agreement), each of the foregoing with all current amendments or modifications thereto.

"**Patents**" means all patents, patent applications and like protections including without limitation improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the same.

"**Payment/Advance Form**" is that certain form attached hereto as Exhibit B.

"**Payment Da**te" is the first (1st) Business Day of each month.

"**Perfection Certificate**" is defined in Section 5.1.

"**Permitted Indebtedness**" is:

(a) Borrower's Indebtedness to Bank under this Agreement and the other Loan Documents;

(b) Indebtedness existing on the Effective Date and shown on the Perfection Certificate;

(c) Subordinated Debt;

(d) unsecured Indebtedness to trade creditors incurred in the ordinary course of business;

(e) Indebtedness incurred as a result of endorsing negotiable instruments received in the ordinary course of business;

(f) Indebtedness secured by Liens permitted under clauses (a) and (c) of the definition of "Permitted Liens" hereunder;

(g) Indebtedness of Austrian Subsidiary pursuant to the FFG Grant not to exceed Five Million Four Hundred Forty Thousand (5,440,000) euros in the aggregate; and

(h) extensions, refinancings, modifications, amendments and restatements of any items of Permitted Indebtedness (a) through (g) above, provided that the principal amount thereof is not increased or the terms thereof are not modified to impose more burdensome terms upon Borrower or its Subsidiary, as the case may be.

"**Permitted Investments**" are:

(a) Investments (including, without limitation, Subsidiaries) existing on the Effective Date and shown on the Perfection Certificate;

(b) Investments consisting of Cash Equivalents; and

(c) Investments by Borrower in Austrian Subsidiary for current ordinary necessary operating expenses, provided that the aggregate amount of cash maintained in accounts in the name of Austrian Subsidiary shall not exceed Four Hundred Thousand (400,000) euros at any time (exclusive of cash received as payments in connection with the FFG Grant), and provided further that upon the occurrence and during the continuance of a Downstreaming Limit Event or if a Downstreaming Limit Event would results from any Investment, Investments by Borrower in Austrian Subsidiary may not exceed Five Hundred Thousand (500,000) euros in the aggregate in any fiscal quarter (excluding Investments by Borrower for the payment of manufacturing costs and clinical costs of Austrian Subsidiary in the ordinary course of business).

"**Permitted Liens**" are:

(a) Liens existing on the Effective Date and shown on the Perfection Certificate or arising under this Agreement and the other Loan Documents;

(b) Liens for taxes, fees, assessments or other government charges or levies, either (i) not due and payable or (ii) being contested in good faith and for which Borrower maintains adequate reserves on its Books, provided that no notice of any such Lien has been filed or recorded under the Internal Revenue Code of 1986, as amended, and the Treasury Regulations adopted thereunder;

(c) purchase money Liens or capital leases (i) on Equipment acquired or held by Borrower incurred for financing the acquisition of the Equipment securing no more than Fifty Thousand Dollars ($50,000.00) in the aggregate amount outstanding, or (ii) existing on Equipment when acquired, if the Lien is confined to the property and improvements and the proceeds of the Equipment; and

(d) Liens incurred in the extension, renewal or refinancing of the indebtedness secured by Liens described in (a) through (c), but any extension, renewal or replacement Lien must be limited to the property encumbered by the existing Lien and the principal amount of the indebtedness may not increase.

"**Person**" is any individual, sole proprietorship, partnership, limited liability company, joint venture, company, trust, unincorporated organization, association, corporation, institution, public benefit corporation, firm, joint stock company, estate, entity or government agency.

"**Pledge Agreement**" is that certain Stock Pledge Agreement dated as of the Effective Date executed by Borrower in favor of Bank.

"**Prime Rate**" means the greater of: (a) three and one quarter of one percent (3.25%), or (b) the rate of interest published in the "Money Rates" section of The Wall Street Journal, Eastern Edition as the "United States Prime Rate," even if such rate is not the lowest or best rate available. In the event that The Wall Street Journal, Eastern Edition is not published or such rate does not appear in The Wall Street Journal, Eastern Edition, the Prime Rate shall be determined by Bank until such time as the Prime Rate becomes available in accordance with past practices.

"**Registered Organization**" is any "registered organization" as defined in the Code with such additions to such term as may hereafter be made.

"**Requirement of Law**" is as to any Person, the organizational or governing documents of such Person, and any law (statutory or common), treaty, rule or regulation or determination of an arbitrator or a court or other Governmental Authority, in each case applicable to or binding upon such Person or any of its property or to which such Person or any of its property is subject.

"**Responsible Officer**" is any of the Chief Executive Officer, President, Chief Financial Officer and Controller of Borrower.

"**Restricted License**" is any material license or other agreement with respect to which Borrower is the licensee (a) that prohibits or otherwise restricts Borrower from granting a security interest in Borrower's interest in such license or agreement or any other property, or (b) for which a default under or termination of could interfere with the Bank's right to sell any Collateral.

"**SEC**" shall mean the Securities and Exchange Commission, any successor thereto, and any analogous Governmental Authority.

"**Securities Account**" is any "securities account" as defined in the Code with such additions to such term as may hereafter be made.

"**Subordinated Debt**" is indebtedness incurred by Borrower subordinated to all of Borrower's now or hereafter indebtedness to Bank (pursuant to a subordination, intercreditor, or other similar agreement in form and substance satisfactory to Bank entered into between Bank and the other creditor), on terms acceptable to Bank.

"**Subsidiary**" is, as to any Person, a corporation, partnership, limited liability company or other entity of which shares of stock or other ownership interests having ordinary voting power (other than stock or such other ownership interests having such power only by reason of the happening of a contingency) to elect a majority of the board of directors or other managers of such corporation, partnership or other entity are at the time owned, or the management of which is otherwise controlled, directly or indirectly through one or more intermediaries, or both, by such Person. Unless the context otherwise requires, each reference to a Subsidiary herein shall be a reference to a Subsidiary of Borrower.

"**Term Loan Advance**" and "**Term Loan Advances**" are each defined in Section 2.1.1(a) hereof.

"**Term Loan A Advance**" is defined in Section 2.1.1(a) hereof.

"**Term Loan B Advance**" and "**Term Loan B Advances**" are each defined in Section 2.1.1(a) hereof.

"**Trademarks**" means any trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of Borrower connected with and symbolized by such trademarks.

"**Transfer**" is defined in Section 7.1.

"**Warrant**" is that certain Warrant to Purchase Stock dated as of the Effective Date executed by Borrower in favor of Bank.

[Signature page follows.]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as a sealed instrument under the laws of the Commonwealth of Massachusetts as of the Effective Date.

BORROWER:

ARSANIS. INC.

By /s/ Jonathan Sheller
Name: Jonathan Sheller
Title: Director of Operations and Finance

BANK:

SILICON VALLEY BANK

By /s/ Christina M. Zorzi
Name: Christina M. Zorzi
Title: Relationship Manager

EXHIBIT A - COLLATERAL DESCRIPTION

The Collateral consists of all of Borrower's right, title and interest in and to the following personal property:

All goods, Accounts (including health-care receivables), Equipment, Inventory, contract rights or rights to payment of money, leases, license agreements, franchise agreements, General Intangibles (except as provided below), commercial tort claims, documents, instruments (including any promissory notes), chattel paper (whether tangible or electronic), cash, deposit accounts, certificates of deposit, fixtures, letters of credit rights (whether or not the letter of credit is evidenced by a writing), securities, and all other investment property, supporting obligations, and financial assets, whether now owned or hereafter acquired, wherever located; and

all Borrower's Books relating to the foregoing, and any and all claims, rights and interests in any of the above and all substitutions for, additions, attachments, accessories, accessions and improvements to and replacements, products, proceeds and insurance proceeds of any or all of the foregoing.

Notwithstanding the foregoing, the Collateral does not include (a) more than sixty-five percent (65%) of the presently existing and hereafter arising issued and outstanding shares of capital stock owned by Borrower of Austrian Subsidiary which shares entitle the holder thereof to vote for directors or any other matter, or (b) any Intellectual Property; provided, however, the Collateral shall include all Accounts and all proceeds of Intellectual Property. If a judicial authority (including a U.S. Bankruptcy Court) would hold that a security interest in the underlying Intellectual Property is necessary to have a security interest in such Accounts and such property that are proceeds of Intellectual Property, then the Collateral shall automatically, and effective as of the Effective Date, include the Intellectual Property to the extent necessary to permit perfection of Bank's security interest in such Accounts and such other property of Borrower that are proceeds of the Intellectual Property.

Pursuant to the terms of a certain negative pledge arrangement with Bank, Borrower has agreed not to encumber any of its Intellectual Property without Bank's prior written consent.

EXHIBIT B - LOAN PAYMENT/ADVANCE REQUEST FORM

DEADLINE FOR SAME DAY PROCESSING IS 3P.M. EASTERN TIME

Fax To: Date: _____

LOAN PAYMENT:

ARSANIS, INC.

From Account #_____ To Account #_____
(Deposit Account #) (Loan Account #)

Principal $_____ and/or Interest $_____

Authorized Signature:_____ Phone Number: _____

Print Name/Title: _____

LOAN ADVANCE:

Complete *Outgoing Wire Request* section below if all or a portion of the funds from this loan advance are for an outgoing wire.

From Account #_____ To Account #_____
(Loan Account #) (Deposit Account #)

Amount of Credit Extension $_____

All Borrower's representations and warranties in the Loan and Security Agreement are true, correct and complete in all material respects on the date of the request for an advance; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date:

Authorized Signature:_____ Phone Number: _____

Print Name/Title: _____

OUTGOING WIRE REQUEST:

Complete only if all or a portion of funds from the loan advance above is to be wired.

Deadline for same day processing is 3p.m. Eastern Time

Beneficiary Name:_____

Amount of Wire: $_____

Beneficiary Bank:_____

Account Number: _____

City and State: _____

Beneficiary Bank Transit (ABA) #: _____ Beneficiary Bank Code (Swift, Sort, Chip, etc.): _____
(For International Wire Only)

Intermediary Bank: _____ Transit (ABA) #: _____

For Further Credit to: _____

Special Instruction: _____

By signing below, I (we) acknowledge and agree that my (our) funds transfer request shall be processed in accordance with and subject to the terms and conditions set forth in the agreements(s) covering funds transfer service(s), which agreements(s) were previously received and executed by me (us).

Authorized Signature: _____ 2nd Signature (if required):

Print Name/Title: _____ Print Name/Title:

Telephone #:_____ Telephone #:_____

EXHIBIT C

COMPLIANCE CERTIFICATE

TO: SILICON VALLEY BANK Date: _____
FROM: ARSANIS, INC.

The undersigned authorized officer of ARSANIS, INC. ("Borrower") certifies that under the terms and conditions of the Loan and Security Agreement between Borrower and Bank (the "Agreement"):

(1) Borrower is in complete compliance for the period ending _____ with all required covenants except as noted below; (2) there are no Events of Default; (3) all representations and warranties in the Agreement are true and correct in all material respects on this date except as noted below; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date; (4) Borrower, and each of its Subsidiaries, has timely filed all required tax returns and reports, and Borrower has timely paid all foreign, federal, state and local taxes, assessments, deposits and contributions owed by Borrower except as otherwise permitted pursuant to the terms of Section 5.8 of the Agreement; and (5) no Liens have been levied or claims made against Borrower or any of its Subsidiaries relating to unpaid employee payroll or benefits of which Borrower has not previously provided written notification to Bank.

Attached are the required documents supporting the certification. The undersigned certifies that these are prepared in accordance with GAAP consistently applied from one period to the next except as explained in an accompanying letter or footnotes. The undersigned acknowledges that no borrowings may be requested at any time or date of determination that Borrower is not in compliance with any of the terms of the Agreement, and that compliance is determined not just at the date this certificate is delivered. Capitalized terms used but not otherwise defined herein shall have the meanings given them in the Agreement.

Please indicate compliance status by circling Yes/No under "Complies" column.

Reporting Covenant	Required	Complies
Monthly financial statements with Compliance Certificate	Monthly within 30 days	Yes No
Annual financial statement (CPA Audited)	FYE within 180 days	Yes No
10-Q, 10-K and 8-K	Within 5 days after filing with SEC	Yes No
Board projections	FYE within 60 days	Yes No

The following are the exceptions with respect to the certification above: (If no exceptions exist, state "No exceptions to note.")

_____

_____

_____

ARSANIS, INC.

By: _____
Name: _____
Title: _____

BANK USE ONLY
Received by: _____
AUTHORIZED SIGNER

Date: _____
Verified: _____
AUTHORIZED SIGNER

Date: _____
Compliance Status: Yes No

COLLATERAL ASSIGNMENT AND CONSENT TO COLLATERAL ASSIGNMENT OF LICENSE AGREEMENT

This Collateral Assignment and Consent to Collateral Assignment ("**Assignment and Consent**") is made as of this 7th day of December, 2012, by and among SILICON VALLEY BANK, a California-chartered bank, with offices at 275 Grove Street, Suite 2-200, Newton, Massachusetts 02466 (the "**Bank**"), ARSANIS, INC., a Delaware corporation with offices at 16 Cavendish Court, Lebanon, New Hampshire 03766 (the "**Borrower**") and ARSANIS BIOSCIENCES GMBH, a company organized under the laws of Austria f/k/a Arsanis Arzneimittelforschung GmbH, with offices at Helmut-Qualtinger-Gasse 2, 1030 Vienna, Austria (the "**Austrian Subsidiary**") in consideration of the mutual covenants herein contained and the· benefits to be derived herefrom.

WITNESSETH:

WHEREAS, the Borrower and the Austrian Subsidiary are parties to that certain Amended and Restated Contract Research Agreement dated as of December 6, 2012 (hereinafter, as such may be amended, modified, restated, replaced or supplemented and in effect from time to time, the "**License Agreement**") pursuant to which, among other things, the Austrian Subsidiary has (i) acknowledged the sole and exclusive ownership by the Borrower of all Intellectual Property (as defined in the License Agreement), and transferred and assigned same to the Borrower to the extent originally or formerly owned by the Austrian Subsidiary; (ii) granted to the Borrower an exclusive, perpetual and royalty-free worldwide right and license in and to the Research Documentation (as defined in the License Agreement); and (iii) granted to the Borrower an exclusive, perpetual and royalty-free worldwide right and license in and to the FFG Project Scope Intellectual Property (as defined in the License Agreement); and

WHEREAS, the Borrower and the Bank have entered into a certain Loan and Security Agreement on or about the date hereof pursuant to which, among other things, the Borrower has granted to the Bank a security interest in and to its assets (as amended and in effect from time to time, the "**Loan Agreement**"). Capitalized terms used in this Assignment and Consent and not otherwise specifically defined shall have the same meaning herein as in the Loan Agreement; and

WHEREAS, one of the conditions of the Bank making advances to the Borrower under the Loan Agreement is the collateral assignment of the License Agreement by the Borrower to the Bank to secure the Borrower's prompt, punctual, and faithful payment and performance of all obligations and liabilities of the Borrower to the Bank, which collateral assignment is supplemental of, and in addition to, the rights of the Bank in and to all other collateral granted by the Borrower to the Bank to secure the payment and performance of the Borrower's obligations and liabilities to the Bank.

NOW THEREFORE, to induce the Bank to enter into the Loan Agreement, and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, and intending to be legally bound, the parties hereby represent, warrant, covenant and agree as follows:

1. To secure the prompt, punctual, and faithful payment and performance of the all obligations and liabilities of the Borrower to the Bank including, without limitation, those arising under the Loan Agreement, the Borrower hereby collaterally assigns to the Bank, and grants a security interest to the Bank in, all rights of the Borrower under the License Agreement. The Austrian Subsidiary hereby consents to such assignment and grant of security interest, and waives any and all restrictions on such assignment, whether under contract, under law, or otherwise.

2. The assignment hereunder is an assignment only of all of the rights which the Borrower may now or at any time hereafter have under, pursuant to, or in respect of the License Agreement. The Bank shall not be deemed by virtue of this Assignment and Consent to have assumed any of the obligations of the Borrower under the License Agreement, each of which obligations the Borrower covenants and agrees with the Bank to perform and observe as if this Assignment and Consent had not been made. The Bank is not under any liability of any kind to the Austrian Subsidiary under, pursuant to, or in respect of the License Agreement.

3. The Borrower and the Austrian Subsidiary (by its assent hereto) represent and warrant that (i) the License Agreement has not been terminated and is in full force and effect, (ii) there are no defaults under the License Agreement by any party thereto, (iii) the Research Term (as defined in the License Agreement) is hereby extended until June 30, 2015; (iv) the Borrower has not made and will not make any other assignment of the License Agreement, and (v) the Borrower is permitted, pursuant to the terms of the License Agreement, to deliver this Assignment and Consent to the Bank.

4. The Borrower and the Austrian Subsidiary each covenants and agrees that (i) it will not amend, modify, restate, replace, supplement, or waive any provision of the License Agreement, or agree or consent to same, unless first consented to in writing by the Bank, (ii) the License Agreement may not be terminated without the prior written consent of the Bank, until all the Borrower's obligations to the Bank, including without limitation under the Loan Agreement, have been satisfied in full and all credit arrangements, including the Loan Agreement, have been terminated pursuant to their terms, and (iii) any attempt to terminate the License Agreement without the Bank's prior written consent shall be deemed ineffective.

5. The Borrower hereby covenants and agrees that in the event the Borrower fails to pay to the Bank all amounts due and owing to the Bank as and when due, the Bank shall be entitled to all rights and remedies to which it may be entitled under the Loan Agreement as well as the right to specifically enforce the terms and conditions of this Assignment and Consent, without the further consent of the Borrower or the Austrian Subsidiary.

6. The Borrower and the Austrian Subsidiary each covenants and agrees that (i) the Bank has the right, without the consent of or notice to the Borrower or the Austrian Subsidiary, to assign, sell, or otherwise transfer all or any part of the Bank's rights and benefits under this Assignment and Consent subject to the terms of the Loan Agreement, and (ii) in the event the Borrower fails to pay to any assignee or successor of the Bank all amounts due and owing to such assignee or successor as and when due, such assignee or successor shall be entitled to all rights and remedies to which it may be entitled under the Loan Agreement as well as the right to specifically enforce the terms and conditions of this Assignment and Consent, without the further consent of the Borrower.

7. Any action or proceeding to enforce this Assignment and Consent may be taken by the Bank either in its name or in the name of the Borrower as the Bank may deem necessary.

8. The Borrower hereby grants to the Bank a non-exclusive, royalty-free license or other right to use, without charge, (i) the Intellectual Property, and (ii) the FFG Project Scope Intellectual Property, each as defined in the License Agreement, in order to complete the production of, advertise for sale, and sell, in each case ((i) and (ii) above), (a) its rights with respect to the Intellectual Property, and (b) its rights with respect to the FFG Project Scope Intellectual Property, each as defined in the License Agreement, in connection with the Bank's exercise of its rights under the Loan Agreement.

9. The Borrower agrees that it will immediately upon receipt furnish to the Bank copies of all written notices given to the Borrower with respect to any default of the Borrower under the License Agreement. The Austrian Subsidiary agrees that it will furnish to the Bank copies of all written notices forwarded to the Borrower with respect to any default of the Borrower under the License Agreement, simultaneously with the giving of such notice to the Borrower.

10. Neither the Borrower nor the Austrian Subsidiary shall take any action which may adversely affect the value or efficacy of (i) the Intellectual Property, and (ii) the FFG Project Scope Intellectual Property, each as defined in the License Agreement, or which may adversely affect the ability of the Bank to obtain payment and performance of the Obligations under the Loan Agreement. Neither the Borrower nor the Austrian Subsidiary shall take any action adverse to any interest of the Bank in connection with the matters covered in this Assignment and Consent.

11. The Borrower and the Austrian Subsidiary shall not enter into any other license agreement with each other without the prior written consent of the Bank, and any such license agreement shall nonetheless be subject to all of the grants, terms, and conditions hereunder.

12. The Austrian Subsidiary shall comply with the written instructions of the Bank in connection with the Bank's exercise of its rights under this Assignment and Consent and the Loan Documents.

13. The Borrower and the Austrian Subsidiary shall (i) take all actions to maintain, preserve, and protect the validity and enforceability of (a) the Intellectual Property, and (b) the FFG Project Scope Intellectual Property, each as defined in the License Agreement, and (ii) duly and timely apply for, obtain and maintain in force all registrations of (a) the Intellectual Property, and (b) the FFG Project Scope Intellectual Property, each as defined in the License Agreement as may be appropriate or necessary in the prudent business judgment of the Borrower and the Austrian Subsidiary.

14. In no event shall this Assignment and Consent by the Austrian Subsidiary confer upon the Bank any lien or security interest in any of the assets of the Austrian Subsidiary to secure the obligations of the Borrower under the Loan Agreement or otherwise.

15. This Assignment and Consent may be executed in counterparts, each of which shall constitute an original, but all of which, when taken together, shall constitute a single instrument.

16. All rights and obligations under this Assignment and Consent, including matters of construction, validity, and performance, shall be governed by and construed m accordance with the laws of the Commonwealth of Massachusetts.

17. To the extent that any term, condition, or provision of this Assignment and Consent (including, without limitation, the recitals) conflicts or is inconsistent with any term, condition, or provision of the License Agreement, the term, condition, or provision of this Assignment and Consent shall control, and the License Agreement is hereby deemed amended to incorporate each such term, condition, and provision of this Assignment and Consent.

IN WITNESS WHEREOF, the panics hereto have executed this Assignment under seal as of the date first above written.

ARSANIS. INC.
(the "Borrower")

By: /s/ Jonathan Sheller Name: Jonathan Sheller

Title: Director of Operations and Finance

SILICON VALLEY BANK
(the "Bank")

By: /s/ Christina M Zorzi Name: Christina M Zorzi
Title: Relationship Manager

ARSANIS BIOSCIENCES GmbH
(the "Austrian Subsidiary")

By: /s/ Eszter Nagy Name: Eszter Nagy

Title: Managing Director, CSO

FIRST AMENDMENT
TO
LOAN AND SECURITY AGREEMENT

This First Amendment to Loan and Security Agreement (this **"Amendment"**) is entered into this 19th day of February, 2016 by and between **SILICON VALLEY BANK** (**"Bank"**) and **ARSANIS, INC.,** a Delaware corporation (**"Borrower"**) whose address is 890 Winter Street, Suite 230, Waltham, Massachusetts 02451.

RECITALS

A. Bank and Borrower have entered into that certain Loan and Security Agreement dated as of December 7, 2012 (as the same may from time to time be further amended, modified, supplemented or restated, the **"Loan Agreement"**).

B. Bank has extended credit to Borrower for the purposes permitted in the Loan Agreement.

C. Borrower has requested that Bank amend the Loan Agreement to (i) extend a new term loan facility to refinance the existing term loan facility and (ii) make certain other revisions to the Loan Agreement as more fully set forth herein.

D. Bank has agreed to so amend certain provisions of the Loan Agreement, but only to the extent, in accordance with the terms, subject to the conditions and in reliance upon the representations and warranties set forth below.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing recitals and other good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, and intending to be legally bound, the parties hereto agree as follows:

1. Definitions. Capitalized terms used but not defined in this Amendment shall have the meanings given to them in the Loan Agreement.

2. Amendments to Loan Agreement.

2.1 Section 2.1.2 (**2016 Term Loan**). The Loan Agreement shall be amended by inserting the following new provision to appear as Section 2.1.2 (2016 Term Loan) thereof:

2.1.2 2016 Term Loan.

(a) Availability. Subject to the terms and conditions of this Agreement, upon the occurrence of the Capital Event, Bank shall make one (1) advance (the **"2016 Term A Loan Advance"**) available to Borrower in an aggregate principal amount not to exceed Three Million Five Hundred Thousand Dollars ($3,500,000), provided that the 2016 Term A Loan Advance shall be drawn on the 2016 Amendment Date and all or a portion of the 2016 Term A Loan Advance shall be used to repay in full Borrower's outstanding Obligations to Bank in

connection with the Term Loan Advances. Borrower hereby authorizes Bank to apply such proceeds to such Obligations as part of the funding process without actually depositing such funds in an account of Borrower. Subject to the terms and conditions of this Agreement, during the 2016 Draw Period B, Bank shall make up to two (2) advances (each, a **"2016 Term B Loan Advance"** and collectively, the **"2016 Term B Loan Advances"**) available to Borrower in an aggregate principal amount not to exceed Three Million Five Hundred Thousand Dollars ($3,500,000). Each 2016 Term B Loan Advance must be in an amount equal to at least Five Hundred Thousand Dollars ($500,000,00). The 2016 Term A Loan Advance and the 2016 Term B Loan Advances shall hereinafter be referred to singly as the **"2016 Term Loan Advance"** and collectively as the **"2016 Term Loan Advances."** The aggregate principal amount of all 2016 Term Loan Advances shall not exceed Seven Million Dollars ($7,000,000). After repayment, no 2016 Term Loan Advance may be reborrowed.

(b) Interest Period. Commencing on the first (1st) Payment Date following the month in which the Funding Date of the applicable 2016 Term Loan Advance occurs, and continuing on each Payment Date thereafter, Borrower shall make monthly payments of interest, in arrears, on the principal amount of each 2016 Term Loan Advance at the rate set forth in Section 2.2(a)(ii).

(c) Repayment. Commencing on the applicable 2016 Term Loan Amortization Date, and continuing on the Payment Date of each month thereafter, Borrower shall repay the 2016 Term Loan Advances in (i) equal monthly payments of principal according to the applicable 2016 Repayment Schedule, plus (ii) monthly payments of accrued interest at the rate set forth in Section 2.2(a)(ii). All outstanding principal and accrued and unpaid interest under each 2016 Term Loan Advance, and all other outstanding Obligations with respect to the 2016 Term Loan Advances, are due and payable in full on the 2016 Term Loan Maturity Date.

(d) Mandatory Prepayment Upon an Acceleration. If the 2016 Term Loan Advances are accelerated following the occurrence of an Event of Default, Borrower shall immediately pay to Bank an amount equal to the sum of: (i) all outstanding principal plus accrued and unpaid interest, (ii) the 2016 Prepayment Premium, (iii) the 2016 Final Payment, plus (iv) all other sums, if any, that shall have become due and payable, including interest at the Default Rate with respect to any past due amounts.

(e) Permitted Prepayment of 2016 Term Loan Advances. Borrower shall have the option to prepay all, but not less than all, of the 2016 Term Loan Advances advanced by Bank under this Agreement, provided Borrower (i) provides written notice to Bank of its election to prepay the 2016 Term Loan Advances at least thirty (30) days prior to such prepayment, and (ii) pays, on the date of such prepayment (A) all outstanding principal plus accrued and unpaid interest, (B) the applicable 2016 Prepayment Premium (if any), (C) the 2016 Final Payment and (D) all other sums, if any, that shall have become due and payable, including interest at the Default Rate with respect to any past due amounts.

2.2 Section 2.2(a) (**Payment of Interest on the Credit Extensions**). Section 2.2(a) is amended in its entirety and replaced with the following:

(a) Interest Rate.

(i) Subject to Section 2.2(b), the principal amount outstanding for each Term Loan Advance shall accrue interest at a fixed per annum rate equal to the Prime Rate, which interest shall be determined by Bank on the Funding Date of the applicable Term Loan Advance and shall be payable monthly in accordance with Section 2.2(e) below.

(ii) Subject to Section 2.2(b), the principal amount outstanding for each 2016 Term Loan Advance shall accrue interest at a floating per annum rate equal to one quarter of one percent (0.25%) below the Prime Rate, which interest shall be payable monthly in accordance with Section 2.2(e) below.

2.3 Section 2.2(f) (**Adjustment to Interest Rate**). Section 2.2 of the Loan Agreement (Payment of Interest on the Credit Extensions) is amended by inserting the following to appear as a new subsection (f) thereof:

(a) Adjustment to Interest Rate. Changes to the interest rate of any Credit Extension based on changes to the Prime Rate shall be effective on the effective date of any change to the Prime Rate and to the extent of any such change.

2.4 Section 2.3 (**Fees**). The Loan Agreement is amended by inserting the following new provisions to appear as Section 2.3(d) (2016 Final Payment) and Section 2.3(e) (2016 Prepayment Premium), respectively:

(a) 2016 Final Payment The 2016 Final Payment, when due hereunder; and

(b) 2016 Prepayment Premium. The 2016 Prepayment Premium, when due hereunder.

2.5 Section 8.1 (**Payment Default**). Section 8.1 is amended by deleting the words "Maturity Date" appearing therein and inserting in lieu thereof the words "Maturity Date or the 2016 Term Loan Maturity Date."

2.6 Section 13.1 (**Definitions**). The following terms and their respective definitions set forth in Section 13.1 are amended in their entirety and replaced with the following:

"Credit Extension" is any Term Loan Advance, any 2016 Term Loan Advance or any other extension of credit by Bank for Borrower's benefit under this Agreement.

"Warrant" means, collectively, (a) that certain Warrant to Purchase Stock dated as of the Effective Date executed by Borrower in favor of Bank, and (b) that certain Warrant to Purchase Stock dated as of the 2016 Amendment Date executed by Borrower in favor of Bank, each as may be amended, modified, supplemented or restated from time to time.

"Obligations" are Borrower's obligations to pay when due any debts, principal, interest, the Final Payment, the 2016 Final Payment, the 2016 Prepayment Premium, Bank Expenses and any other amounts Borrower owes Bank now or later, whether under this Agreement, the other Loan Documents (other than the Warrant), or otherwise, including, without limitation, any interest accruing after Insolvency Proceedings begin and debts, liabilities, or obligations of Borrower assigned to Bank, and the performance of Borrower's duties under the Loan Documents (other than the Warrant).

2.7 Section 13.1 (**Definitions**). The following new terms and their respective definitions are inserted to appear alphabetically in Section 13.1:

"2016 Amendment Date" is February 19, 2016.

"2016 Draw Period B" is the period of time commencing upon the occurrence of the 2016 Milestone Event through the earlier to occur of (a) June 30, 2016 or (b) an Event of Default.

"2016 Extension Event" means delivery by Borrower to Bank, on or prior to December 31, 2016, of evidence satisfactory to Bank in Bank's sole and absolute discretion, that the first (1st) dose of ASN-100 has been administered to a patient in connection with its phase 2 clinical study of Borrower's ASN-100 product.

"2016 Final Payment" is a payment (in addition to and not a substitution for the regular monthly payments of principal plus accrued interest) equal to the original principal amount of the 2016 Term Loan Advances extended by Bank to Borrower multiplied by the 2016 Final Payment Percentage, due on the earliest to occur of (a) the 2016 Term Loan Maturity Date, (b) the acceleration of the 2016 Term Loan Advances,

(c) the prepayment of the 2016 Term Loan Advances pursuant to Section 2.1.2(d) or 2.1.2(e), or (d) the termination of this Agreement.

"2016 Final Payment Percentage" is, for each 2016 Term Loan Advance, five percent (5.0%).

"2016 Milestone Event" means delivery by Borrower to Bank, on or prior to June 30, 2016, of evidence satisfactory to Bank in Bank's sole and absolute discretion, that Borrower has received favorable data (including, without limitation, data containing primary and secondary endpoints as agreed upon between Borrower and the governing regulatory authority) which provide sufficient evidence for the Board to support and for Borrower to proceed with the continued progression of Borrower's ASN-100 product with respect to its phase 1 clinical study of Borrower's ASN-100 product.

"2016 Prepayment Premium" shall be an additional fee payable to Bank in an amount equal to:

(a) for a prepayment of a 2016 Term Loan Advance made on or prior to the first (1st) anniversary of the 2016 Amendment Date, two percent (2.0%) of the principal amount of the 2016 Term Loan Advances outstanding as of the date immediately and prior to such prepayment;

(b) for a prepayment of a 2016 Term Loan Advance made after the first (1st) anniversary of the 2016 Amendment Date, but on or prior to the second (2nd) anniversary of the 2016 Amendment Date, one percent (1.0%) of the then outstanding principal amount of the 2016 Term Loan Advances as of the date immediately and prior to such prepayment; and

(c) for a prepayment of a 2016 Term Loan Advance made after the second (2nd) anniversary of the 2016 Amendment Date, zero percent (0.0%) of the then outstanding principal amount of the 2016 Term Loan Advances as of the date immediately and prior to such prepayment.

Notwithstanding the foregoing, Bank agrees to waive the 2016 Prepayment Premium (i) if Bank closes on the refinance and re-documentation of the 2016 Term Loan Advances under another division of Bank (in its sole and absolute discretion) prior to the 2016 Term Loan Maturity Date or (ii) if the 2016 Term Loan Advances are repaid contemporaneously with the occurrence of a Deemed Liquidity Event.

"2016 Repayment Schedule" means thirty-six (36) equal monthly payments of principal; provided, however, that upon the occurrence of the 2016 Extension Event, the **"2016 Repayment Schedule"** shall mean thirty-three (33) equal monthly payments of principal.

"2016 Term A Loan Advance" is defined in Section 2.1.2(a).

"2016 Term B Loan Advance" and **"2016 Term B Loan Advances"** are defined in Section 2.1.2(a).

"2016 Term Loan Advance" and **"2016 Term Loan Advances"** are defined in Section 2.1.2(a).

"2016 Term Loan Amortization Date" means January 1, 2017; provided, however, that upon the occurrence of the 2016 Extension Event, the **"2016 Term Loan Amortization Date"** shall mean April 1,2017.

"2016 Term Loan Maturity Date" is December 1, 2019.

"Capital Event" means confirmation by Bank, in its sole and absolute discretion, that Borrower has received, after December 8, 2015 but on or prior to the 2016 Amendment Date, unrestricted and unencumbered net cash proceeds in an amount of at least Four Million Dollars ($4,000,000.00) from the issuance and sale by Borrower of equity securities or Subordinated Debt with investors acceptable to Bank

"Deemed Liquidity Event" means delivery by Borrower to Bank of evidence satisfactory to Bank in its sole and absolute discretion of the occurrence of (a) (i) a sale, assignment or other disposition by Borrower of all or substantially all of its assets, (ii) a merger or consolidation of Borrower into or with another Person or entity, or (ii) any sale, in a single transaction or series of related transactions, by the holders of Borrower's outstanding voting equity securities, to one or more buyers of such securities, where such holders do not, as of immediately following the consummation of such transaction(s), continue to hold at least a majority of Borrower's issued and outstanding voting equity securities; or (b) an Initial Public Offering; in either case (a) or (b), resulting in Borrower's receipt of unrestricted and unencumbered net cash proceeds in an amount of at least One Hundred Fifty Million Dollars ($150,000,000.00).

"Initial Public Offering" is the initial, underwritten offering and sale of Borrower's common stock to the public pursuant to an effective registration statement under the Securities Act of 1933, as amended.

3. Limitation of Amendments.

3.1 The amendments set forth in Section 2 above are effective for the purposes set forth herein and shall be limited precisely as written and shall not be deemed to (a) be a consent to any amendment, waiver or modification of any other term or condition of any Loan Document, or (b) otherwise prejudice any right or remedy which Bank may now have or may have in the future under or in connection with any Loan Document.

3.2 This Amendment shall be construed in connection with and as part of the Loan Documents and all terms, conditions, representations, warranties, covenants and agreements set forth in the Loan Documents, except as herein amended, are hereby ratified and confirmed and shall remain in full force and effect.

4. Representations and Warranties. To induce Bank to enter into this Amendment, Borrower hereby represents and warrants to Bank as follows:

4.1 Immediately after giving effect to this Amendment (a) the representations and warranties contained in the Loan Documents are true, accurate and complete in all material respects as of the date hereof (except to the extent such representations and warranties relate to an earlier date, in which case they are true and correct as of such date), and (b) no Event of Default has occurred and is continuing;

4.2 Borrower has the power and authority to execute and deliver this Amendment and to perform its obligations under the Loan Agreement, as amended by this Amendment;

4.3 The organizational documents of Borrower delivered to Bank on the 2016 Amendment Date remain true, accurate and complete and have not been amended, supplemented or restated and are and continue to be in full force and effect;

4.4 The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, have been duly authorized;

4.5 The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, do not and will not contravene (a) any law or regulation binding on or affecting Borrower, (b) any contractual restriction with a Person binding on Borrower, (c) any order, judgment or decree of any court or other governmental or public body or authority, or subdivision thereof, binding on Borrower, or (d) the organizational documents of Borrower;

4.6 The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, do not require any order, consent, approval, license, authorization or validation of, or filing, recording or registration with, or exemption by any governmental or public body or authority, or subdivision thereof, binding on Borrower, except as already has been obtained or made; and

4.7 This Amendment has been duly executed and delivered by Borrower and is the binding obligation of Borrower, enforceable against Borrower in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, liquidation, moratorium or other similar laws of general application and equitable principles relating to or affecting creditors' rights.

5. Ratification of Collateral Assignment and Consent to Collateral Assignment of License Agreement. Borrower hereby ratifies, confirms and reaffirms, all and singular, the terms and conditions of a certain Collateral Assignment and Consent to Collateral Assignment of License Agreement dated as of December 7, 2012 by and among Borrower, ARSANIS BIOSCIENCES GMBH, a company organized under the laws of Austria f/k/a Arsanis Arzneimittelforschung GmbH, with offices at Helmut-Qualtinger-Gasse 2, 1030 Vienna, Austria (**"Austrian Subsidiary"**) and Bank (the **"Consent and Assignment Agreement"**), and acknowledges, confirms and agrees that said Consent and Assignment Agreement shall remain in full force and effect.

6. Ratification of Stock Pledge Agreement. Borrower hereby ratifies, confirms and reaffirms, all and singular, the terms and conditions of a certain Stock Pledge Agreement dated as of December 7, 2012 by and between Borrower and Bank, and acknowledges, confirms and agrees that said Stock Pledge Agreement shall remain in full force and effect.

7. Ratification of Perfection Certificate. Borrower hereby ratifies, confirms and reaffirms, all and singular, the terms and disclosures contained in a certain Perfection Certificate dated as of December 7, 2012 between Borrower and Bank, and acknowledges, confirms and agrees the disclosures and information Borrower provided to Bank in said Perfection Certificate have not changed, as of the date hereof, except as set forth on Schedule 1 attached hereto.

8. Integration. This Amendment and the Loan Documents represent the entire agreement about this subject matter and supersede prior negotiations or agreements. All prior agreements, understandings, representations, warranties, and negotiations between the parties about the subject matter of this Amendment and the Loan Documents merge into this Amendment and the Loan Documents.

9. Counterparts. This Amendment may be executed in any number of counterparts and all of such counterparts taken together shall be deemed to constitute one and the same instrument.

10. Effectiveness. This Amendment shall be deemed effective upon (a) the due execution and delivery to Bank of this Amendment by each party hereto and (b) Borrower's payment of (i) a fully earned, non-refundable commitment fee in an amount equal to Five Thousand Dollars ($5,000,00), (ii) the Final Payment in an amount equal to One Hundred Thousand ($100,000.00) and (iii) Bank's legal fees and expenses incurred in connection with this Amendment.

[Signature page follows.]

IN WITNESS WHEREOF, the parties hereto have caused this Amendment to be duly executed as a sealed instrument under the laws of the Commonwealth of Massachusetts and delivered as of the date first written above.

BANK		**BORROWER**	
SILICON VALLEY BANK		ARSANIS, INC.	
By:	/s/ Matthew Griffus	By:	/s/ Jon Sheller
Name:	Matthew Griffus	Name:	Jonathan Sheller
Title:	Vice President	Title:	Secretary, Treasurer

The undersigned, ARSANIS BIOSCIENCES GMBH, a company organized under the laws of Austria f/k/a Arsanis ArzneimitteJforschung GmbH, with offices at Helmut-Quallinger-Gasse 2, 1030 Vienna, Austria, hereby ratifies, confirms and reaffirms, all and singular, the terms and conditions of the Consent and Assignment Agreement, and acknowledges, confirms and agrees that said Consent and Assignment Agreement shall remain in full force and effect and shall in no way be limited by the execution of this Amendment, or any other documents, instruments, and/or agreements executed and/or delivered in connection herewith.

Acknowledged and agreed:

ARSANIS BIOSCIENCES GMBH

By:	/s/ Eszter Nagy
Name:	Eszter Nagy
Title:	Managing Director

Schedule 1

Updates to Perfection Certificate
(see attached)

THIS WARRANT AND THE SHARES ISSUABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN SECTIONS 5.3 AND 5.4 BELOW, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR, IN THE OPINION OF LEGAL COUNSEL IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

WARRANT TO PURCHASE STOCK

Company: Arsanis, Inc., a Delaware corporation
Number of Shares: As set forth in Paragraph A below
Type/Series of Stock: Series A-2 Convertible Preferred Stock, $0.001 par value per share
Warrant Price: $4.54 per Share, subject to adjustment
Issue Date: December 7, 2012
Expiration Date: December 6, 2022 **See also Section 5.1(b)**.
Credit Facility: This Warrant to Purchase Stock ("**Warrant**") is issued in connection with that certain Loan and Security Agreement of even date herewith between Silicon Valley Bank and the Company (as amended and/or modified and in effect from time to time, the "**Loan Agreement**").

THIS WARRANT CERTIFIES THAT, for good and valuable consideration, SILICON VALLEY BANK (together with any successor or permitted assignee or transferee of this Warrant or of any shares issued upon exercise hereof, "**Holder**") is entitled to purchase the number of fully paid and non-assessable shares of the above-stated Type/Series of Stock (the "**Class**") of the above-named company (the "**Company**") at the above-stated Warrant Price, all as set forth above and as adjusted pursuant to Section 2 of this Warrant, subject to the provisions and upon the terms and conditions set forth in this Warrant. Reference is made to Section 5.4 of this Warrant whereby Silicon Valley Bank shall transfer this Warrant to its parent company, SVB Financial Group.

A. Number of Shares. Upon each Term Loan Advance (as defined in the Loan Agreement) made to the Company, this Warrant automatically shall become exercisable for such number of shares of the Class (cumulatively, the "**Shares**") as shall equal (a)(i) 0.02, multiplied by (ii) the amount of such Term Loan Advance divided by (b) the Warrant Price in effect on and as of the date of such Term Loan Advance, subject to adjustment thereafter from time to time in accordance with the provisions of this Warrant.

SECTION 1. EXERCISE.

1.1 Method of Exercise. Holder may at any time and from time to time exercise this Warrant, in whole or in part, by delivering to the Company the original of this Warrant together with a duly executed Notice of Exercise in substantially the form attached hereto as Appendix 1 and, unless Holder is exercising this Warrant pursuant to a cashless exercise set forth in Section 1.2, a check, wire transfer of same-day funds (to an account designated by the Company), or other form of payment acceptable to the Company for the aggregate Warrant Price for the Shares being purchased.

1.2 Cashless Exercise. On any exercise of this Warrant, in lieu of payment of the aggregate Warrant Price in the manner as specified in Section 1.1 above, but otherwise in accordance with the requirements of Section 1.1, Holder may elect to receive Shares equal to the value of this Warrant, or portion hereof as to which this Warrant is being exercised. Thereupon, the Company shall issue to the Holder such number of fully paid and non-assessable Shares as are computed using the following formula:

$$X = Y(A-B)/A$$

where:

X = the number of Shares to be issued to the Holder;

Y = the number of Shares with respect to which this Warrant is being exercised (inclusive of the Shares surrendered to the Company in payment of the aggregate Warrant Price);

A = the Fair Market Value (as determined pursuant to Section 1.3 below) of one Share; and

B = the Warrant Price.

1.3 Fair Market Value. If the Company's common stock is then traded or quoted on a nationally recognized securities exchange, inter-dealer quotation system or over-the-counter market (a "**Trading Market**") and the Class is common stock, the fair market value of a Share shall be the closing price or last sale price of a share of common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company. If the Company's common stock is then traded in a Trading Market and the Class is a series of the Company's convertible preferred stock, the fair market value of a Share shall be the closing price or last sale price of a share of the Company's common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company multiplied by the number of shares of the Company's common stock into which a Share is then convertible. If the Company's common stock is not traded in a Trading Market, the Board of Directors of the Company shall determine the fair market value of a Share in its reasonable good faith judgment.

1.4 Delivery of Certificate and New Warrant. Within a reasonable time after Holder exercises this Warrant in the manner set forth in Section 1.1 or 1.2 above, the Company shall deliver to Holder a certificate representing the Shares issued to Holder upon such exercise and, if this Warrant has not been fully exercised and has not expired, a new warrant of like tenor representing the Shares not so acquired.

1.5 Replacement of Warrant. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, on delivery of an indemnity agreement reasonably satisfactory in form, substance and amount to the Company or, in the case of mutilation, on surrender of this Warrant to the Company for cancellation, the Company shall, within a reasonable time, execute and deliver to Holder, in lieu of this Warrant, a new warrant of like tenor and amount.

1.6 Treatment of Warrant Upon Acquisition of Company.

(a) Acquisition. For the purpose of this Warrant, "**Acquisition**" means any transaction or series of related transactions involving: (i) the sale, lease, exclusive license, or other disposition of all or substantially all of the assets of the Company (ii) any merger or consolidation of the Company into or with another person or entity (other than a merger or consolidation effected exclusively to change the Company's domicile), or any other corporate reorganization, in which the stockholders of the Company in their capacity as such immediately prior to such merger, consolidation or reorganization, own less than a majority of the Company's (or the surviving or successor entity's) outstanding voting power immediately after such merger, consolidation or reorganization (or, if such Company stockholders beneficially own a majority of the outstanding voting power of the surviving or successor entity as of immediately after such merger, consolidation or reorganization, such surviving or successor entity is not the Company); or (iii) any sale or other transfer by the stockholders of the Company of shares representing at least a majority of the Company's then-total outstanding combined voting power.

(b) Treatment of Warrant at Acquisition. In the event of an Acquisition in which the consideration to be received by the Company's stockholders consists solely of cash, solely of Marketable Securities or a combination of cash and Marketable Securities (a "**Cash/Public Acquisition**"), either (i) Holder shall exercise this Warrant pursuant to Section 1.1 and/or 1.2 and such exercise will be deemed effective immediately prior to and contingent upon the consummation of such Acquisition or (ii) if Holder elects not to exercise the Warrant, this Warrant will expire immediately prior to the consummation of such Acquisition.

(c) The Company shall provide Holder with written notice of its request relating to the Cash/Public Acquisition (together with such reasonable information as Holder may reasonably require regarding the treatment of this Warrant in connection with such contemplated Cash/Public Acquisition giving rise to such notice), which is to be delivered to Holder not less than seven (7) Business Days prior to the closing of the proposed Cash/Public Acquisition. In the event the Company does not provide such notice, then if, immediately prior to the Cash/Public Acquisition, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above would be greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall promptly notify the Holder of the number of Shares (or such other securities) issued upon such exercise to the Holder and Holder shall be deemed to have restated each of the representations and warranties in Section 4 of the Warrant as the date thereof.

(d) Upon the closing of any Acquisition other than a Cash/Public Acquisition, the acquiring, surviving or successor entity shall assume the obligations of this Warrant, and this Warrant shall thereafter be exercisable for the same securities and/or other property as would have been paid for the Shares issuable upon exercise of the unexercised portion of this Warrant as if such Shares were outstanding on and as of the closing of such Acquisition, subject to further adjustment from time to time in accordance with the provisions of this Warrant.

(e) As used in this Warrant, "**Marketable Securities**" means securities meeting all of the following requirements: (i) the issuer thereof is then subject to the reporting requirements of Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), and is then current in its filing of all required reports and other information under the Act and the Exchange Act; (ii) the class and series of shares or other security of the issuer that would be received by Holder in connection with the Acquisition were Holder to exercise this Warrant on or prior to the closing thereof is then traded in Trading Market, and (iii) following the closing of such Acquisition, Holder would not be restricted from publicly re-selling all of the issuer's shares and/or other securities that would be received by Holder in such Acquisition were Holder to exercise or convert this Warrant in full on or prior to the closing of such Acquisition, except to the extent that any such restriction (x) arises solely under federal or state securities laws, rules or regulations, and (y) does not extend beyond six (6) months from the closing of such Acquisition.

1.7 Stockholders' Agreement. Upon any exercise of this Warrant, Holder shall, if the Company so requests in writing, become a party to, by execution and delivery to the Company of a counterpart signature page, joinder agreement, instrument of accession or similar instrument, that certain Stockholders' Agreement by and among the Company and the other parties thereto, dated on or about September 15, 2010, as amended and in effect from time to time, or any successor agreement or agreements thereto, solely with respect to the Shares issued upon such exercise (and the shares of Common Stock, if any, issued upon conversion of such Shares), solely to the extent that all holders of outstanding shares of the Class are then parties thereto, and solely to the extent each such agreement is then by its terms in force and effect.

SECTION 2. ADJUSTMENTS TO THE SHARES AND WARRANT PRICE.

2.1 Stock Dividends, Splits, Etc. If the Company declares or pays a dividend or distribution on the outstanding shares of the Class payable in common stock or other securities or property (other than cash), then upon exercise of this Warrant, for each Share acquired, Holder shall receive, without additional cost to Holder, the total number and kind of securities and property which Holder would have received had Holder owned the Shares of record as of the date the dividend or distribution occurred. If the Company subdivides the outstanding shares of the Class by reclassification or otherwise into a greater number of shares, the number of Shares purchasable hereunder shall be proportionately increased and the Warrant Price shall be proportionately decreased. If the outstanding shares of the Class are combined or consolidated, by reclassification or otherwise, into a lesser number of shares, the Warrant Price shall be proportionately increased and the number of Shares shall be proportionately decreased.

2.2 Reclassification, Exchange, Combinations or Substitution. Upon any event whereby all of the outstanding shares of the Class are reclassified, exchanged, combined, substituted, or replaced for, into, with or by Company securities of a different class and/or series, then from and after the consummation of such event, this Warrant will be exercisable for the number, class and series of Company securities that Holder would have received had the Shares been outstanding on and as of the consummation of such event, and subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant. The provisions of this Section 2.2 shall similarly apply to successive reclassifications, exchanges, combinations substitutions, replacements or other similar events.

2.3 Conversion of Preferred Stock. If the Class is a class and series of the Company's convertible preferred stock, in the event that all outstanding shares of the Class are converted, automatically or by action of the holders thereof, into common stock pursuant to the provisions of the Company's Certificate of Incorporation, including, without limitation, in connection with the Company's initial, underwritten public offering and sale of its common stock pursuant to an effective registration statement under the Act (the "**IPO**"), then from and after the date on which all outstanding shares of the Class have been so converted, this Warrant shall be exercisable for such number of shares of common stock into which the Shares would have been converted had the Shares been outstanding on the date of such conversion, and the Warrant Price shall equal the Warrant Price in effect as of immediately prior to such conversion divided by the number of shares of common stock into which one Share would have been converted, all subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant.

2.4 Adjustments for Diluting Issuances. Without duplication of any adjustment otherwise provided for in this Section 2, the number of shares of common stock issuable upon conversion of the Shares shall be subject to anti-dilution adjustment from time to time in the manner set forth in the Company's Certificate of Incorporation as if the Shares were issued and outstanding on and as of the date of any such required adjustment.

2.5 No Fractional Share. No fractional Share shall be issuable upon exercise of this Warrant and the number of Shares to be issued shall be rounded down to the nearest whole Share. If a fractional Share interest arises upon any exercise of the Warrant, the Company shall eliminate such fractional Share interest by paying Holder in cash the amount computed by multiplying the fractional interest by (i) the fair market value (as determined in accordance with Section 1.3 above) of a full Share, less (ii) the then-effective Warrant Price.

2.6 Notice/Certificate as to Adjustments. Upon each adjustment of the Warrant Price, Class and/or number of Shares, the Company, at the Company's expense, shall notify Holder in writing within a reasonable time setting forth the adjustments to the Warrant Price, Class and/or number of Shares and facts upon which such adjustment is based. The Company shall, upon written request from Holder, furnish Holder with a certificate of its Chief Financial Officer, including computations of such adjustment and the Warrant Price, Class and number of Shares in effect upon the date of such adjustment.

SECTION 3. REPRESENTATIONS AND COVENANTS OF THE COMPANY.

3.1 Representations and Warranties. The Company represents and warrants to, and agrees with, the Holder as follows:

(a) The initial Warrant Price referenced on the first page of this Warrant is not greater than the price per share at which shares of the Class were last sold and issued prior to the Issue Date hereof in an arms-length transaction in which at least $500,000 of such shares were sold.

(b) All Shares which may be issued upon the exercise of this Warrant, and all securities, if any, issuable upon conversion of the Shares, shall, upon issuance, be duly authorized, validly issued, fully paid and non-assessable, and free of any liens and encumbrances except for restrictions on transfer provided for herein or under applicable federal and state securities laws. The Company covenants that it shall at all times cause to be reserved and kept available out of its authorized and unissued capital stock such number of shares of the Class, common stock and other securities as will be sufficient to permit the exercise in full of this Warrant and the conversion of the Shares into common stock or such other securities.

(c) The Company's capitalization table attached hereto as Schedule 1 is true and complete, in all material respects, as of the Issue Date.

3.2 Notice of Certain Events. If the Company proposes at any time to:

(a) declare any dividend or distribution upon the outstanding shares of the Class or common stock, whether in cash, property, stock, or other securities and whether or not a regular cash dividend;

(b) offer for subscription or sale pro rata to the holders of the outstanding shares of the Class any additional shares of any class or series of the Company's stock (other than pursuant to contractual pre-emptive rights);

(c) effect any reclassification, exchange, combination, substitution, reorganization or recapitalization of the outstanding shares of the Class;

(d) effect an Acquisition or to liquidate, dissolve or wind up; or

(e) effect an IPO;

then, in connection with each such event, the Company shall give Holder:

(1) in the case of the matters referred to in (a) and (b) above, at least seven (7) Business Days prior written notice of the earlier to occur of the effective date thereof or the date on which a record will be taken for such dividend, distribution, or subscription rights (and specifying the date on which the holders of outstanding shares of the Class will be entitled thereto) or for determining rights to vote, if any;

(2) in the case of the matters referred to in (c) and (d) above at least seven (7) Business Days prior written notice of the date when the same will take place (and specifying the date on which the holders of outstanding shares of the Class will be entitled to exchange their shares for the securities or other property deliverable upon the occurrence of such event); and

(3) with respect to the IPO, at least seven (7) Business Days prior written notice of the date on which the Company proposes to file its registration statement in connection therewith.

Reference is made to Section 1.6(c) whereby this Warrant will be deemed to be exercised pursuant to Section 1.2 hereof if the Company does not give written notice to Holder of a Cash/Public Acquisition as required by the terms hereof. Company will also provide information requested by Holder that is reasonably necessary to enable Holder to comply with Holder's accounting or reporting requirements.

SECTION 4. REPRESENTATIONS, WARRANTIES OF THE HOLDER.

The Holder represents and warrants to the Company as follows:

4.1 Purchase for Own Account. This Warrant and the securities to be acquired upon exercise of this Warrant by Holder are being acquired for investment for Holder's account, not as a nominee or agent, and not with a view to the public resale or distribution within the meaning of the Act. Holder also represents that it has not been formed for the specific purpose of acquiring this Warrant or the Shares.

4.2 Disclosure of Information. Holder is aware of the Company's business affairs and financial condition and has received or has had full access to all the information it considers necessary or appropriate to make an informed investment decision with respect to the acquisition of this Warrant and its underlying securities. Holder further has had an opportunity to ask questions and receive answers from the Company regarding the terms and conditions of the offering of this Warrant and its underlying securities and to obtain additional information (to the extent the Company possessed such information or could acquire it without unreasonable effort or expense) necessary to verify any information furnished to Holder or to which Holder has access.

4.3 Investment Experience. Holder understands that the purchase of this Warrant and its underlying securities involves substantial risk. Holder has experience as an investor in securities of companies in the development stage and acknowledges that Holder can bear the economic risk of such Holder's investment in this Warrant and its underlying securities and has such knowledge and experience in financial or business matters that Holder is capable of evaluating the merits and risks of its investment in this Warrant and its underlying securities and/or has a preexisting personal or business relationship with the Company and certain of its officers, directors or controlling persons of a nature and duration that enables Holder to be aware of the character, business acumen and financial circumstances of such persons.

4.4 Accredited Investor Status. Holder is an "accredited investor" within the meaning of Regulation D promulgated under the Act.

4.5 The Act. Holder understands that this Warrant and the Shares issuable upon exercise hereof have not been registered under the Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of the Holder's investment intent as expressed herein. Holder understands that this Warrant and the Shares issued upon any exercise hereof must be held indefinitely unless subsequently registered under the Act and qualified under applicable state securities laws, or unless exemption from such registration and qualification are otherwise available. Holder is aware of the provisions of Rule 144 promulgated under the Act.

4.6 Market Stand-off Agreement. The Holder agrees that the Shares shall be subject to the Market Standoff provisions in Section 2.8 of the Company's Investor Rights Agreement, as amended and in effect from time to time.

4.7 No Voting Rights. Holder, as a Holder of this Warrant, will not have any voting rights until the exercise of this Warrant.

SECTION 5. MISCELLANEOUS.

5.1 Term; Automatic Cashless Exercise Upon Expiration.

(a) Term. Subject to the provisions of Section 1.6 above, this Warrant is exercisable in whole or in part at any time and from time to time on or before 6:00 PM, Pacific time, on the Expiration Date and shall be void thereafter.

(b) Automatic Cashless Exercise upon Expiration. In the event that, upon the Expiration Date, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above is greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall, within a reasonable time, deliver a certificate representing the Shares (or such other securities) issued upon such exercise to Holder.

5.2 Legends. Each certificate evidencing Shares (and each certificate evidencing securities issued upon conversion of any Shares, if any) shall be imprinted with a legend in substantially the following form:

> THE SHARES EVIDENCED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN THAT CERTAIN WARRANT TO PURCHASE STOCK ISSUED BY THE ISSUER TO SILICON VALLEY BANK DATED DECEMBER 7, 2012, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR, IN THE OPINION OF LEGAL COUNSEL IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

5.3 Compliance with Securities Laws on Transfer. This Warrant and the Shares issued upon exercise of this Warrant (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) may not be transferred or assigned in whole or in part except in compliance with applicable federal and state securities laws by the transferor and the transferee (including, without limitation, the delivery of investment representation letters and legal opinions reasonably satisfactory to the Company, as reasonably requested by the Company). The Company shall not require Holder to provide an opinion of counsel if the transfer is to SVB Financial Group (Silicon Valley Bank's parent company) or any other affiliate of Holder, provided that any such transferee is an "accredited investor" as defined in Regulation D promulgated under the Act. Additionally, the Company shall also not require an opinion of counsel if there is no material question as to the availability of Rule 144 promulgated under the Act.

5.4 Transfer Procedure. After receipt by Silicon Valley Bank of the executed Warrant, Silicon Valley Bank will transfer all of this Warrant to its parent company, SVB Financial Group. By its acceptance of this Warrant, SVB Financial Group hereby makes to the Company each of the representations and warranties set forth in Section 4 hereof and agrees to be bound by all of the terms and conditions of this Warrant as if the original Holder hereof. Subject to the provisions of Section 5.3 and upon providing the Company with written notice, SVB Financial Group and any subsequent Holder may transfer all or part of this Warrant or the Shares issued upon exercise of this Warrant (or the securities issued upon conversion of the Shares, if any) to any transferee, provided, however, in connection with any such transfer, SVB Financial Group or any subsequent Holder will give the Company notice of the portion of the Warrant and/or Shares (and/or securities issued upon conversion of the Shares, if any) being transferred with the name, address and taxpayer identification number of the transferee and Holder will surrender this Warrant to the Company for reissuance to the transferee(s) (and Holder if applicable); and provided further, that any subsequent transferee other than SVB Financial Group shall agree in writing with the Company to be bound by all of the terms and conditions of this Warrant. Notwithstanding any contrary provision herein, at all times prior to the IPO, Holder may not, without the Company's prior written consent, transfer this Warrant or any portion hereof, or any Shares issued upon any exercise hereof, or any shares or other securities issued upon any conversion of any Shares issued upon any exercise hereof, to any person or entity who directly competes with the Company (as determined by the Company's Board of Directors in good faith), except in connection with an Acquisition of the Company by such a direct competitor.

5.5 Notices. All notices and other communications hereunder from the Company to the Holder, or vice versa, shall be deemed delivered and effective (i) when given personally, (ii) on the third (3rd) Business Day after being mailed by first-class registered or certified mail, postage prepaid, (iii) upon actual receipt if given by facsimile or electronic mail and such receipt is confirmed in writing by the recipient, or (iv) on the first Business Day following delivery to a reliable overnight courier service, courier fee prepaid, in any case at such address as may have been furnished to the Company or Holder, as the case may be, in writing by the Company or such Holder from time to time in accordance with the provisions of this Section 5.5. All notices to Holder shall be addressed as follows until the Company receives notice of a change of address in connection with a transfer or otherwise:

SVB Financial Group
Attn: Treasury Department
3003 Tasman Drive, HC 215
Santa Clara, CA 95054
Telephone: (408) 654-7400
Facsimile: (408) 988-8317
Email address: derivatives@svb.com

Notice to the Company shall be addressed as follows until Holder receives notice of a change in address:

Arsanis, Inc.
Attn: Chief Financial Officer
16 Cavendish Court
Lebanon, NH 03766
Telephone:
Facsimile: (603) 386 6906
Email: jonathan.sheller@arsanis.com

With a copy (which shall not constitute notice) to:

Foley Hoag LLP
Attn: Robert L. Birnbaum, Esq.
155 Seaport Boulevard
Boston, MA 02210
Telephone: (617) 832-1106
Facsimile: ((617) 832-7000
Email: RLB@foleyhoag.com

5.6 Waiver. This Warrant and any term hereof may be changed, waived, discharged or terminated (either generally or in a particular instance and either retroactively or prospectively) only by an instrument in writing signed by the party against which enforcement of such change, waiver, discharge or termination is sought.

5.7 Attorneys' Fees. In the event of any dispute between the parties concerning the terms and provisions of this Warrant, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorneys' fees.

5.8 Counterparts; Facsimile/Electronic Signatures. This Warrant may be executed in counterparts, all of which together shall constitute one and the same agreement. Any signature page delivered electronically or by facsimile shall be binding to the same extent as an original signature page with regards to any agreement subject to the terms hereof or any amendment thereto.

5.9 Governing Law. This Warrant shall be governed by and construed in accordance with the laws of the State of California, without giving effect to its principles regarding conflicts of law.

5.10 Headings. The headings in this Warrant are for purposes of reference only and shall not limit or otherwise affect the meaning of any provision of this Warrant.

5.11 Business Days. "**Business Day**" is any day that is not a Saturday, Sunday or a day on which Silicon Valley Bank is closed.

[Remainder of page left blank intentionally]
[Signature page follows]

IN WITNESS WHEREOF, the parties have caused this Warrant to Purchase Stock to be executed by their duly authorized representatives effective as of the Issue Date written above.

"COMPANY"

ARSANIS, INC.

By: /s/ Jonathan Sheller
Name: Jonathan Sheller
(Print)
Title: Director of Operations and Finance

"HOLDER"

SILICON VALLEY BANK

By: /s/ Christina M. Zorzi
Name: Christina M. Zorzi
(Print)
Title: Relationship Manager

APPENDIX 1

NOTICE OF EXERCISE

1. The undersigned Holder hereby exercises its right to purchase _____ shares of the Common/Series_____ Preferred [circle one] Stock of _____ (the "**Company**") in accordance with the attached Warrant To Purchase Stock, and tenders payment of the aggregate Warrant Price for such shares as follows:

☐ check in the amount of $_____ payable to order of the Company enclosed herewith

☐ Wire transfer of immediately available funds to the Company's account

☐ Cashless Exercise pursuant to Section 1.2 of the Warrant

☐ Other [Describe] _____

2. Please issue a certificate or certificates representing the Shares in the name specified below:

_____

Holder's Name

_____

_____

(Address)

3. By its execution below and for the benefit of the Company, Holder hereby restates each of the representations and warranties in Section 4 of the Warrant to Purchase Stock as of the date hereof.

HOLDER:

_____

By: _____

_____

Name: _____

_____

Title: _____

_____

(Date): _____

_____

SCHEDULE 1

Company Capitalization Table

See attached

THIS WARRANT AND THE SHARES ISSUABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN SECTIONS 5.3 AND 5.4 BELOW, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR, IN THE OPINION OF LEGAL COUNSEL IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

WARRANT TO PURCHASE STOCK

Company: Arsanis, Inc., a Delaware corporation
Number of Shares: As set forth in Paragraph A below
Type/Series of Stock: Series B Preferred Stock, $0.001 par value per share
Warrant Price: $7.24 per Share, subject to adjustment
Issue Date: February 19, 2016
Expiration Date: February 18, 2026 **See also Section 5.1(b)**.
Credit Facility: This Warrant to Purchase Stock ("**Warrant**") is issued in connection with that certain First Amendment, of even date herewith, to that certain Loan and Security Agreement dated December 7, 2012, between Silicon Valley Bank and the Company (collectively, and as may be further amended and/or modified and in effect from time to time, the **"Loan Agreement"**).

THIS WARRANT CERTIFIES THAT, for good and valuable consideration, SILICON VALLEY BANK (together with any successor or permitted assignee or transferee of this Warrant or of any shares issued upon exercise hereof, "**Holder**") is entitled to purchase the number of fully paid and non-assessable shares of the above-stated Type/Series of Stock (the "**Class**") of the above-named company (the "**Company**") at the above-stated Warrant Price, all as set forth above and as adjusted pursuant to Section 2 of this Warrant, subject to the provisions and upon the terms and conditions set forth in this Warrant. Reference is made to Section 5.4 of this Warrant whereby Silicon Valley Bank shall transfer this Warrant to its parent company, SVB Financial Group.

A. Number of Shares. Upon the making of each 2016 Term Loan Advance (as defined in the Loan Agreement) to the Company, this Warrant automatically shall become exercisable for such number of shares of the Class (cumulatively, the "**Shares**") as shall equal (a)(i) 0.015, multiplied by (ii) the amount of such 2016 Term Loan Advance divided by (b) the Warrant Price in effect on and as of the date of such 2016 Term Loan Advance, subject to adjustment thereafter from time to time in accordance with the provisions of this Warrant.

SECTION 1. EXERCISE.

1.1 Method of Exercise. Holder may at any time and from time to time exercise this Warrant, in whole or in part, by delivering to the Company the original of this Warrant together with a duly executed Notice of Exercise in substantially the form attached hereto as Appendix 1 and, unless Holder is exercising this Warrant pursuant to a cashless exercise set forth in Section 1.2, a check, wire transfer of same-day funds (to an account designated by the Company), or other form of payment acceptable to the Company for the aggregate Warrant Price for the Shares being purchased.

1.2 Cashless Exercise. On any exercise of this Warrant, in lieu of payment of the aggregate Warrant Price in the manner as specified in Section 1.1 above, but otherwise in accordance with the requirements of Section 1.1, Holder may elect to receive Shares equal to the value of this Warrant, or portion hereof as to which this Warrant is being exercised. Thereupon, the Company shall issue to the Holder such number of fully paid and non-assessable Shares as are computed using the following formula:

$$X = Y(A-B)/A$$

where:

X = the number of Shares to be issued to the Holder;

Y = the number of Shares with respect to which this Warrant is being exercised (inclusive of the Shares surrendered to the Company in payment of the aggregate Warrant Price);

A = the Fair Market Value (as determined pursuant to Section 1.3 below) of one Share; and

B = the Warrant Price.

1.3 Fair Market Value. If the Company's common stock is then traded or quoted on a nationally recognized securities exchange, inter-dealer quotation system or over-the-counter market (a "**Trading Market**") and the Class is common stock, the fair market value of a Share shall be the closing price or last sale price of a share of common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company. If the Company's common stock is then traded in a Trading Market and the Class is a series of the Company's convertible preferred stock, the fair market value of a Share shall be the closing price or last sale price of a share of the Company's common stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company multiplied by the number of shares of the Company's common stock into which a Share is then convertible. If the Company's common stock is not traded in a Trading Market, the Board of Directors of the Company shall determine the fair market value of a Share in its reasonable good faith judgment.

1.4 Delivery of Certificate and New Warrant. Within a reasonable time after Holder exercises this Warrant in the manner set forth in Section 1.1 or 1.2 above, the Company shall deliver to Holder a certificate representing the Shares issued to Holder upon such exercise and, if this Warrant has not been fully exercised and has not expired, a new warrant of like tenor representing the Shares not so acquired.

1.5 Replacement of Warrant. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, on delivery of an indemnity agreement reasonably satisfactory in form, substance and amount to the Company or, in the case of mutilation, on surrender of this Warrant to the Company for cancellation, the Company shall, within a reasonable time, execute and deliver to Holder, in lieu of this Warrant, a new warrant of like tenor and amount.

1.6 Treatment of Warrant Upon Acquisition of Company.

(a) Acquisition. For the purpose of this Warrant, "**Acquisition**" means any transaction or series of related transactions involving: (i) the sale, lease, exclusive license, or other disposition of all or substantially all of the assets of the Company (ii) any merger or consolidation of the Company into or with another person or entity (other than a merger or consolidation effected exclusively to change the Company's domicile), or any other corporate reorganization, in which the stockholders of the Company in their capacity as such immediately prior to such merger, consolidation or reorganization, own less than a majority of the Company's (or the surviving or successor entity's) outstanding voting power immediately after such merger, consolidation or reorganization (or, if such Company stockholders beneficially own a majority of the outstanding voting power of the surviving or successor entity as of immediately after such merger, consolidation or reorganization, such surviving or successor entity is not the Company); or (iii) any sale or other transfer by the stockholders of the Company of shares representing at least a majority of the Company's then-total outstanding combined voting power.

(b) Treatment of Warrant at Acquisition. In the event of an Acquisition in which the consideration to be received by the Company's stockholders consists solely of cash, solely of Marketable Securities or a combination of cash and Marketable Securities (a "**Cash/Public Acquisition**"), either (i) Holder shall exercise this Warrant pursuant to Section 1.1 and/or 1.2 and such exercise will be deemed effective immediately prior to and contingent upon the consummation of such Acquisition or (ii) if Holder elects not to exercise the Warrant, this Warrant will expire immediately prior to the consummation of such Acquisition.

(c) The Company shall provide Holder with written notice of its request relating to the Cash/Public Acquisition (together with such reasonable information as Holder may reasonably require regarding the treatment of this Warrant in connection with such contemplated Cash/Public Acquisition giving rise to such notice), which is to be delivered to Holder not less than seven (7) Business Days prior to the closing of the proposed Cash/Public Acquisition. In the event the Company does not provide such notice, then if, immediately prior to the Cash/Public Acquisition, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above would be greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall promptly notify the Holder of the number of Shares (or such other securities) issued upon such exercise to the Holder and Holder shall be deemed to have restated each of the representations and warranties in Section 4 of the Warrant as the date thereof.

(d) Upon the closing of any Acquisition other than a Cash/Public Acquisition, the acquiring, surviving or successor entity shall assume the obligations of this Warrant, and this Warrant shall thereafter be exercisable for the same securities and/or other property as would have been paid for the Shares issuable upon exercise of the unexercised portion of this Warrant as if such Shares were outstanding on and as of the closing of such Acquisition, subject to further adjustment from time to time in accordance with the provisions of this Warrant.

(e) As used in this Warrant, "**Marketable Securities**" means securities meeting all of the following requirements: (i) the issuer thereof is then subject to the reporting requirements of Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), and is then current in its filing of all required reports and other information under the Act and the Exchange Act; (ii) the class and series of shares or other security of the issuer that would be received by Holder in connection with the Acquisition were Holder to exercise this Warrant on or prior to the closing thereof is then traded in Trading Market, and (iii) following the closing of such Acquisition, Holder would not be restricted from publicly re-selling all of the issuer's shares and/or other securities that would be received by Holder in such Acquisition were Holder to exercise or convert this Warrant in full on or prior to the closing of such Acquisition, except to the extent that any such restriction (x) arises solely under federal or state securities laws, rules or regulations, and (y) does not extend beyond six (6) months from the closing of such Acquisition.

1.7 Stockholders' Agreement. Upon any exercise of this Warrant, Holder shall, if the Company so requests in writing, become a party to, by execution and delivery to the Company of a counterpart signature page, joinder agreement, instrument of accession or similar instrument, that certain Amended and Restated Stockholders' Agreement by and among the Company and the other parties thereto, dated on or about July 30, 2013, as amended and in effect from time to time, or any successor agreement or agreements thereto, solely with respect to the Shares issued upon such exercise (and the shares of Common Stock, if any, issued upon conversion of such Shares), solely to the extent that all holders of outstanding shares of the Class are then parties thereto, and solely to the extent each such agreement is then by its terms in force and effect.

SECTION 2. ADJUSTMENTS TO THE SHARES AND WARRANT PRICE.

2.1 Stock Dividends, Splits, Etc. If the Company declares or pays a dividend or distribution on the outstanding shares of the Class payable in common stock or other securities or property (other than cash), then upon exercise of this Warrant, for each Share acquired, Holder shall receive, without additional cost to Holder, the total number and kind of securities and property which Holder would have received had Holder owned the Shares of record as of the date the dividend or distribution occurred. If the Company subdivides the outstanding shares of the Class by reclassification or otherwise into a greater number of shares, the number of Shares purchasable hereunder shall be proportionately increased and the Warrant Price shall be proportionately decreased. If the outstanding shares of the Class are combined or consolidated, by reclassification or otherwise, into a lesser number of shares, the Warrant Price shall be proportionately increased and the number of Shares shall be proportionately decreased.

2.2 Reclassification, Exchange, Combinations or Substitution. Upon any event whereby all of the outstanding shares of the Class are reclassified, exchanged, combined, substituted, or replaced for, into, with or by Company securities of a different class and/or series, then from and after the consummation of such event, this Warrant will be exercisable for the number, class and series of Company securities that Holder would have received had the Shares been outstanding on and as of the consummation of such event, and subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant. The provisions of this Section 2.2 shall similarly apply to successive reclassifications, exchanges, combinations substitutions, replacements or other similar events.

2.3 Conversion of Preferred Stock. If the Class is a class and series of the Company's convertible preferred stock, in the event that all outstanding shares of the Class are converted, automatically or by action of the holders thereof, into common stock pursuant to the provisions of the Company's Certificate of Incorporation, including, without limitation, in connection with the Company's initial, underwritten public offering and sale of its common stock pursuant to an effective registration statement under the Act (the "**IPO**"), then from and after the date on which all outstanding shares of the Class have been so converted, this Warrant shall be exercisable for such number of shares of common stock into which the Shares would have been converted had the Shares been outstanding on the date of such conversion, and the Warrant Price shall equal the Warrant Price in effect as of immediately prior to such conversion divided by the number of shares of common stock into which one Share would have been converted, all subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant.

2.4 Adjustments for Diluting Issuances. Without duplication of any adjustment otherwise provided for in this Section 2, the number of shares of common stock issuable upon conversion of the Shares shall be subject to anti-dilution adjustment from time to time in the manner set forth in the Company's Certificate of Incorporation as if the Shares were issued and outstanding on and as of the date of any such required adjustment.

2.5 No Fractional Share. No fractional Share shall be issuable upon exercise of this Warrant and the number of Shares to be issued shall be rounded down to the nearest whole Share. If a fractional Share interest arises upon any exercise of the Warrant, the Company shall eliminate such fractional Share interest by paying Holder in cash the amount computed by multiplying the fractional interest by (i) the fair market value (as determined in accordance with Section 1.3 above) of a full Share, less (ii) the then-effective Warrant Price.

2.6 Notice/Certificate as to Adjustments. Upon each adjustment of the Warrant Price, Class and/or number of Shares, the Company, at the Company's expense, shall notify Holder in writing within a reasonable time setting forth the adjustments to the Warrant Price, Class and/or number of Shares and facts upon which such adjustment is based. The Company shall, upon written request from Holder, furnish Holder with a certificate of its Chief Financial Officer, including computations of such adjustment and the Warrant Price, Class and number of Shares in effect upon the date of such adjustment.

SECTION 3. REPRESENTATIONS AND COVENANTS OF THE COMPANY.

3.1 Representations and Warranties. The Company represents and warrants to, and agrees with, the Holder as follows:

(a) The initial Warrant Price referenced on the first page of this Warrant is not greater than the price per share at which shares of the Class were last sold and issued prior to the Issue Date hereof in an arms-length transaction in which at least $500,000 of such shares were sold.

(b) All Shares which may be issued upon the exercise of this Warrant, and all securities, if any, issuable upon conversion of the Shares, shall, upon issuance, be duly authorized, validly issued, fully paid and non-assessable, and free of any liens and encumbrances except for restrictions on transfer provided for herein or under applicable federal and state securities laws. The Company covenants that it shall at all times cause to be reserved and kept available out of its authorized and unissued capital stock such number of shares of the Class, common stock and other securities as will be sufficient to permit the exercise in full of this Warrant and the conversion of the Shares into common stock or such other securities.

(c) The Company's capitalization table attached hereto as Schedule 1 is true and complete, in all material respects, as of the Issue Date.

3.2 Notice of Certain Events. If the Company proposes at any time to:

(a) declare any dividend or distribution upon the outstanding shares of the Class or common stock, whether in cash, property, stock, or other securities and whether or not a regular cash dividend;

(b) offer for subscription or sale pro rata to the holders of the outstanding shares of the Class any additional shares of any class or series of the Company's stock (other than pursuant to contractual pre-emptive rights);

(c) effect any reclassification, exchange, combination, substitution, reorganization or recapitalization of the outstanding shares of the Class;

(d) effect an Acquisition or to liquidate, dissolve or wind up; or

(e) effect an IPO;

then, in connection with each such event, the Company shall give Holder:

(1) in the case of the matters referred to in (a) and (b) above, at least seven (7) Business Days prior written notice of the earlier to occur of the effective date thereof or the date on which a record will be taken for such dividend, distribution, or subscription rights (and specifying the date on which the holders of outstanding shares of the Class will be entitled thereto) or for determining rights to vote, if any;

(2) in the case of the matters referred to in (c) and (d) above at least seven (7) Business Days prior written notice of the date when the same will take place (and specifying the date on which the holders of outstanding shares of the Class will be entitled to exchange their shares for the securities or other property deliverable upon the occurrence of such event); and

(3) with respect to the IPO, at least seven (7) Business Days prior written notice of the date on which the Company proposes to file its registration statement in connection therewith. Reference is made to Section 1.6(c) whereby this Warrant will be deemed to be exercised pursuant to Section 1.2 hereof if the Company does not give written notice to Holder of a Cash/Public Acquisition as required by the terms hereof Company will also provide information requested by Holder that is reasonably necessary to enable Holder to comply with Holder's accounting or reporting requirements,

SECTION 4. REPRESENTATIONS, WARRANTIES OF THE HOLDER.

The Holder represents and warrants to the Company as follows:

4.1 Purchase for Own Account. This Warrant and the securities to be acquired upon exercise of this Warrant by Holder are being acquired for investment for Holder's account, not as a nominee or agent, and not with a view to the public resale or distribution within the meaning of the Act. Holder also represents that it has not been formed for the specific purpose of acquiring this Warrant or the Shares.

4.2 Disclosure of Information. Holder is aware of the Company's business affairs and financial condition and has received or has had full access to all the information it considers necessary or appropriate to make an informed investment decision with respect to the acquisition of this Warrant and its underlying securities. Holder further has had an opportunity to ask questions and receive answers from the Company regarding the terms and conditions of the offering of this Warrant and its underlying securities and to obtain additional information (to the extent the Company possessed such information or could acquire it without unreasonable effort or expense) necessary to verify any information furnished to Holder or to which Holder has access.

4.3 Investment Experience. Holder understands that the purchase of this Warrant and its underlying securities involves substantial risk. Holder has experience as an investor in securities of companies in the development stage and acknowledges that Holder can bear the economic risk of such Holder's investment in this Warrant and its underlying securities and has such knowledge and experience in financial or business matters that Holder is capable of evaluating the merits and risks of its investment in this Warrant and its underlying securities and/or has a preexisting personal or business relationship with the Company and certain of its officers, directors or controlling persons of a nature and duration that enables Holder to be aware of the character, business acumen and financial circumstances of such persons.

4.4 Accredited Investor Status. Holder is an "accredited investor" within the meaning of Regulation D promulgated under the Act.

4.5 The Act. Holder understands that this Warrant and the Shares issuable upon exercise hereof have not been registered under the Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of the Holder's investment intent as expressed herein. Holder understands that this Warrant and the Shares issued upon any exercise hereof must be held indefinitely unless subsequently registered under the Act and qualified under applicable state securities laws, or unless exemption from such registration and qualification are otherwise available. Holder is aware of the provisions of Rule 144 promulgated under the Act.

4.6 Market Stand-off Agreement. The Holder agrees that the Shares shall be subject to the Market Standoff provisions in Section 2.8 of the Company's Investor Rights Agreement, as amended and in effect from time to time.

4.7 No Voting Rights. Holder, as a Holder of this Warrant, will not have any voting rights until the exercise of this Warrant.

SECTION 5. MISCELLANEOUS.

5.1 Term; Automatic Cashless Exercise Upon Expiration.

(a) Term. Subject to the provisions of Section 1.6 above, this Warrant is exercisable in whole or in part at any time and from time to time on or before 6:00 PM, Pacific time, on the Expiration Date and shall be void thereafter.

(b) Automatic Cashless Exercise upon Expiration. In the event that, upon the Expiration Date, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above is greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall, within a reasonable time, deliver a certificate representing the Shares (or such other securities) issued upon such exercise to Holder.

5.2 Legends. Bach certificate evidencing Shares (and each certificate evidencing securities issued upon conversion of any Shares, if any) shall be imprinted with a legend in substantially the following form:

> THE SHARES EVIDENCED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "**ACT**"). OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN THAT CERTAIN WARRANT TO PURCHASE STOCK ISSUED BY THE ISSUER TO SILICON VALLEY BANK DATED FEBRUARY 19, 2016, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR, IN THE OPINION OF LEGAL COUNSEL IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

5.3 Compliance with Securities Laws on Transfer. This Warrant and the Shares issued upon exercise of this Warrant (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) may not be transferred or assigned in whole or in part except in compliance with applicable federal and state securities laws by the transferor and the transferee (including, without limitation, the delivery of investment representation letters and legal opinions reasonably satisfactory to the Company, as reasonably requested by the Company). The Company shall not require Holder to provide an opinion of counsel if the transfer is to SVB Financial Group (Silicon

Valley Bank's parent company) or any other affiliate of Holder, provided that any such transferee is an "accredited investor" as defined in Regulation D promulgated under the Act. Additionally, the Company shall also not require an opinion of counsel if there is no material question as to the availability of Rule 144 promulgated under the Act.

5.4 Transfer Procedure. After receipt by Silicon Valley Bank of the executed Warrant, Silicon Valley Bank will transfer all of this Warrant to its parent company, SVB Financial Group. By its acceptance of this Warrant, SVB Financial Group hereby makes to the Company each of the representations and warranties set forth in Section 4 hereof and agrees to be bound by all of the terms and conditions of this Warrant as if the original Holder hereof. Subject to the provisions of Section 5.3 and upon providing the Company with written notice, SVB Financial Group and any subsequent Holder may transfer all or part of this Warrant or the Shares issued upon exercise of this Warrant (or the securities issued upon conversion of the Shares, if any) to any transferee, provided, however, in connection with any such transfer, SVB Financial Group or any subsequent Holder will give the Company notice of the portion of the Warrant and/or Shares (and/or securities issued upon conversion of the Shares, if any) being transferred with the name, address and taxpayer identification number of the transferee and Holder will surrender this Warrant to the Company for reissuance to the transferee(s) (and Holder if applicable); and provided further, that any subsequent transferee other than SVB Financial Group shall agree in writing with the Company to be bound by all of the terms and conditions of this Warrant. Notwithstanding any contrary provision herein, at all times prior to the IPO, Holder may not, without the Company's prior written consent, transfer this Warrant or any portion hereof, or any Shares issued upon any exercise hereof, or any shares or other securities issued upon any conversion of any Shares issued upon any exercise hereof, to any person or entity who directly competes with the Company (as determined by the Company's Board of Directors in good faith), except in connection with an Acquisition of the Company by such a direct competitor.

5.5 Notices. All notices and other communications hereunder from the Company to the Holder, or vice versa, shall be deemed delivered and effective (i) when given personally, (ii) on the third (3rd) Business Day after being mailed by first-class registered or certified mail, postage prepaid, (iii) upon actual receipt if given by facsimile or electronic mail and such receipt is confirmed in writing by the recipient, or (iv) on the first Business Day following delivery to a reliable overnight courier service, courier fee prepaid, in any case at such address as may have been furnished to the Company or Holder, as the case may be, in writing by the Company or such Holder from time to time in accordance with the provisions of this Section 5.5. All notices to Holder shall be addressed as follows until the Company receives notice of a change of address in connection with a transfer or otherwise:

SVB Financial Group
Attn: Treasury Department
3003 Tasman Drive, HC 215
Santa Clara, CA 95054
Telephone: (408) 654-7400
Facsimile: (408) 988-8317
Email address: derivatives@svb.com

Notice to the Company shall be addressed as follows until Holder receives notice of a change in address:

Arsanis, Inc.
Attn: Chief Financial Officer
16 Cavendish Court
Lebanon, NH 03766
Telephone:
Facsimile: (603) 386 6906
Email: jonathan.sheller@arsanis.com

With a copy (which shall not constitute notice) to:

Foley Hoag LLP
Attn: Robert L. Birnbaum, Esq,
155 Seaport Boulevard
Boston, MA 02210
Telephone: (617) 832-1106
Facsimile: ((617) 832-7000
Email: RLB@foleyhoag.com

5.6 Waiver. This Warrant and any term hereof may be changed, waived, discharged or terminated (either generally or in a particular instance and either retroactively or prospectively) only by an instrument in writing signed by the party against which enforcement of such change, waiver, discharge or termination is sought.

5.7 Attorneys' Fees. In the event of any dispute between the parties concerning the terms and provisions of this Warrant, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorneys' fees.

5.8 Counterparts: Facsimile/Electronic Signatures. This Warrant may be executed in counterparts, all of which together shall constitute one and the same agreement. Any signature page delivered electronically or by facsimile shall be binding to the same extent as an original signature page with regards to any agreement subject to the terms hereof or any amendment thereto.

5.9 Governing Law. This Warrant shall be governed by and construed in accordance with the laws of the State of California, without giving effect to its principles regarding conflicts of law.

5.10 Headings. The headings in this Warrant are for purposes of reference only and shall not limit or otherwise affect the meaning of any provision of this Warrant.

5.11 Business Days. "**Business Day**" is any day that is not a Saturday, Sunday or a day on which Silicon Valley Bank is closed.

[Remainder of page left blank intentionally]
[Signature page follows]

IN WITNESS WHEREOF, the parties have caused this Warrant to Purchase Stock to be executed by their duly authorized representatives effective as of the Issue Date written above.

"COMPANY"

ARSANIS, INC.

By: /s/ Jonathan Sheller
Name: Jonathan Sheller
(print)
Title: Secretary, Treasurer

"HOLDER"

SILICON VALLEY BANK

By: /s/ Matthew Griffith
Name: Matthew Griffith
(print)
Title: Vice President

APPENDIX 1

NOTICE OF EXERCISE

1. The undersigned Holder hereby exercises its right to purchase _____ shares of the Common/Series _____Preferred [circle one] Stock of _____(the "**Company**") in accordance with the attached Warrant To Purchase Stock, and tenders payment of the aggregate Warrant Price for such shares as follows:

☐ check in the amount of $ _____ payable to order of the Company enclosed herewith

☐ Wire transfer of immediately available funds to the Company's account

☐ Cashless Exercise pursuant to Section 1.2 of the Warrant

☐ Other [Describe] _____

2. Please issue a certificate or certificates representing the Shares in the name specified below:

_____

Holder's Name

_____

_____

(Address)

3. By its execution below and for the benefit of the Company, Holder hereby restates each of the representations and warranties in Section 4 of the Warrant to Purchase Stock as of the date hereof.

HOLDER:

_____

By: _____

_____

Name: _____

_____

Title: _____

_____

(Date): _____

_____

SCHEDULE 1

Company Capitalization Table

See attached

Schedule 1

Project no. 832915/30000 TICK/SAI

Funding contract

agreed between

Österreichische Forschungsförderungsgesellschaft mbH (FFG)

as funding donor

and

ARSANIS Biosciences GmbH
HELMUT-QUALTINGER-GASSE 2 1030 VIENNA

Company register number FN 354305 m

as funding recipient.

1 Awarding of the funding

1.1 On the basis of the funding application "Development of human monoclonal antibody based product against severe hospital associated bacterial infections" submitted via eCall on 5/12/2011 and based on the professional decision of the advisory board during the session of 6/28/2011, a funding for the following project is awarded:

Project number: **832915**
eCall number: **2447334**
Project name (subject of the agreement):
Development of human monoclonal antibody based product against severe hospital associated bacterial infections
Program: Basic program

./2

Österreichische
Forschungsförderungsgesellschaft mbH
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1090 Vienna

Tel +43(0)5 7755-0
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www.ffg.at, office@ffg.at
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2 Project duration

2.1 The overall project duration begins on 5/13/2011 and ends on 5/31/2015.

2.2 The funding of the entire project by the FFG is dependent on the results discernible in the submitted reports, the continued fulfillment of the evaluation and decision criteria, the budget available to the funding donor, as well as a renewed positive funding decision.

3 Funding period

3.1 The objective funding period of the project begins on **5/13/2011** as the acceptance deadline and ends on **5/31/2012**.

4 Type and level of funding

4.1 The funding is provided in the following form for the funding period specified in section 3:

Funding form	Amount up to max.
FFG grant (HT BMWFJ)	**EUR 661,500.00**
FFG loan	**EUR 529,000.00**

Loan conditions

Interest rate	2.0% p.a. on current account basis
Repayment date:	on 6/30/2020
Repayment amount:	EUR 529,000.00
Interest and loan collection:	in direct debit
Interest stipulation:	half-yearly in retrospect or on loan maturity

4.2 The subsidized financing of the project amounts to 70.0% of the applicable and eligible project costs. The rest of the project cost funding is the responsibility of the funding recipient. Based on the planning data, the funding cash value amounts to EUR 765,607.00, that is 45.0% related to the eligible costs according to point 5.1.

4.3 The maximum funding cash value according to the applicable community guidelines for state R&D aid amounts to 45.0%.

4.4 The consequence of the shortfall of the eligible project costs is an aliquot reduction of the funding.

4.5 The eligible project costs according to section 5 as well the costs reported through interim and final settlements do not represent any cost acknowledgment before an assessment by the FFG. The final amount of the eligible total project costs as well as the funding are determined only after completion of the project during invoice verification.

./3

5 Eligible costs

5.1 The funding is subject to the following eligible project costs:

Personnel costs	EUR	1,000,000.00
R&D infrastructure use	EUR	57,000.00
General and material costs	EUR	547,300.00
Third-party services	EUR	39,000.00
Travel expenses	EUR	20,000.00
Patent costs	EUR	38,000.00
Total eligible costs	**EUR**	**1,701,300.00**

5.2 Eligible costs are all those costs and expenses attributable to the project that result directly, actually and additionally from the usual operating costs for the duration of the funded research activity. Additional supplementary provisions to the eligible costs can arise from FFG guidelines and from the "guidelines for handling project costs in funding applications".

5.3 Substantial changes to the cost structure require the prior written approval of the FFG.

5.4 The sales tax levied on the costs of the service is not eligible. In so far as this sales tax demonstrably and finally is to be borne by the funding recipient and consequently no pre-tax deduction is applicable for him/her, it is taken into account as an eligible cost component. The—in whatever way—recoverable sales tax is not eligible, if the funding recipient does not get it back. If the tax office regards a grant not as a taxable service of the funding recipient to the funding donor according to BGBI no. 663 of the 1994 sales tax, but as contractual remuneration and sales tax is thus payable to the tax office by the funding recipient, the contractual remuneration is to be regarded as gross remuneration. An additional separate sales tax settlement is—for whatever legal reason—excluded.

5.5 If the amortization period of an item (section 285 ABGB), which is purchased to carry out the project, exceeds the funding period, the depreciation costs are eligible in the manner specified according to the FFG basis programs guidelines and in the "guidelines for handling the project costs in funding requests and reports".

5.6 The funding means of the funding donor must not be used for the creation of reserves and provisions according to BGBI no. 400 of the 1988 income tax law. The funding means must be used only for the services and objectives set out in the funding request.

5.7 Recognized eligible costs are those which have arisen after receipt of the funding request.

5.8 The costs incurred by the funding recipient or his/her partners from preparation of the contract, or any transfer charges, must be borne by these parties and do not constitute eligible costs.

./4

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Forschungsförderungsgesellschaft mbH
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5.9 The funding donor reserves the right to defer, reduce or suspend payment of funding, if and as long as circumstances are such that the orderly execution of the sponsored project appears not to be guaranteed (e.g. the cost justification is not provided as planned).

6 Project-specific conditions and requirements

6.1 Project-specific special conditions and requirements

1. Before payment of the 1st installment, a cooperation agreement signed by the company and regulating cooperation and particularly the exploitation rights to development must be signed.
2. Before payment of the 1st installment, a mutually signed cooperation contract with the company Arsanis Inc must be signed that regulates cooperation and particularly the exploitation rights to development. The economic exploitation of the project results must occur predominantly in Austria. It must also be ensured that all patent rights relevant for the project are to be made available to Arsanis Biosciences GmbH according to FFG guidelines.
3. Before payment of the 2nd installment, installment, Adimab LLC must provide evidence of the preparation of at least two monoclonal antibodies against E. coli and S. aureus.
4. Before payment of the 2nd installment, installment, evidence of the establishment of in vitro models for testing monoclonal antibodies must be provided.
5. The personnel and travel costs have generally been reduced.
6. The costs for the Strategic Board must be settled as overheads via the personnel costs overhead rate.

7 Payment of the funding

7.1 Payment of the 1st installment in the amount of 50% of the promised funding means follows after completion of the funding contract and fulfillment of the conditions and requirements agreed in Article 6.

Payment of the second installment in the amount of 30% follows after approval of an interim report and an interim settlement, where 50% of the approved total costs must be shown, as well as after fulfillment of the conditions and requirements agreed in Article 6.

Payment of the final installment in the amount of 20% of total guaranteed funding means follows after fulfillment of the conditions and requirements (final settlement, final reports, etc.) and after inspection and approval of the usage certificate (relief) by the FFG.

7.2 The transfer is made to the following account of the funding recipient

Account owner: ARSANIS Biosciences GmbH

Bank name:

IBAN:

BIC/SWIFT:

./5

8 Reporting obligations

8.1 The funding recipient must report the implementation of the funded project by submitting technical reports (interim and final reports) and settlements to the FFG according to point 3 of the General Funding Conditions. Reporting and accounting must take place via eCall (https://ecall.ffg.at). Use of the forms defined in eCall is mandatory. Further documents must be made available to the FFG on request.

9 Contract changes

9.1 Changes to the current contract can be only made in written form. This applies also to a departure from this provision.

9.2 If necessary, subsequent changes to the agreed conditions and requirements can be made under special circumstances by mutual agreement in the form of written additional agreements, after reconsideration by the advisory board.

10 Liability

10.1 The funding recipient must be liable without limit to the FFG for adherence to all contractual conditions. The funding recipient is also liable for the behavior of third parties for whom he/she is responsible (e.g. owners, corporate bodies, etc.). The funding recipient indemnifies and holds the FFG harmless against the claims of third parties.

11 Severability clause

11.1 If a provision of this funding contract proves ineffective, the effectiveness of the remaining provisions of the funding contract are not affected. The contracting parties undertake to replace an ineffective provision by a provision that comes closest to the purpose of the contract.

12 Applicable law

12.1 This contract and all its annexes are subject to Austrian law excluding the reference provisions of the Austrian IPRG [International Private Law Act].

13 Jurisdiction

13.1 The competent court in Vienna has jurisdiction in all litigation arising from the granting of funds. The FFG also retains the right to sue the funding recipient in his/her general jurisdiction.

14 Contract components

14.1 The following documents are the integral elements of the funding contract:

- the funding request (“Development of human monoclonal antibody based product against severe hospital associated bacterial infections”) in the version of 5/12/2011, submitted via eCall
- General funding conditions for funding contracts in the current version (1/26/2009)
- FFG basis program guidelines in the current version (2/3/2011)

./6

Österreichische
Forschungsförderungsgesellschaft mbH
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- Guidelines for handling of project costs in funding requests and reports for projects with funding contracts according to FTE and FFG guidelines, version 1.2

14.2 The following are regarded as the legal basis of this funding contract:

- Österreichische Forschungsförderungsgesellschaft mbH establishment act (research funding, structure reform act) in the currently applicable version
- the guidelines for the Österreichische Forschungsförderungsgesellschaft mbH for the funding of research, technology, development and innovation (FFG guidelines GZ: BMVIT-609.986/0005- 111/12/2008 and BMWA-98.310/0032-C1/10/2008)

The funding recipient confirms his/her awareness of all contract components and accepts them without reservation.

It is hereby noted that the objective funding offer must be deemed as revoked, if the funding recipient does not return it signed to the FFG within 3 months.

For the funding donor:

Österreichische Forschungsförderungsgesellschaft mbH (FFG)

[seal:]
Austrian Research Promotion Agency mbH (FFG)

Vienna, 7/1/2011

/s/ Dr. Henrietta Egerth-Stadlhuber
Dr. Henrietta Egerth-Stadlhuber
Managing Director

/s/ Dr. Klaus Pseiner
Dr. Klaus Pseiner
Managing Director

Funding recipient

Vienna , on September 20, 2011

/s/ Dr. Eszter Nagy
(Add company signature, name and position in block letters, company stamp)

DR. ESZTER NAGY,
Managing Director

ARSANIS
Biosciences GmbH
MarxBox
Helmut-Qualtinger-Gasse 2
1030 Vienna

./7

Attachments:

Guidelines for the Österreichische Forschungsförderungsgesellschaft mbH for funding of research, technology, development and innovation (FFG guidelines) on link http://www.ffg.at/content/foerderrichtlinien Allgemeine Förderungsbedingungen für Förderungsverträge in der geltenden Fassung (1/26/2009)
FFG basis program guidelines in the current version (2/3/2011)
Guidelines for handling of project costs in funding requests and reports for projects with funding contracts according to FTE and FFG guidelines, version 1.2

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Forschungsförderungsgesellschaft mbH
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ARSANIS Biosciences GmbH
Attention Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement of 12/31/2011

Project 832915
Development of human monoclonal antibody based product against severe hospital associated bacterial infections

Account no.:	18329150
Financial year:	2011
Redemption amount (EUR):	515,357.00
Redemption date:	6/30/2020
Interest rate:	2.00%

Balance on 12/31/2010 (EUR)		**0.00**
Document date	**Posting text**	**Transaction amount (EUR)**
10.13.2011	832915 DA rate BP basis	-264.500,00
12.01.2011	832915 ZNS [interest] 2.0% on 12/31/2011	-1.165,00
12.28.2011	832915 ZNS [interest] 2.0% on 12/31/2011	1.165,00
	Total debits (EUR)	265,665.00
	Total credits (EUR)	165,665.00
	Balance on 12/31/2011 (EUR)	**-264,500.00**

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ARSANIS Biosciences GmbH
Attention Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement on 12/31/2012

Project 832915
Development of human monoclonal antibody based product against severe hospital associated bacterial infections

Account no.:	18329150
Financial year:	2012
Redemption amount (EUR):	515,357.00
Redemption date:	6/30/2020
Interest rate:	2.00%

Balance on 12/31/2011 (EUR)		**-264,500.00**
Document date	**Posting text**	**Transaction amount (EUR)**
02.09.2012	832915 DA rate 2 BP basis	-158.700,00
06.01.2012	832915 ZNS [interest] 2.0% on 6/30/2012	-3.930,00
07.02.2012	832915 ZNS [interest] 2.0% on 6/30/2012	3.930,00
08.23.2012	832915 DA rate 3	-92.157,00
12.03.2012	832915 ZNS [interest] 2.0% on 12/31/2012	-4.996,00
12.27.2012	832915 ZNS [interest] 2.0% on 12/31/2012	4.996,00
	Total debits (EUR)	259,783.00
	Total credits (EUR)	8,926.00
	Balance on 12/31/2012 (EUR)	**-515,357.00**

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ARSANIS Biosciences GmbH
Attention Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement on 12/31/2013

Project 832915
Development of human monoclonal antibody based product against severe hospital associated bacterial infections

Account no.:	18329150
Financial year:	2013
Redemption amount (EUR):	515,357.00
Repayment date:	6/30/2020
Interest rate:	2.00%

Balance on 12/31/2012 (EUR)		**•515,357.00**
Document date	**Posting text**	**Transaction amount (EUR)**
06.03.2013	832915 ZNS [interest] 2.0% on 6/30/2013	-5.186,00
07.01.2013	832915 ZNS [interest] 2.0% on 6/30/2013	5.186.0
12.02.2013	832915 ZNS [interest] 2.0% on 12/31/2013	-5.272,00
12.30.2013	832915 ZNS [interest] 2.0% on 12/31/2013	5.272,00
	Total debits (EUR)	10,458.00
	Total credits (EUR)	10,458.00
	Balance on 12/31/2012 (EUR)	-515,357.00

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel +43 (0)5 7755-0
Fax+43 (0)5 7755-97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

ARSANIS Biosciences GmbH
Attention Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement on 12/31/2014

Project 832915
Development of human monoclonal antibody based product against severe hospital associated bacterial infections

Account no.:	18329150
Financial year:	2014
Redemption amount (EUR):	515,357.00
Redemption date:	6/30/2020
Interest rate:	2.00%

Balance on 12/31/2013 (EUR)		-515,357.00
Document date	**Posting text**	**Transaction amount (EUR)**
06.02.2014	832915 ZNS [interest] 2.0% on 6/30/2014	-5.186,00
06.30.2014	832915 ZNS [interest] 2.0% on 6/30/2014	5.186,00
12.01.2014	832915 ZNS [interest] 2.0% on 12/31/2014	-5.272,00
12.31.2014	832915 ZNS [interest] 2.0% on 12/31/2014	5.272,00
	Total debits (EUR)	10,458.00
	Total credits (EUR)	10,458.00
	Balance on 12/31/2014 (EUR)	-515,357.00

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel +43 (0)5 7755-0
Fax+43 (0)5 7755-97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

ARSANIS Biosciences GmbH
Attention Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement on 12/31/2014

Project 832915
Development of human monoclonal antibody based product against severe hospital associated bacterial infections

Account no.:	18329150
Financial year:	2015
Redemption amount (EUR):	515,357.00
Redemption date:	6/30/2020
Interest rate:	2.00%

Balance on 12/31/2014 (EUR)		-515,357.00
Document date	**Posting text**	**Transaction amount (EUR)**
06.01.2015	832915 ZNS [interest] 2.0% on 6/30/2015	-5.186,00
06.30.2015	832915 ZNS [interest] 2.0% on 6/30/2015	5.186,00
	Total debits (EUR)	5,186.00
	Total credits (EUR)	5,186.00
	Balance on 10/31/2015 (EUR)	-515,357.00

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel +43 (0)5 7755-0
Fax+43 (0)5 7755-97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

Project no. 837128/30000 TICK/SAI

Funding contract

agreed between

Österreichische Forschungsförderungsgesellschaft mbH (FFG)

as funding donor

and

ARSANIS Biosciences GmbH
Helmut-Qualtinger-Gasse 2
1030 Vienna

Company register number FN 354305m

as funding recipient.

1 Awarding of the funding

1.1 On the basis of the funding application "Development of human monoclonal antibody based product against severe hospital associated bacterial infections" submitted via eCall on 5/11/2012 and based on the professional decision of the advisory board during the session of 6/27/2012, a funding for the following project is awarded:

Project number: **837128**
eCall number:**3122344**
Previous project number: 832915
Project name (subject of the agreement):
Development of human monoclonal antibody based product against severe hospital-associated bacterial infections
Program: Basic program

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Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel +43 (0)57755-0
Fax+43 (0)57755-97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

2 Project duration

2.1 The overall project duration begins on 5/13/2011 and ends on 5/31/2015.

2.2 The funding of the entire project by the FFG is dependent on the results discernible in the submitted reports, the continued fulfillment of the evaluation and decision criteria, the budget available to the funding donor, as well as a renewed positive funding decision.

3 Funding period

3.1 The objective funding period of the project begins on **5/1/2012** as the acceptance deadline and ends on **4/30/2013.**

4 Type and level of funding

4.1 The funding is provided in the following form for the funding period specified in section 3:

Funding form	Amount up to max.
FFG grant (HT BMWFJ)	EUR 964,200.00
FFG loan	EUR 580,000.00

Loan conditions

Interest rate	1.0% p.a. on current account basis
Repayment date:	on 6/30/2020 EUR
Repayment amount:	EUR 580,000.00
Interest and loan collection:	in direct debit
Interest stipulation:	half-yearly in retrospect or on loan maturity

4.2 The subsidized financing of the project amounts to 70.0% of the applicable and eligible project costs. The remaining funding of the project costs is the responsibility of the funding recipient. Based on the planning data, the funding cash value amounts to EUR 992,715.00, that is 45.0% related to the eligible costs according to point 5.1.

4.3 The maximum funding cash value according to the applicable community guidelines for state R&D aid amounts to 45.0%.

4.4 The consequence of the shortfall of the eligible project costs is an aliquot reduction of the funding.

4.5 The eligible project costs according to section 5 as well the costs reported through interim and final settlements do not represent any cost acknowledgment before an assessment by the FFG. The final amount of the eligible total project costs as well as the funding are determined only after completion of the project during invoice verification.

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5 Eligible costs

5.1 The funding is subject to the following eligible project costs:

Personnel costs	EUR 1,233,400.00
R&D infrastructure use	EUR 112,700.00
General and material costs	EUR 380,000.00
Third-party services	EUR 460,000.00
Travel expenses	EUR 20,000.00
Total eligible costs	**EUR 2,206,100.00**

5.2 Eligible costs are all those costs and expenses attributable to the project that result directly, actually and additionally from the usual operating costs for the duration of the funded research activity. Additional supplementary provisions to the eligible costs can arise from FFG guidelines and from the "guidelines for handling project costs in funding applications".

5.3 Substantial changes to the cost structure require the prior written approval of the FFG.

5.4 The sales tax levied on the costs of the service is not eligible. In so far as this sales tax demonstrably and finally is to be borne by the funding recipient and consequently no pre-tax deduction is applicable for him/her, it is taken into account as an eligible cost component. The—in whatever way—recoverable sales tax is not eligible, if the funding recipient does not get it back. If the tax office regards a grant not as a taxable service of the funding recipient to the funding donor according to BGBI no. 663 of the 1994 sales tax, but as contractual remuneration and sales tax is thus payable to the tax office by the funding recipient, the contractual remuneration is to be regarded as gross remuneration. An additional separate sales tax settlement is—for whatever legal reason—excluded.

5.5 If the amortization period of an item (section 285 ABGB), which is purchased to carry out the project, exceeds the funding period, the depreciation costs are eligible in the manner specified according to the FFG basis programs guidelines and in the "guidelines for handling the project costs in funding requests and reports".

5.6 The funding means of the funding donor must not be used for the creation of reserves and provisions according to BGBI no. 400 of the 1988 income tax law. The funding means must be used only for the services and objectives set out in the funding request.

5.7 Recognized eligible costs are those which have arisen after receipt of the funding request.

5.8 The costs incurred by the funding recipient or his/her partners from preparation of the contract, or any transfer charges, must be borne by these parties and do not constitute eligible costs.

5.9 The funding donor reserves the right to defer, reduce or suspend payment of funding, if and as long as circumstances are such that the orderly execution of the sponsored project appears not to be guaranteed (e.g. the cost justification is not provided as planned).

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6 Project-specific conditions and requirements

6.1 Project-specific special conditions and requirements

1. Before payment of the 1st installment, installment, the positive completion of the audit of project 832915 must be demonstrated by the FFG.
2. The personnel and travel costs have generally been reduced.

7 Payment of the funding

7.1 Payment of the 1st installment in the amount of 50% of the accepted funding means follows after completion of the funding contract and fulfillment of the conditions and requirements agreed in Article 6.

Payment of the second installment in the amount of 30% follows after approval of an interim report and an interim settlement, where 50% of the approved total costs must be shown, as well as after fulfillment of the conditions and requirements agreed in Article 6.

Payment of the final installment in the amount of 20% of total guaranteed funding means follows after fulfillment of the conditions and requirements (final settlement, final reports, etc.) and after inspection and approval of the usage certificate (relief) by the FFG.

7.2 The transfer is made to the following account of the funding recipient

Account owner: ARSANIS Biosciences GmbH
Bank name:
IBAN:
BIC/SWIFT:

8 Reporting obligations

8.1 The funding recipient must report the implementation of the funded project by submitting technical reports (interim and final reports) and settlements to the FFG according to point 3 of the General Funding Conditions. Reporting and accounting must take place via eCall (https://ecall.ffg.at). Use of the forms defined in eCall is mandatory. Further documents must be made available to the FFG on request.

9 Contract changes

9.1 Changes to the current contract can be only made in written form. This applies also to a departure from this provision.

9.2 If necessary, subsequent changes to the agreed conditions and requirements can be made under special circumstances by mutual agreement in the form of written additional agreements, after reconsideration by the advisory board.

10 Liability

10.1 The funding recipient must be liable without limit to the FFG for adherence to all contractual conditions. The funding recipient is also liable for the behavior of third parties for whom he/she is responsible (e.g. owners, corporate bodies, etc.). The funding recipient indemnifies and holds the FFG harmless against the claims of third parties.

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11 Severability clause

11.1 If a provision of this funding contract proves ineffective, the effectiveness of the remaining provisions of the funding contract are not affected. The contracting parties undertake to replace an ineffective provision by a provision that comes closest to the purpose of the contract.

12 Applicable law

12.1 This contract and all its annexes are subject to Austrian law excluding the reference provisions of the Austrian IPRG [International Private Law Act].

13 Jurisdiction

13.1 The competent court in Vienna has jurisdiction in all litigation arising from the granting of funds. The FFG also retains the right to sue the funding recipient in his/her general jurisdiction.

14 Contract components

14.1 The following documents are the integral elements of the funding contract:

- the funding request ("Development of human monoclonal antibody based product against severe hospital associated bacterial infections") in the version of 5/11/2012, submitted via eCall
- General funding conditions for funding contracts in the current version (1/26/2009)
- FFG basis program guidelines in the current version (3/22/2012)
- Guidelines for handling of project costs in funding requests and reports for projects with funding contracts according to FTE and FFG guidelines, version 1.3

14.2 The following are regarded as the legal basis of this funding contract:

- Österreichische Forschungsförderungsgesellschaft mbH establishment act (research funding, structure reform act) in the currently applicable version
- the guidelines for the Österreichische Forschungsförderungsgesellschaft mbH for the funding of research, technology, development and innovation (FFG guidelines GZ: BMVIT-609.986/0005- 111/12/2008 and BMWA-98.310/0032-C1/10/2008)

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The funding recipient confirms his/her awareness of all contract components and accepts them without reservation.

It is hereby noted that the objective funding offer must be deemed as revoked, if the funding recipient does not return it signed to the FFG within 3 months.

For the funding donor:

Österreichische Forschungsförderungsgesellschaft mbH (FFG)

[seal:]
Austrian Research Promotion Agency mbH (FFG)

Vienna, on 7/2/2012

/s/ Dr. Henriette Egerth-Stadlhuber
Dr. Henrietta Egerth-Stadlhuber
Managing Director

/s/ Dr. Klaus Pseiner
Dr. Klaus Pseiner
Managing Director

Funding recipient

Vienna, on 7/2/2012

/s/ Eszter Nagy
(Add company signature, name and position in block letters, company stamp)

Attachments:

Guidelines for the Österreichische Forschungsförderungsgesellschaft mbH for funding of research, technology, development and innovation (FFG guidelines) on link http://www.ffg.at/content/foerderrichtlinien
General funding conditions for funding contracts in the current version (1/26/2009)
FFG basis program guidelines in the current version (3/22/2012)
Guidelines for handling of project costs in funding requests and reports for projects with funding contracts according to FTE and FFG guidelines, version 1.3

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Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel +43 (0)57755-0
Fax+43 (0)57755-97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

ARSANIS Biosciences GmbH
Attention Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement on 12/31/2012

Project 837128

Development of human monoclonal antibody based product against severe hospital associated bacterial infections

Account no.:	18371280
Financial year:	2012
Redemption amount (EUR):	580,000.00
Repayment date:	6/30/2020
Interest rate:	1.00%

	Balance on 12/31/2011 (EUR)	0.00
Document date	**Posting text**	**Transaction amount (EUR)**
09.20.2012	837128 DA rate 1 BP basis	-290.000,00
12.03.2012	837128 ZNS [interest] 1.0% on 12/31/2012	-826,00
12.13.2012	837128 DA rate 2 BP basis	-174.000,00
12.27.2012	837128 ZNS [interest] 1.0% on 12/31/2012	826,00
	Total debits (EUR)	464,826.00
	Total credits (EUR)	826.00
	Balance on 12/31/2012 (EUR)	-464,000.00

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel +43 (0)57755-0
Fax+43 (0)57755-97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

ARSANIS Biosciences GmbH
Attention Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement on 12/31/2013

Project 837128
Development of human monoclonal antibody based product against severe hospital associated bacterial infections

Account no.:	18371280
Financial year:	2013
Redemption amount (EUR):	580,000.00
Redemption date:	6/30/2020
Interest rate:	1.00%

	Balance on 12/31/2012 (EUR)	-464,000.00
Document date	**Posting text**	**Transaction amount (EUR)**
06.03.2013	837128 ZNS [interest] 1.0% on 6/30/2013	-2.337,00
07.01.2013	837128 ZNS [interest] 1.0% on 6/30/2013	2.337,00
09.19.2013	837128 DA rate 3	-116.000,00
12.02.2013	837128 ZNS [interest] 1.0% on 12/31/2013	-2.707,00
12.31.2013	837128 ZNS [interest] 1.0% on 12/31/2013	2.707,00
	Total debits (EUR)	121,044.00
	Total credits (EUR)	5,044.00
	Balance on 12/31/2013 (EUR)	-580,000.00

ARSANIS Biosciences GmbH
Attention Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement on 12/31/2014

Project 837128
Development of human monoclonal antibody based product against severe hospital associated bacterial infections

Account no.:	18371280
Financial year:	2014
Redemption amount (EUR):	580,000.00
Redemption date:	6/30/2020
Interest rate:	1.00%

	Balance on 12/31/2013 (EUR)	-580,000.00
Document date	**Posting text**	**Transaction amount (EUR)**
06.02.2014	837128 ZNS [interest] 1.0% on 6/30/2014	-2.920,00
06.30.2014	837128 ZNS [interest] 1.0% on 6/30/2014	2.920.0
12.01.2014	837128 ZNS [interest] 1.0% on 12/31/2014	-2.968,0
12.31.2014	837128 ZNS [interest] 1.0% on 12/31/2014	2.968,0
	Total debits (EUR)	5,888.00
	Total credits (EUR)	5,888.00
	Balance on 12/31/2013 (EUR)	-580,000.00

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel +43 (0) 57755-0
Fax+43 (0) 57755-97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

ARSANIS Biosciences GmbH
Attention Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement on 12/31/2014

Project 837128
Development of human monoclonal antibody based product against severe hospital associated bacterial infections

Account no.:	18371280
Financial year:	2015
Redemption amount (EUR):	580,000.00
Redemption date:	6/30/2020
Interest rate:	1.00%

	Balance on 12/31/2014 (EUR)	-580,000.00
Document date	**Posting text**	**Transaction amount (EUR)**
06.01.2015	837128 ZNS [interest] 1.0% on 6/30/2015	-2.920,00
06.30.2015	837128 ZNS [interest] 1.0% on 6/30/2015	2.920,00
	Total debits (EUR)	2,920.00
	Total credits (EUR)	2,920.00
	Balance on 12/31/2013 (EUR)	-580,000.00

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel +43 (0) 57755-0
Fax+43 (0) 57755-97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

Project no. 838450 /30000 TICK/SAI

Funding contract

agreed between

Österreichische Forschungsförderungsgesellschaft mbH (FFG)

as funding donor

and

ARSANIS Biosciences GmbH
Helmut-Qualtinger-Gasse
2 1030 Vienna

Company register number FN 354305m

as funding recipient.

1 Awarding of the funding

1.1 Based on the funding request submitted for the EUROSTARS CoD 8 on cut-off date 3/1/2012 and consequently received in the FFG eCall on 8/31/2012, the "EUROSTARS CoD 8: 7563 KLEBSICURE—development of monoclonal antibody-based immune therapy and diagnostics for severe Klebsiella infections" and based on the professional decision according to the recommendation of the Eurostars decision-making bodies on 6/12/2012, funding is awarded for the following project:

Project number: **8384 50**
Project name (subject of the agreement):
EUROSTARS CoD8: 7563 KLEBSICURE - development of monoclonal antibody-based immune therapy and diagnostics for severe Klebsiella infections
Program: EUROSTARS
Tender: Eurostars CoD 8 2012_BMWFJ

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Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel +43(0)5 7755-0
Fax+43 (0)5 7755-97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

2 Project duration

2.1 The overall project duration begins on 8/1/2012 and ends on 1/31/2015.

3 Funding period

3.1 The objective funding period of the project begins on **8/1/2012** as acceptance deadline and ends on **1/31/ 2015.**

4 Type and level of funding

4.1 The funding is provided in the following form for the funding period specified in section 3:

Funding form	Amount up to max.
Grant of FFG (Eurostars)	**EUR 1,469, 000.00**
EU bonus top-up (max. 25%)	**EUR 239, 000.00**
Total	**EUR 1,708, 000.00**

The FFG grant is financed from additional funds provided by the Bundesministerium für Wirtschaft, Familie und Jugend [Federal Ministry of Economics, Family and Youth]

The EU top-up bonus is financed out of European Commission funds.

4.2 The subsidized financing of the project amounts to 60.0% of the demonstrable and eligible project costs. The remaining funding of the project costs is the responsibility of the funding recipient. Based on the planning data, the funding cash value amounts to EUR 1,708,000.00, that is 60.0% related to the eligible costs according to point 5.1.

4.3 The maximum funding cash value according to the applicable community guidelines for state R&D aid amounts to 60.0%.

4.4 The consequence of the shortfall of the eligible project costs is an aliquot reduction of the funding.

4.5 The eligible project costs according to section 5 as well the costs reported through interim and final settlements do not represent any cost acknowledgment before an assessment by the FFG. The final amount of the eligible total project costs as well as the funding is determined only after completion of the project during invoice verification.

5 Eligible costs

5.1 The funding is subject to the following eligible project costs:

Personnel costs	EUR 1,662,000.00
R&D infrastructure use	EUR 152,743.00
General and material costs	EUR 587,257.00
Third-party services	EUR 435,000.00
Travel expenses	EUR 10,000.00
Total eligible costs	**EUR 2,847,000.00**

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Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel +43(0)5 7755-0
Fax+43 (0)5 7755-97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

5.2 Eligible costs are all those costs and expenses attributable to the project that result directly, actually and additionally from the usual operating costs for the duration of the funded research activity. Additional supplementary provisions to the eligible costs can arise from FFG guidelines and from the "guidelines for handling project costs in funding applications and reports for funded projects with EU co-funding (Version 1.3)".

5.3 Substantial changes to the cost structure require the prior written approval of the FFG.

5.4 The sales tax levied on the costs of the service is not eligible. In so far as this sales tax demonstrably and finally is to be borne by the funding recipient and consequently no pre-tax deduction is applicable for him/her, it is taken into account as an eligible cost component. The—in whatever way—recoverable sales tax is not eligible, if the funding recipient does not get it back. If the tax office regards a grant not as a taxable service of the funding recipient to the funding donor according to BGBI no. 663 of the 1994 sales tax, but as contractual remuneration and sales tax is thus payable to the tax office by the funding recipient, the contractual remuneration is to be regarded as gross remuneration. An additional separate sales tax settlement is—for whatever legal reason—excluded.

5.5 If the amortization period of an item (section 285 ABGB), which is purchased to carry out the project, exceeds the funding period, the depreciation costs are eligible in the manner specified according to the FFG basis programs guidelines and in the "guidelines for handling the project costs in funding requests and reports (Version 1.3)".

5.6 The funding means of the funding donor must not be used for the creation of reserves and provisions according to BGBI no. 400 of the 1988 income tax law. The funding means must be used only for the services and objectives set out in the funding request.

5.7 From a temporal point of view, only costs can be recognized as eligible from the project start in accordance with Article 3.

5.8 The costs incurred by the funding recipient or his/her partners from preparation of the contract, or any transfer charges, must be borne by these parties and do not constitute eligible costs.

5.9 The funding donor reserves the right to defer, reduce or suspend payment of funding, if and as long as circumstances are such that the orderly execution of the sponsored project appears not to be guaranteed (e.g. the cost justification is not provided as planned).

6 Project-specific conditions and requirements

6.1 Project-specific special conditions and requirements

1. Before payment of the 1st installment, the remaining funding must be demonstrated in writing within 12 weeks of the contract issue date.
2. The upper limit of the hourly rates accounted for in the final settlement are the rates according to BGBl. II no. 50/1999, Annex 3; furthermore, overheads according to "FFG cost guidelines" that arise directly from the research project can be deducted.

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Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel +43(0)5 7755-0
Fax+43 (0)5 7755-97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

7 Payment of the funding

7.1 The specified funding amount is transferred in accordance with the following **payment plan**:

On contract completion:	€367,250.00
after presentation and approval of the 1st interim report and interim settlement on the deadline 6/30/2013	€367,250.00
after presentation and approval of the 2nd interim report and interim settlement on the deadline 12/31/2013	€367,250.00
after presentation and approval of the 3rd interim report and interim settlement on the deadline 7/31/2014	€367,250.00

A residual installment of €239,000.00 is subject to the approval of the final report and examination of the final statement. In the course of the final reporting, fulfillment of the listed conditions must be demonstrated.

7.2 The transfer is made to the following account of the funding recipient

Account owner: ARSANIS Biosciences GmbH
Bank name:
IBAN:
BIC/SWIFT:

8 Reporting obligations

8.1 The funding recipient must report the implementation of the funded project by submitting technical reports (interim and final reports) and settlements to the FFG according to point 3 of the General Funding Conditions. Reporting and accounting must take place via eCall (https://ecall.ffg.at). Use of the forms defined in eCall is mandatory. Further documents must be made available to the FFG on request.

8.2 The project coordinator is also obliged to create half-yearly joint reports for the project partners in English and transmit them to the EUREKA secretariat (ESE).

8.3 The funding recipient is obliged to cooperate fully on any possible assessment or audit of the project together with a designated entity, with an organ of the federation or the EU or EUREKA secretariat or representatives of the funding organization. This obligation remains valid after the end of the agreement.

9 Contract changes

9.1 Changes to the current contract can be only made in written form. This applies also to a departure from this provision.

9.2 Changes that concern the international Eurostars project require approval of the Eurostars decision-making bodies by means of the “Request for Change” procedure.

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10 Liability

10.1 The funding recipient must be liable without limit to the FFG for adherence to all contractual conditions. The funding recipient is also liable for the behavior of third parties for whom he/she is responsible (e.g. owners, corporate bodies, etc.). The funding recipient indemnifies and holds the FFG harmless against the claims of third parties.

11 Severability clause

11.1 If a provision of this funding contract proves ineffective, the effectiveness of the remaining provisions of the funding contract are not affected. The contracting parties undertake to replace an ineffective provision by a provision that comes closest to the purpose of the contract.

12 Applicable law

12.1 This contract and all its Annexes are subject to Austrian law excluding the reference provisions of the Austrian IPRG [International Private Law Act].

13 Jurisdiction

13.1 The competent court in Vienna has jurisdiction in all litigation arising from the granting of funds. The FFG also retains the right to sue the funding recipient in his/her general jurisdiction.

14 Contract components

14.1 The following documents are the integral elements of the funding contract:

- the funding request (“EUROSTARS CoD8: 7563 KLEBSICURE—development of monoclonal antibody-based immune therapy and diagnostics for severe Klebsiella infections”)
- guidelines for handling project costs in funding applications and reports for assisted projects with EU co-financing (version 1.3)
- General funding conditions for funding contracts in the current version (1/26/2009)
- national guidelines for the creation of a Eurostars funding application in the current version

14.2 The following are regarded as the legal basis of this funding contract:

- Österreichische Forschungsförderungsgesellschaft mbH establishment act (research funding, structure reform act) in the currently applicable version
- the guidelines for the Österreichische Forschungsförderungsgesellschaft mbH for the funding of research, technology, development and innovation (FFG guidelines GZ: BMVIT-609.986/0005-111/12/2008 and BMWA-98.310/0032-C1/10/2008)

./6

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel +43(0)5 7755-0
Fax+43 (0)5 7755-97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

The funding recipient confirms his/her awareness of all contract components and accepts them without reservation.

The funding recipient also expressly confirms having read the documents “Eurostars Program Document endorsed by the High Level Group (HLG) in Como on October 19, 2006 and revised according HLG meeting in Venice on April 18-19, 2007”, the relevant “Eurostars Guidelines” and the national “Guidelines for creating a Eurostars funding application” and accepts to submit fully and without restriction to their contents.

By signing this funding contract, the funding recipient confirms that he/she is not requesting, has not requested, has not been awarded or has not received any other national and/or international funds or community funds for the contractual project.

It is hereby noted that the objective funding offer must be deemed as revoked, if the funding recipient does not return it signed to the FFG within 3 months.

For the funding donor:
Österreichische Forschungsförderungsgesellschaft mbH (FFG)

[seal:]
Austrian Research Promotion Agency mbH (FFG)

Vienna, on 11/28/2012

/s/ Dr. Henrietta Egerth-Stadlhuber
Dr. Henrietta Egerth-Stadlhuber
Managing Director

/s/ Dr. Klaus Pseiner
Dr. Klaus Pseiner
Managing Director

Funding recipient

Vienna, on 12/5/2012

/s/ Dr. Eszter Nagy
(Add company signature, name and position in block letters, company stamp)

Eszter Nagy, MD, PhD
Managing Director

ARSANIS
Biosciences GmbH
MarxBox
Helmut-Qualtinger-Gasse 2
1030 Vienna

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel +43(0)5 7755-0
Fax+43 (0)5 7755-97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

Attachments:

General funding conditions for funding contracts in the current version (1/26/2009)

Guidelines for handling project costs in funding applications and reports for assisted projects with EU co-financing (version 1.3)

Guidelines for the Österreichische Forschungsförderungsgesellschaft mbH for funding of research, technology, development and innovation (FFG guidelines) as per link: http://www.ffg.at/getdownload.php?id=21Eurostars Guidelines as per link: http://www.eurostars-eureka.eu/

National guidelines for the creation of a Eurostars funding application in the current version as per link: www.ffg.at/eureka

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel +43(0)5 7755-0
Fax+43 (0)5 7755-97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

Funding Contract

executed between the

Österreichische Forschungsförderungsgesellschaft mbH (FFG)

as Funding Agency

and

ARSANIS Biosciences GmbH
Helmut-Qualtinger-Gasse 2
1030 Vienna

Company Register No. 354305m

as Funding Recipient.

§ 1 Funding grant

1.1 On the basis of the funding application "Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal diseases" received 1/31//2013 via eCall, and based on the expert decision of the Advisory Board in its meeting of 3/20/2013, funding is granted for the following project:

Project number: **840293**
eCall number: **3595150**
Project name (purpose of the agreement):
Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal diseases
Program: Base program

./2

§ 2 Project period

2.1 The overall project period shall begin on 2/1/2013 and end on 5/31/2017.

2.2 Funding of the entire project by the FFG depends on the results as demonstrated in the submitted reports, the continued fulfillment of the evaluation and decision criteria, the budget available to the Funding Agency and a new positive funding decision.

§ 3 Funding period

3.1 The funding period of this project shall begin on the approval date **2/1/2013** and end on **1/31/2014**.

§ 4 Type and amount of funding

4.1 Funding will be awarded in the following form over the funding period specified in § 3:

Type of funding	Maximum amount
Subsidy granted by the FFG	**EUR 770,100.00**
Loan granted by the FFG	**EUR 630,800.00**

Loan conditions

Interest rate	1.0% p.a. per current account
Redemption date:	6/30/2022
Redemption amount:	EUR 630,800.00
Interest and loan collection:	automatic debit procedure
Interest payment due:	semi-annually in arrears and/or upon maturity of the loan

4.2 The funded financing of the project is 70.0% of the verifiable and eligible project costs. The Funding Recipient shall finance the remaining project costs. Based on the plan data, the cash value of the funding is EUR 900,600.00, i.e. 45.0% related to the eligible project costs pursuant to Point 5.1.

4.3 The maximum funding cash value according to the applicable Community Framework for public R&D subsidies is 45.0%.

4.4 A decrease in the eligible project costs shall entail a prorated cutback of the funding.

4.5 The eligible project costs pursuant to § 5 and the costs reported by way of interim and/or final accounts shall not be considered approved until a review by the FFG. The final amount of the approved overall project costs as well as the funding shall be determined only after the completion of the project in the course of the final audit.

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§ 5 Eligible costs

5.1 The funding is based on following eligible project costs:

Personnel costs	EUR	807,700.00
Cost of use of R&D infrastructure	EUR	49,300.00
Cost of materials	EUR	245,000.00
Third-party costs	EUR	885,000.00
Travel costs	EUR	14,400.00
Total eligible costs	**EUR**	**2,001,400.00**

5.2 All costs attributable to the project which are incurred directly, actually and additionally to the normal operating expenses during the research activities to § 3 are eligible costs. Additional supplementary provisions regarding eligible costs may be found in the FFG Guidelines, the FFG Guidelines Base Programs and the “Guide for the Treatment of Project Costs in Funding Applications and Reports”.

5.3 Major changes to the cost structure shall require the prior written approval of the FFG.

5.4 The turnover tax payable on the costs of eligible services is not an eligible cost. However, it is considered an eligible cost component if it can be demonstrated that said turnover tax must be borne in actual fact and without recourse by the Funding Recipient, i.e. if it is not entitled to the input tax deduction. The refundable turnover tax—in whatever way—is not eligible even if it is not actually refunded to the Funding Recipient. If the tax office considers funds which are taxable under the Turnover Tax Act 1994, Federal Gazette No. 663 not as funding but as a contractual compensation for services provided by the Funding Recipient to the Funding Agency, and if the Funding Recipient owes turnover tax on such funds to the tax office, the contractual compensation shall be regarded as gross compensation. An additional, separate reimbursement of the turnover tax—for whatever legal reason—shall thus be excluded.

5.5 If the amortization period of an asset (Sec. 285 ABGB [*Civil Code*]) purchased for the implementation of the project exceeds the funding period, the depreciation costs shall be eligible in the manner described in the” Guide for Individual Projects of Experimental Development and the “Guide for the Treatment of Project Costs in Funding Applications and Reports”.

5.6 Funds provided by the Funding Agency may not be used for the creation of reserves or accruals under the Income Tax Act 1988, Federal Gazette No. 400. The funds may be used only for goods and services and for the purposes described in the funding application.

5.7 In case of new applications, the eligible costs incurred after receipt of the funding application may be approved. In case of follow-up applications, the earliest date for cost approval shall be the beginning of the funding period stated under § 3.

5.8 The costs of drawing up the agreement or the bank transfer expenses incurred by the Funding Recipient or its affiliates shall be borne by them and shall not be eligible costs.

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5.9 The Funding Agency reserves the right to postpone, cut back or suspend the disbursement of funding if and as long as circumstances prevail which might make it impossible to guarantee the proper execution of the promoted project (e.g. if the documentary evidence for costs is not adequate).

§ 6 Project-specific terms and conditions

6.1 Project-specific special terms and conditions
None.

§ 7 Disbursement of the funds

7.1 The first installment in the amount of 50% of the promised funds will be disbursed after signature of the Funding Contract and fulfillment of the terms and conditions stipulated in § 6.

The second installment in the amount of 30% will be disbursed after the approval of an interim report and an interim statement in which 50% of the approved total costs must be documented, as well as after fulfillment of the terms and conditions stipulated in § 6.

The final installment in the amount of 20% of the total promised funds will be disbursed only after fulfillment of all terms and conditions (final account, final reports, etc.) and after the audit and approval of the statement of use (discharge) by the FFG.

7.2 The funds will be transferred to the following account of the Funding Recipient

Account holder: ARSANIS Biosciences GmbH
Name of the bank:
IBAN:
BIC/SWIFT:

§ 8 Reporting obligations

8.1 According to Point 3 of the General Funding Terms and Conditions, the Funding Recipient must inform the FFG about the execution of the promoted project by submitting technical reports (interim and final reports) and billing statements. The reports and billing statements must be submitted via eCall (https://ecall.ffg.at). The use of the forms to be found in eCall is mandatory. Other documents might have to be submitted at the request of the FFG.

§ 9 Amendments

9.1 Changes to this agreement may be made only explicitly and in writing. This shall apply also to any deviation from this requirement.

9.2 Under special circumstances changes to the stipulated terms and conditions may, if necessary, be made later by mutual agreement in the form of written addenda if special circumstances are present and after a new advisory board decision.

./5

§ 10 Legal liability

10.1 The Funding Recipient shall be unconditionally liable to the FFG for compliance with all contractual provisions. The Funding Recipient shall also be liable for the conduct of third parties for which it is responsible (e.g. owners, corporate officers, etc.). The Funding Recipient must hold the FFG harmless against third parties.

§ 11 Severability clause

11.1 In the event that be a provision of this Funding Contract is invalid, such event shall not affect the validity of the remaining provisions of the Funding Contract. The contractual partners undertake to replace an invalid provision by such provision as comes closest to the purpose of this Funding Contract.

§ 12 Applicable law

12.1 This agreement and all its attachments shall be governed by Austrian law to the exclusion of the reference norms of the Austrian IPRG.

§ 13 Legal venue

13.1 The legal venue agreed upon with regard to all legal disputes arising from the funding grant shall be the materially competent court in Vienna. The FFG reserves the right to take action against the Funding Recipient also at the latter's general legal venue.

§ 14 Integral parts of the contract

14.1 The following documents are an integral part of the Funding Contract:

- The funding application submitted via eCall ("Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal diseases") as amended on 3/12/2013
- General terms and conditions for Funding Contracts as amended (1/26/2009)
- FFG Guidelines for Base Programs as amended (3/22/2012)
- Guide for the Treatment of Project Costs in Funding Applications and Reports for Projects with Funding Contracts according to the RTD Directives and the FFG Directives, version 1.3.

14.2 The legal bases of this Funding Contract are in particular:

- Implementation Act of the Österreichische Forschungsförderungsgesellschaft mbH [Research Promotion Structural Reform Act], as amended
- Guidelines of the Österreichische Forschungsförderungsgesellschaft mbH for promoting research, technology, development and innovation (FFG Guidelines GZ: BMVIT- 609.986/0005-III/12/2008 and BMWA-98.310/0032-C1/10/2008)

./6

The Funding Recipient confirms being aware of all contract components and accepts them unconditionally.

It is pointed out that this funding offer is considered revoked if the Funding Recipient does not sign it and return it to the FFG within 3 months.

For the Funding Agency:
Österreichische Forschungsförderungsgesellschaft mbH (FFG)

[stamp:] Austrian Research Promotion Agency

Vienna, on 3/25/2013

/s/ Dr. Henrietta Egerth-Stadlhuber
Dr. Henrietta Egerth-Stadlhuber
Director

/s/ /Dr. Klaus Pseiner
Dr. Klaus Pseiner
Director

Funding Recipient

Vienna, on 3/29/2013

ARSANIS
Biosciences GmbH
MarxBox
Helmut-Qualtinger-Gasse 2
1030 Vienna

/s/ Dr. Eszter Nagy Dr. Eszter Nagy, Director
(company name, please indicate name and position in block letters, company seal)

Attachments:
Guidelines for the Österreichische Forschungsförderungsgesellschaft mbH for promoting research, technology, development and innovation (FFG Guidelines) per link https://www.ffg.at/content/foerderrichtlinien
General terms and conditions for Funding Contracts as amended (1/26/2009)
FFG Guidelines Base Programs as amended (3/22/2012)
Guide for the Treatment of Project Costs in Funding Applications and Reports for Projects with Funding Contracts according to the RTD Directives and the FFG Directives, version 1.3.

./7

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse
1090 Vienna

Phone +43(0)5 7755 - 0
Fax+43 (0) 5 7755 -97900
www.ffg.at, office@ffg.at
FN 252263a Comm. Court Vienna

ARSANIS Biosciences GmbH
Attn.: Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement per 12/31/2013

Project 840293
Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal diseases

Account no.:	18462930
Fiscal year:	2013
Redemption amount (EUR):	530,693.00
Date of redemption:	6/30/2022
Interest rate:	1.00%

	Balance per 12/31/2012 (EUR)	**0.00**
Reference dates	**Description of the transaction**	**Transacted amount (EUR)**
4/4/2013	840293 DA Installment 1 GP basis	-315,400.00
6/3/2013	840293 Int. 1.00% per 6/30/13	-766.00
7/1/2013	840293 Int. 1.00% per 6/30/13	766.00
12/2/2013	840293 Int. 1.00% per 12/31/13	-1,616.00
12/23/2013	840293 DA Installment 2 GP basis	-189,240.00
12/31/2013	840293 Int. 1.00% per 12/31/13	1,616.00
	Debited amount (EUR)	507,022.00
	Deposited amount (EUR)	2,382.00
	Balance per 12/31/2013 (EUR)	**-504,640.00**

./8

ARSANIS Biosciences GmbH
Attn.: Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement per 12/31/2014

Project 840293
Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal diseases

Account no.:	18462930
Fiscal year:	2014
Redemption amount (EUR):	530,693.00
Date of redemption:	6/30/2022
Interest rate:	1.00%

	Balance per 12/31/2013 (EUR)	**504,640.00**
Reference dates	**Description of the transaction**	**Transacted amount (EUR)**
6/2/2014	840293 Int. 1.00% per 6/30/14	-2,541.00
6/30/2014	840293 Int. 1.00% per 6/30/14	2,541.00
10/7/2014	840293 DA Installment 3	-26,053.00
12/1/2014	840293 Int. 1.00% per 12/31/14	-2,709.00
12/31/2014	840293 Int. 1.00% per 12/31/14	2,709.00
	Debited amount (EUR)	31,303.00
	Deposited amount (EUR)	5,250.00
	Balance per 12/31/2014 (EUR)	**-530,693.00**

./9

ARSANIS Biosciences GmbH
Attn.: Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement per 12/31/2015

Project 840293
Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal diseases

Account no.:	18402930
Fiscal year:	2015
Redemption amount (EUR):	530,693.00
Date of redemption:	6/30/2022
Interest rate:	1.00%

	Balance per 12/31/2014 (EUR)	**-530,693.00**
Reference dates	**Description of the transaction**	**Transacted amount (EUR)**
6/1/2015	840293 Int. 1.00% per 6/30/15	-2,672.00
6/30/2015	840293 Int. 1.00% per 6/30/15	2,672.00
	Debited amount (EUR)	2,672.00
	Deposited amount (EUR)	2,672.00
	Balance per 12/31/2015 (EUR)	**-530,693.00**

./10

Funding Contract

executed between the

Österreichische Forschungsförderungsgesellschaft mbH (FFG)

as Funding Agency

and

ARSANIS Biosciences GmbH
Helmut-Qualtinger-Gasse 2
1030 Vienna

Company Register No. 354305m

as Funding Recipient

§ 1 Funding grant

1.1 On the basis of the funding application "Development of human monoclonal antibody-based products against severe hospital-associated bacterial infections" received on 5/2/2013 via eCall, and based on the expert decision of the Advisory Board in the meeting of 6/26/2013, funding is granted for the following project:

Project number: **841918**
eCall number: **3875436**
Pre-project number: 837128
Project name (purpose of the agreement):
Development of human monoclonal antibody-based products against severe hospital-associated bacterial infections
Program: Base program

./2

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse
1090 Vienna

Phone +43(0)5 7755 - 0
Fax +43 (0) 5 7755 -97900
www.ffg.at, office@ffg.at
FN 252263a Comm. Court Vienna

§ 2 Project period

2.1 The overall project period shall begin on 5/13/2011 and end on 4/30/2014.

2.2 Funding of the entire project by the FFG depends on the results as demonstrated in the submitted reports, the continued fulfillment of the evaluation and decision criteria, the budget available to the Funding Agency and a new positive funding decision.

§ 3 Funding period

3.1 The funding period of this project shall begin on the approval date **5/1/2013** and end on **4/30/2014**.

§ 4 Type and amount of funding

4.1 Funding will be awarded in the following form over the funding period specified in § 3:

Type of funding	Maximum amount	
Subsidy granted by the FFG	**EUR**	**585,300.00**
Loan granted by the FFG	**EUR**	**2,503,000.00**

Loan conditions

Interest rate	0.75% p.a. per current account
Redemption date:	6/30/2020
Redemption amount:	EUR 2,503,000.00
Interest and loan collection:	automatic debit procedure
Interest payment due:	semi-annually in arrears and/or upon maturity of the loan

4.2 The funded financing of the project is 70.0% of the verifiable and eligible project costs. The Funding Recipient shall finance the remaining project costs. Based on the plan data, the cash value of the funding is EUR 1,025,071.00, i.e. 23.2% related to the eligible project costs pursuant to Point 5.1.

4.3 The maximum funding cash value according to the applicable Community Framework for public R&D subsidies is 45.0%.

4.4 A decrease in the eligible project costs shall entail a prorated cutback of the funding.

4.5 The eligible project costs pursuant to § 5 and the costs reported by way of interim and/or final accounts shall not be considered approved until a review by the FFG. The final amount of the approved overall project costs as well as the funding shall be determined only after the completion of the project in the course of the final audit.

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§ 5 Eligible costs

5.1 The funding is based on following eligible project costs:

Personnel costs	EUR	959,600.00
Cost of use of R&D infrastructure	EUR	36,300.00
Cost of materials	EUR	300,000.00
Third-party costs	EUR	3,093,200.00
Travel costs	EUR	22,900.00
Total eligible costs	**EUR**	**4,412,000.00**

5.2 All costs attributable to the project which are incurred directly, actually and additionally to the normal operating expenses) for the duration of the funded research activities are eligible costs. Additional supplementary provisions regarding eligible costs may be found in the FFG Guidelines, the FFG Guidelines Base Program and the "Guide for the Treatment of Project Costs in Funding Applications and Reports".

5.3 Major changes to the cost structure shall require the prior written approval of the FFG.

5.4 The turnover tax payable on the costs of eligible services is not an eligible cost. However, it is considered an eligible cost component if it can be demonstrated that said turnover tax must be borne in actual fact and without recourse by the Funding Recipient, i.e. if it is not entitled to the input tax deduction. The refundable turnover tax—in whatever way—is not eligible even if it is not actually refunded to the Funding Recipient. If the tax office considers funds which are taxable under the Turnover Tax Act 1994, Federal Gazette No. 663 not as funding but as a contractual compensation for services provided by the Funding Recipient to the Funding Agency, and if the Funding Recipient owes turnover tax on such funds to the tax office, the contractual compensation shall be regarded as gross compensation. An additional, separate reimbursement of the turnover tax—for whatever legal reason—shall thus be excluded.

5.5 If the amortization period of an asset (Sec. 285 ABGB [*Allgemeines Bürgerliches Gesetzbuch* (Civil Code)]) purchased for the implementation of the project exceeds the funding period, the depreciation costs shall be eligible in the manner described in the FFG Guidelines – Base Program and the "Guide for the Treatment of Project Costs in Funding Applications and Reports".

5.6 Funds provided by the Funding Agency may not be used for the creation of reserves or accruals under the Income Tax Act 1988, Federal Gazette No. 400. The funds may be used only for goods and services and for the purposes described in the funding application.

5.7 In case of new applications, the eligible costs incurred after receipt of the funding application may be approved. In case of follow-up applications, the earliest date for cost approval shall be the beginning of the funding period stated under § 3.

5.8 The costs of drawing up the agreement or the bank transfer expenses incurred by the Funding Recipient or its affiliates shall be borne by them and shall not be eligible costs.

./4

5.9 The Funding Agency reserves the right to postpone, cut back or suspend the disbursement of funding if and as long as circumstances prevail which might make it impossible to guarantee the proper execution of the promoted project (e.g. if the documentary evidence for costs is not adequate).

§ 6 Project-specific terms and conditions

6.1 Project-specific special terms and conditions

1. Before the disbursement of the 1sr installment, the remaining funding must be documented in writing within 12 weeks from the issue date of the contract.
2. "Other Services" shall not be funded.
3. The cost for the preparation of the clinical phase (working packets 6 and 7) are funded with loans.
4. A continued funding of this project in this form is not planned. The clinical work planned for the 4th project year may be submitted in the program line KLIPHA.

§ 7 Disbursement of the funds

7.1 The first installment in the amount of 50% of the promised funds will be disbursed after signature of the Funding Contract and fulfillment of the terms and conditions stipulated in § 6.

The second installment in the amount of 30% will be disbursed after the approval of an interim report and an interim statement in which 50% of the approved total costs must be documented, as well as after fulfillment of the terms and conditions stipulated in § 6.

The final installment in the amount of 20% of the total promised funds will be disbursed only after fulfillment of all terms and conditions (final account, final reports, etc.) and after the audit and approval of the statement of use (discharge) by the FFG.

7.2 The funds will be transferred to the following account of the Funding Recipient

Account holder: ARSANIS Biosciences GmbH
Name of the bank:
IBAN:
BIC/SWIFT:

§ 8 Reporting obligations

8.1 According to Point 3 of the General Funding Terms and Conditions, the Funding Recipient must inform the FFG about the execution of the promoted project by submitting technical reports (interim and final reports) and billing statements. The reports and billing statements must be submitted via eCall (https://ecall.ffg.at). The use of the forms to be found in eCall is mandatory. Other documents might have to be submitted at the request of the FFG.

§ 9 Amendments

9.1 Changes to this agreement may be made only explicitly and in writing. This shall apply also to any deviation from this requirement.

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9.2 Under special circumstances changes to the stipulated terms and conditions may, if necessary, be made later by mutual agreement in the form of written addenda if special circumstances are present and after a new advisory board decision.

§ 10 Legal liability

10.1 The Funding Recipient shall be unconditionally liable to the FFG for compliance with all contractual provisions. The Funding Recipient shall also be liable for the conduct of third parties for which it is responsible (e.g. owners, corporate officers, etc.). The Funding Recipient must hold the FFG harmless against third parties.

§ 11 Severability clause

11.1 In the event that be a provision of this Funding Contract is invalid, such event shall not affect the validity of the remaining provisions of the Funding Contract. The contractual partners undertake to replace an invalid provision by such provision as comes closest to the purpose of this Funding Contract.

§ 12 Applicable law

12.1 This agreement and all its attachments shall be governed by Austrian law to the exclusion of the reference norms of the Austrian IPRG.

§ 13 Legal venue

13.1 The legal venue agreed upon with regard to all legal disputes arising from the funding grant shall be the materially competent court in Vienna. The FFG reserves the right to take action against the Funding Recipient also at the latter's general legal venue.

§ 14 Integral parts of the contract

14.1 The following documents are an integral part of the Funding Contract:

- The funding application submitted via eCall ("Development of human monoclonal antibody-based products against severe hospital-associated bacterial infections") as amended on 5/2/2013
- General terms and conditions for Funding Contracts as amended (version 1 of 2013)
- FFG Guidelines – Base Programs as amended (3/22/2012)
- Guide for the Treatment of Project Costs in Funding Applications and Reports for Projects with Funding Contracts according to the RTD Directives and the FFG Directives, version 1.3.

14.2 The legal bases of this Funding Contract are in particular:

- Implementation Act of the Österreichische Forschungsförderungsgesellschaft mbH (Research Promotion Structural Reform Act), as amended
- Guidelines of the Österreichische Forschungsförderungsgesellschaft mbH for promoting research, technology, development and innovation (FFG Guidelines GZ: BMVIT 609.986/0005-

./6

III/12/2008 and BMWA-98.310/0032-C1/10/2008)

The Funding Recipient confirms being aware of all contract components and accepts them unconditionally.

It is pointed out that this funding offer is considered revoked if the Funding Recipient does not sign it and return it to the FFG within 3 months.

For the Funding Agency:

Österreichische Forschungsförderungsgesellschaft mbH (FFG)

[stamp:] Austrian Research Promotion Agency

Vienna, on 7/1/2013

/s/ Dr. Henrietta Egerth-Stadlhuber	/s/ Dr. Klaus Pseiner
Dr. Henrietta Egerth-Stadlhuber Director	Dr. Klaus Pseiner Director

Funding Recipient

Vienna, on 8/6/2013

ARSANIS
Biosciences GmbH
MarxBox
Helmut-Qualtinger—Gasse 2
1030 Vienna

/s/ Dr. Eszter Nagy

(company name, please indicate name and position in block letters, company seal)
Dr. Eszter Nagy, Director

Attachments:

Guidelines for the Österreichische Forschungsförderungsgesellschaft mbH for promoting research, technology, development and innovation (FFG Guidelines) per link https://www.ffg.at/Allgemeine-Richtlinien
General terms and conditions for Funding Contracts as amended (version 1 of 2013)
FFG Guidelines – Base Programs, as amended (3/22/2012)
Guide for the Treatment of Project Costs in Funding Applications and Reports for Projects with Funding Contracts according to the RTD Directives and the FFG Directives, version 1.3.

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Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse
1090 Vienna

Phone +43(0)5 7755 - 0
Fax +43 (0) 5 7755 -97900
www.ffg.at, office@ffg.at
FN 252263a Comm. Court Vienna

ARSANIS Biosciences GmbH
Attn.: Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement per 12/31/2013

Project 841918

Development of human monoclonal antibody-based products against severe hospital-associated bacterial infections

Account no.:	18419180
Fiscal year:	2013
Redemption amount (EUR):	1,244,928.00
Date of redemption:	6/30/2020
Interest rate:	0.75%

	Balance per 12/31/2013 (EUR)	**0.00**
Reference dates	**Description of the transaction**	**Transacted amount (EUR)**
3/10/2013	841918 DA Installment 1 GP basis	-1,251,500.00
12/2/2013	841918 Int. 0.75% per 12/31/13	-2,324.00
12/31/2013	841918 Int. 0.75% per 12/31/13	2,324.00
	Debited amount (EUR)	1,253,824.00
	Deposited amount (EUR)	2,324.00
	Balance per 12/31/2014 (EUR)	**-1,251,500.00**

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Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse
1090 Vienna

Phone +43(0)5 7755 - 0
Fax +43 (0) 5 7755 -97900
www.ffg.at, office@ffg.at
FN 252263a Comm. Court Vienna

ARSANIS Biosciences GmbH
Attn.: Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement per 12/31/2014

Project 841918

Development of human monoclonal antibody-based products against severe hospital-associated bacterial infections

Account no.:	18419180
Fiscal year:	2014
Redemption amount (EUR):	1,244,928.00
Date of redemption:	6/30/2020
Interest rate:	0.75%

	Balance per 12/31/2013 (EUR)	**-1,251,500.00**
Reference dates	**Description of the transaction**	**Transacted amount (EUR)**
6/2/2014	841918 Int. 0.75% per 6/30/14	-4,723.00
6/30/2014	841918 Int. 0.75% per 6/30/14	4,723.00
7/10/2014	841918 Amortization	6,572.00
12/1/2014	841918 Int. 0.75% per 12/31//14	-4,778.00
12/31/2014	841918 Int. 0.75% per 12/31/14	4,778.00
	Debited amount (EUR)	9,501.00
	Deposited amount (EUR)	16,073.00
	Balance per 12/31/2014 (EUR)	-1,244,928.00

./9

ARSANIS Biosciences GmbH
Attn.: Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement per 10/31/2015

Project 841918

Development of human monoclonal antibody-based products against severe hospital-associated bacterial infections

Account no.:	18419180
Fiscal year:	2015
Redemption amount (EUR):	1,244,928.00
Date of redemption:	6/30/2020
Interest rate:	0.75%

	Balance per 12/31/2014 (EUR)	**-1,244,928.00**
Reference dates	**Description of the transaction**	**Transacted amount (EUR)**
6/1/2015	841918 Int. 0.75% per 6/30/15	-4,698.00
6/30/2015	841918 Int. 0.75% per 6/30/15	4,698.00
	Debited amount (EUR)	4,698.00
	Deposited amount (EUR)	4,698.00
	Balance per 12/31/2015 (EUR)	**-1,244,928.00**

./10

ARSANIS Biosciences GmbH
Attn.: Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement per 12/31/2014

Project 841918

Development of human monoclonal antibody-based products against severe hospital-associated bacterial infections

Account no.:	28419180
Fiscal year:	2014
Reclaim (EUR):	0

	Balance per 12/31/2013 (EUR)	**0.00**
Reference dates	**Description of the transaction**	**Transacted amount (EUR)**
7/7/2014	841918 FB reclaims	-1,537.00
7/7/2014	841918 FB interest	-10.00
7/10/2014	841918 FB redemption	1,537.00
7/10/2014	841918 FB interest	10.00
	Debited amount (EUR)	1,547.00
	Deposited amount (EUR)	1,547.00
	Balance per 12/31/2014 (EUR)	**0.00**

./11

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse
1090 Vienna

Phone +43(0)5 7755 - 0
Fax +43 (0) 5 7755 -97900
www.ffg.at, office@ffg.at
FN 252263a Comm. Court Vienna

Funding Contract

executed between the

Österreichische Forschungsförderungsgesellschaft mbH (FFG)

as Funding Agency

and

ARSANIS Biosciences GmbH
Helmut-Qualtinger-Gasse 2
1030 Vienna

Company Register No. 354305m

as Funding Recipient

§ 1 Funding grant

1.1 On the basis of the funding application "Development of human monoclonal antibody-based products against severe hospital-associated bacterial infections" received on 2/13/2014 via eCall, and based on the expert decision of the Advisory Board in the meeting of 3/19/2014, funding is granted for the following project:

Project number: **845382**
eCall number: **3905280**
Pre-project number: 841918
Project name (purpose of the agreement):
Development of human monoclonal antibody-based products against severe hospital-associated bacterial infections
Program: Base program

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§ 2 Project period

2.1 The overall project period shall begin on 5/13/2011 and end on 5/31/2015.

2.2 Funding of the entire project by the FFG depends on the results as demonstrated in the submitted reports, the continued fulfillment of the evaluation and decision criteria, the budget available to the Funding Agency and a new positive funding decision.

§ 3 Funding period

3.1 The funding period of this project shall begin on the approval date **2/1/2014** and end on **1/31/2015**.

§ 4 Type and amount of funding

4.1 Funding will be awarded in the following form over the funding period specified in § 3:

Type of funding	Maximum amount
Subsidy granted by the FFG	**EUR 1,624,400.00**
Loan granted by the FFG	**EUR 1,821,300.00**

Loan conditions

Interest rate	0.75% p.a. per current account
Redemption date:	6/30/2020
Redemption amount:	EUR 1,821,300.00
Interest and loan collection:	automatic debit procedure
Interest payment due:	semi-annually in arrears and/or upon maturity of the loan

4.2 The funded financing of the project is 70.0% of the verifiable and eligible project costs. The Funding Recipient shall finance the remaining project costs. Based on the plan data, the cash value of the funding is EUR 1,706,871.00, i.e. 34.7% related to the eligible project costs pursuant to Point 5.1.

4.3 The maximum funding cash value according to the applicable Community Framework for public R&D subsidies is 45.0%.

4.4 A decrease in the eligible project costs shall entail a prorated cutback of the funding.

4.5 The eligible project costs pursuant to § 5 and the costs reported by way of interim and/or final accounts shall not be considered approved until a review by the FFG. The final amount of the approved overall project costs as well as the funding shall be determined only after the completion of the project in the course of the final audit.

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§ 5 Eligible costs

5.1 The funding is based on following eligible project costs:

Personnel costs	EUR	1,189,600.00
Cost of use of R&D infrastructure	EUR	116,300.00
Cost of materials	EUR	440,000.00
Third-party costs	EUR	3,156,600.00
Travel costs	EUR	20,000.00
Total eligible costs	**EUR**	**4,922,500.00**

5.2 All costs attributable to the project which are incurred directly, actually and additionally to the normal operating expenses) for the duration of the funded research activities are eligible costs. Additional supplementary provisions regarding eligible costs may be found in the FFG Guidelines, the Guide Individual Project of Experimental Development and the “Guide for the Treatment of Project Costs in Funding Applications and Reports”.

5.3 Major changes to the cost structure shall require the prior written approval of the FFG.

5.4 The turnover tax payable on the costs of eligible services is not an eligible cost. However, it is considered an eligible cost component if it can be demonstrated that said turnover tax must be borne in actual fact and without recourse by the Funding Recipient, i.e. if it is not entitled to the input tax deduction. The refundable turnover tax—in whatever way—is not eligible even if it is not actually refunded to the Funding Recipient. If the tax office considers funds which are taxable under the Turnover Tax Act 1994, Federal Gazette No. 663 not as funding but as a contractual compensation for services provided by the Funding Recipient to the Funding Agency, and if the Funding Recipient owes turnover tax on such funds to the tax office, the contractual compensation shall be regarded as gross compensation. An additional, separate reimbursement of the turnover tax—for whatever legal reason—shall thus be excluded.

5.5 If the amortization period of an asset (Sec. 285 ABGB [*Allgemeines Bürgerliches Gesetzbuch* (Civil Code)]) purchased for the implementation of the project exceeds the funding period, the depreciation costs shall be eligible in the manner described in the Guide Individual Project of Experimental Development and the “Guide for the Treatment of Project Costs in Funding Applications and Reports”.

5.6 Funds provided by the Funding Agency may not be used for the creation of reserves or accruals under the Income Tax Act 1988, Federal Gazette No. 400. The funds may be used only for goods and services and for the purposes described in the funding application.

5.7 In case of new applications, the eligible costs incurred after receipt of the funding application may be approved. In case of follow-up applications, the earliest date for cost approval shall be the beginning of the funding period stated under § 3.

5.8 The costs of drawing up the agreement or the bank transfer expenses incurred by the Funding Recipient or its affiliates shall be borne by them and shall not be eligible costs.

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5.9 The Funding Agency reserves the right to postpone, cut back or suspend the disbursement of funding if and as long as circumstances prevail which might make it impossible to guarantee the proper execution of the promoted project (e.g. if the documentary evidence for costs is not adequate).

§ 6 Project-specific terms and conditions

6.1 Project-specific special terms and conditions

1. The travel costs were cut back overall.
2. Only costs for the new patent applications in the maximum amount of € 10,000 will be funded.

§ 7 Disbursement of the funds

7.1 The first installment in the amount of 50% of the promised funds will be disbursed after signature of the Funding Contract and fulfillment of the terms and conditions stipulated in § 6.

The second installment in the amount of 30% will be disbursed after the approval of an interim report and an interim statement in which 50% of the approved total costs must be documented, as well as after fulfillment of the terms and conditions stipulated in § 6.

The final installment in the amount of 20% of the total promised funds will be disbursed only after fulfillment of all terms and conditions (final account, final reports, etc.) and after the audit and approval of the statement of use (discharge) by the FFG.

7.2 The funds will be transferred to the following account of the Funding Recipient

Account holder: ARSANIS Biosciences GmbH
Name of the bank:
IBAN:
BIC/SWIFT:

§ 8 Reporting obligations

8.1 According to Point 3 of the General Funding Terms and Conditions, the Funding Recipient must inform the FFG about the execution of the promoted project by submitting technical reports (interim and final reports) and billing statements. The reports and billing statements must be submitted via eCall (https://ecall.ffg.at). The use of the forms to be found in eCall is mandatory. Other documents might have to be submitted at the request of the FFG.

§ 9 Amendments

9.1 Changes to this agreement may be made only explicitly and in writing. This shall apply also to any deviation from this requirement.

9.2 Under special circumstances changes to the stipulated terms and conditions may, if necessary, be made later by mutual agreement in the form of written addenda if special circumstances are present and after a new advisory board decision.

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§ 10 Legal liability

10.1 The Funding Recipient shall be unconditionally liable to the FFG for compliance with all contractual provisions. The Funding Recipient shall also be liable for the conduct of third parties for which it is responsible (e.g. owners, corporate officers, etc.). The Funding Recipient must hold the FFG harmless against third parties.

§ 11 Severability clause

11.1 In the event that be a provision of this Funding Contract is invalid, such event shall not affect the validity of the remaining provisions of the Funding Contract. The contractual partners undertake to replace an invalid provision by such provision as comes closest to the purpose of this Funding Contract.

§ 12 Applicable law

12.1 This agreement and all its attachments shall be governed by Austrian law to the exclusion of the reference norms of the Austrian IPRG.

§ 13 Legal venue

13.1 The legal venue agreed upon with regard to all legal disputes arising from the funding grant shall be the materially competent court in Vienna. The FFG reserves the right to take action against the Funding Recipient also at the latter's general legal venue.

§ 14 Integral parts of the contract

14.1 The following documents are an integral part of the Funding Contract:

- The funding application submitted via eCall ("Development of human monoclonal antibody-based products against severe hospital-associated bacterial infections") as amended on 2/13/2014
- General terms and conditions for Funding Contracts as amended (version 1 of 2013)
- Guide Individual Projects of Experimental Development, version 1.0
- Guide for the Treatment of Project Costs in Funding Applications and Reports for Projects with Funding Contracts according to the RTD Directives and the FFG Directives, version 1.3.

14.2 The legal bases of this Funding Contract are in particular:

- Implementation Act of the Österreichische Forschungsförderungsgesellschaft mbH (Research Promotion Structural Reform Act), as amended
- Guidelines of the Österreichische Forschungsförderungsgesellschaft mbH for promoting research, technology, development and innovation (FFG Guidelines GZ: BMVIT 609.986/0005-III/12/2008 and BMWA-98.310/0032-C1/10/2008)

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse
1090 Vienna

Phone +43(0)5 7755 - 0
Fax+43 (0) 5 7755 -97900
www.ffg.at, office@ffg.at
FN 252263a Comm. Court Vienna

The Funding Recipient confirms being aware of all contract components and accepts them unconditionally.

It is pointed out that this funding offer is considered revoked if the Funding Recipient does not sign it and return it to the FFG within 3 months.

For the Funding Agency:
Österreichische Forschungsförderungsgesellschaft mbH (FFG)

[stamp:] Austrian Research Promotion Agency

Vienna, on 3/24/2014

/s/ Dr. Henrietta Egeth-Stadlhuber
Dr. Henrietta Egerth-Stadlhuber
Director

/s/ Dr. Klaus Pseiner
Dr. Klaus Pseiner
Director

Funding Recipient

Vienna, on 4/3/2014

ARSANIS
Biosciences GmbH
MarxBox
Helmut-Qualtinger-Gasse 2
1030 Vienna

/s/ Estzer Nagy
(company name, please indicate name and position in block letters, company seal)
Dr. Eszter Nagy, Director

Attachments:
Guidelines for the Österreichische Forschungsförderungsgesellschaft mbH for promoting research, technology, development and innovation (FFG Guidelines) per link https://www.ffg.at/Allgemeine-Richtlinien
General terms and conditions for Funding Contracts as amended (version 1 of 2013)
Guide Individual Projects of Experimental Development, version 1.0
Guide for the Treatment of Project Costs in Funding Applications and Reports for Projects with Funding Contracts according to the RTD Directives and the FFG Directives, version 1.3.

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse
1090 Vienna

Phone +43(0)5 7755 - 0
Fax+43 (0) 5 7755 -97900
www.ffg.at, office@ffg.at
FN 252263a Comm. Court Vienna

ARSANIS Biosciences GmbH
Attn.: Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement per 12/31/2014

Project 845382
Development of human monoclonal antibody-based products against severe hospital-associated bacterial infections

Account no.:	18453820
Fiscal year:	2014
Redemption amount (EUR):	1,634,932.00
Date of redemption:	6/30/2020
Interest rate:	0.75%

	Balance per 12/31/2013 (EUR)	**0.00**
Reference dates	**Description of the transaction**	**Transacted amount (EUR)**
4/10/2014	845382 DA Installment 1 GP basis	-910,650.00
6/2/2014	845382 Int. 0.75% per 6/30/14	-1,541.00
6/30/2014	845382 Int. 0.75% per 6/30/14	1,541.00
12/1/2014	845382 Int. 0.75% per 12/31/14	-3,495.00
12/4/2014	845382 DA Installment 2 GP basis	-546,390.00
12/31/2014	845382 Int. 0.75% per 12/31/14	3,495.00
	Debited amount (EUR)	1,462,076.00
	Deposited amount (EUR)	5,036.00
	Balance per 12/31/2014 (EUR)	**-1,457,040.00**

./7

ARSANIS Biosciences GmbH
Attn.: Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement per 12/31/2015

Project 845382
Development of human monoclonal antibody-based products against severe hospital-associated bacterial infections

Account no.:	18453820
Fiscal year:	2015
Redemption amount (EUR):	1,634,932.00
Date of redemption:	6/30/2020
Interest rate:	0.75%

	Balance per 12/31/2014 (EUR)	**-1,457,040.00**
Reference dates	**Description of the transaction**	**Transacted amount (EUR)**
6/1/2015	845382 Int. 0.75% per 6/30/15	-5,498.00
6/30/2015	845382 Int. 0.75% per 6/30/15	5,498.00
8/20/2015	845382 DA Installment 3 GP basis	-177,892.00
	Debited amount (EUR)	**183,390.00**
	Deposited amount (EUR)	**5,498.00**
	Balance per 10/31/2015 (EUR)	**-1,634,932.00**

./8

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse
1090 Vienna

Phone +43(0)5 7755 - 0
Fax+43 (0) 5 7755 -97900
www.ffg.at, office@ffg.at
FN 252263a Comm. Court Vienna

Funding Contract

executed between the

Österreichische Forschungsförderungsgesellschaft mbH (FFG)

as Funding Agency

and

ARSANIS Biosciences GmbH
Helmut-Qualtinger-Gasse 2
1030 Vienna

Company Register No. 354305m

as Funding Recipient

§ 1 Funding grant

1.1 On the basis of the funding application "Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal diseases" received on 4/1/2014 via eCall, and based on the expert decision of the Advisory Board in the meeting of 5/15/2014, funding is granted for the following project:

Project number: **846178**
eCall number: **4721069**
Pre-project number: 840293
Project name (purpose of the agreement):
Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal diseases
Program: Base program

./2

§ 2 Project period

2.1 The overall project period shall begin on 2/1/2013 and end on 5/31/2017.

2.2 Funding of the entire project by the FFG depends on the results as demonstrated in the submitted reports, the continued fulfillment of the evaluation and decision criteria, the budget available to the Funding Agency and a new positive funding decision.

§ 3 Funding period

3.1 The funding period of this project shall begin on the approval date **4/1/2014** and end on **3/31/2015**.

§ 4 Type and amount of funding

4.1 Funding will be awarded in the following form over the funding period specified in § 3:

Type of funding	Maximum amount
Subsidy granted by the FFG	**EUR 753,100.00**
Loan granted by the FFG	**EUR 711,200.00**

Loan conditions

Interest rate	0.75% p.a. per current account
Redemption date:	6/30/2022
Redemption amount:	EUR 711,200.00
Interest and loan collection:	automatic debit procedure
Interest payment due:	semi-annually in arrears and/or upon maturity of the loan

4.2 The funded financing of the project is 70.0% of the verifiable and eligible project costs. The Funding Recipient shall finance the remaining project costs. Based on the plan data, the cash value of the funding is EUR 794,436.00, i.e. 38.0% related to the eligible project costs pursuant to Point 5.1.

4.3 The maximum funding cash value according to the applicable Community Framework for public R&D subsidies is 45.0%.

4.4 A decrease in the eligible project costs shall entail a prorated cutback of the funding.

4.5 The eligible project costs pursuant to § 5 and the costs reported by way of interim and/or final accounts shall not be considered approved until a review by the FFG. The final amount of the approved overall project costs as well as the funding shall be determined only after the completion of the project in the course of the final audit.

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§ 5 Eligible costs

5.1 The funding is based on following eligible project costs:

Personnel costs	EUR	812,400.00
Cost of use of R&D infrastructure	EUR	75,300.00
Cost of materials	EUR	480,000.00
Third-party costs	EUR	704,500.00
Travel costs	EUR	19,800.00
Total eligible costs	**EUR**	**2,092,000.00**

5.2 All costs attributable to the project which are incurred directly, actually and additionally (to the normal operating expenses) during the funding period pursuant to § 3 are eligible costs. Additional supplementary provisions regarding eligible costs may be found in the FFG Guidelines, the Guide for Individual Projects of Experimental Development and the "Guide for the Treatment of Project Costs in Funding Applications and Reports".

5.3 Major changes to the cost structure shall require the prior written approval of the FFG.

5.4 The turnover tax payable on the costs of eligible services is not an eligible cost. However, it is considered an eligible cost component if it can be demonstrated that said turnover tax must be borne in actual fact and without recourse by the Funding Recipient, i.e. if it is not entitled to the input tax deduction. The refundable turnover tax—in whatever way—is not eligible even if it is not actually refunded to the Funding Recipient. If the tax office considers funds which are taxable under the Turnover Tax Act 1994, Federal Gazette No. 663 not as funding but as a contractual compensation for services provided by the Funding Recipient to the Funding Agency, and if the Funding Recipient owes turnover tax on such funds to the tax office, the contractual compensation shall be regarded as gross compensation. An additional, separate reimbursement of the turnover tax—for whatever legal reason—shall thus be excluded.

5.5 If the amortization period of an asset (Sec. 285 ABGB [*Allgemeines Bürgerliches Gesetzbuch* (Civil Code)]) purchased for the implementation of the project exceeds the funding period, the depreciation costs shall be eligible in the manner described in the Guide for Individual Projects of Experimental Development and the "Guide for the Treatment of Project Costs in Funding Applications and Reports".

5.6 Funds provided by the Funding Agency may not be used for the creation of reserves or accruals under the Income Tax Act 1988, Federal Gazette No. 400. The funds may be used only for goods and services and for the purposes described in the funding application.

5.7 In case of new applications, the eligible costs incurred after receipt of the funding application may be approved. In case of follow-up applications, the earliest date for cost approval shall be the beginning of the funding period stated under § 3.

5.8 The costs of drawing up the agreement or the bank transfer expenses incurred by the Funding Recipient or its affiliates shall be borne by them and shall not be eligible costs.

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5.9 The Funding Agency reserves the right to postpone, cut back or suspend the disbursement of funding if and as long as circumstances prevail which might make it impossible to guarantee the proper execution of the promoted project (e.g. if the documentary evidence for costs is not adequate).

§ 6 Project-specific terms and conditions

6.1 Project-specific special terms and conditions

1. Acquisition costs for R&D infrastructure shall only be eligible if it was purchased during the funding period of the overall project. R&D infrastructure purchased outside of the funding period shall be billed at the machine hour rate. Additional R&D infrastructure costs shall be billed as overhead costs via the personnel cost surcharge. The final determination and attribution will be made in the context of the FFG audit.
2. The patent costs have been cut back overall. Only costs for first patent applications shall be funded.

§ 7 Disbursement of the funds

7.1 The first installment in the amount of 50% of the promised funds will be disbursed after signature of the Funding Contract and fulfillment of the terms and conditions stipulated in § 6.

The second installment in the amount of 30% will be disbursed after the approval of an interim report and an interim statement in which 50% of the approved total costs must be documented, as well as after fulfillment of the terms and conditions stipulated in § 6.

The final installment in the amount of 20% of the total promised funds will be disbursed only after fulfillment of all terms and conditions (final account, final reports, etc.) and after the audit and approval of the statement of use (discharge) by the FFG.

7.2 The funds will be transferred to the following account of the Funding Recipient

Account holder: ARSANIS Biosciences GmbH
Name of the bank:
IBAN:
BIC/SWIFT:

§ 8 Reporting obligations

8.1 According to Point 3 of the General Funding Terms and Conditions, the Funding Recipient must inform the FFG about the execution of the promoted project by submitting technical reports (interim and final reports) and billing statements. The reports and billing statements must be submitted via eCall (https://ecall.ffg.at). The use of the forms to be found in eCall is mandatory. Other documents might have to be submitted at the request of the FFG.

§ 9 Amendments

9.1 Changes to this agreement may be made only explicitly and in writing. This shall apply also to any deviation from this requirement.

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9.2 Under special circumstances changes to the stipulated terms and conditions may, if necessary, be made later by mutual agreement in the form of written addenda if special circumstances are present and after a new advisory board decision.

§ 10 Legal liability

10.1 The Funding Recipient shall be unconditionally liable to the FFG for compliance with all contractual provisions. The Funding Recipient shall also be liable for the conduct of third parties for which it is responsible (e.g. owners, corporate officers, etc.). The Funding Recipient must hold the FFG harmless against third parties.

§ 11 Severability clause

11.1 In the event that be a provision of this Funding Contract is invalid, such event shall not affect the validity of the remaining provisions of the Funding Contract. The contractual partners undertake to replace an invalid provision by such provision as comes closest to the purpose of this Funding Contract.

§ 12 Applicable law

12.1 This agreement and all its attachments shall be governed by Austrian law to the exclusion of the reference norms of the Austrian IPRG.

§ 13 Legal venue

13.1 The legal venue agreed upon with regard to all legal disputes arising from the funding grant shall be the materially competent court in Vienna. The FFG reserves the right to take action against the Funding Recipient also at the latter's general legal venue.

§ 14 Integral parts of the contract

14.1 The following documents are an integral part of the Funding Contract:

- The funding application submitted via eCall ("Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal diseases") as amended on 4/1/2014
- General terms and conditions for Funding Contracts as amended (version 1 of 2013)
- Guide for Individual Projects of Experimental Development, version 1.0
- Guide for the Treatment of Project Costs in Funding Applications and Reports for Projects with Funding Contracts according to the RTD Directives and the FFG Directives, version 1.4.

14.2 The legal bases of this Funding Contract are in particular:

- Implementation Act of the Österreichische Forschungsförderungsgesellschaft mbH (Research Promotion Structural Reform Act), as amended
- Guidelines of the Österreichische Forschungsförderungsgesellschaft mbH for promoting research, technology, development and innovation (FFG Guidelines GZ: BMVIT 609.986/0005-III/12/2008 and BMWA-98.310/0032-C1/10/2008)

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The Funding Recipient confirms being aware of all contract components and accepts them unconditionally.

It is pointed out that this funding offer is considered revoked if the Funding Recipient does not sign it and return it to the FFG within 3 months.

For the Funding Agency:
Österreichische Forschungsförderungsgesellschaft mbH (FFG)

[stamp:] Austrian Research Promotion Agency

Vienna, on 5/20/2014

/s/ Dr. Henrietta Egeth-Stadlhuber
Dr. Henrietta Egerth-Stadlhuber
Director

/s/ Dr. Klaus Pseiner
Dr. Klaus Pseiner
Director

Funding Recipient

Vienna, on 6/9/2014

ARSANIS
Biosciences GmbH
MarxBox
Helmut-Qualtinger-Gasse 2
1030 Vienna

/s/ Dr. Estzer Nagy
Dr. Eszter Nagy, Director
(company name, please indicate name and position in block letters, company seal)

Attachments:
Guidelines for the Österreichische Forschungsförderungsgesellschaft mbH for promoting research, technology, development and innovation (FFG Guidelines) per link https://www.ffg.at/Allgemeine-Richtlinien
General terms and conditions for Funding Contracts as amended (version 1 of 2013)
Guide for Individual Projects of Experimental Development, version 1.0
Guide for the Treatment of Project Costs in Funding Applications and Reports for Projects with Funding Contracts according to the RTD Directives and the FFG Directives, version 1.4.

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ARSANIS Biosciences GmbH
Attn.: Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement per 12/31/2014

Project 846178
Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal diseases

Account no.:	18461780
Fiscal year:	2014
Redemption amount (EUR):	627,712.00
Date of redemption:	6/30/2022
Interest rate:	0.75%

	Balance per 12/31/2013 (EUR)	**0.00**
Reference dates	**Description of the transaction**	**Transacted amount (EUR)**
7/17/2014	846178 DA Installment 1 GP basis	-355,600.00
12/1/2014	846178 Int. 0.75% per 12/31/14	-1,241.00
12/31/2014	846178 Int. 0.75% per 12/31/14	1,241.00
	Debited amount (EUR)	356,841.00
	Deposited amount (EUR)	1,241.00
	Balance per 12/31/2014 (EUR)	**-355,600.00**

./8

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse
1090 Vienna

Phone +43(0)5 7755 - 0
Fax+43 (0) 5 7755 -97900
www.ffg.at, office@ffg.at
FN 252263a Comm. Court Vienna

ARSANIS Biosciences GmbH
Attn.: Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement per 10/31/2015

Project 846178
Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal diseases

Account no.:	18461780
Fiscal year:	2015
Redemption amount (EUR):	627,712.00
Date of redemption:	6/30/2022
Interest rate:	0.75%

	Balance per 12/31/2014 (EUR)	**-355,600.00**
Reference dates	**Description of the transaction**	**Transacted amount (EUR)**
1/29/2015	846178 DA Installment 2 GP basis	-213,360.00
1/6/2015	846178 Int. 0.75% per 6/30/15	-2,021.00
6/30/2015	846178 Int. 0.75% per 6/30/15	2,021.00
07/23/2015	846178 DA Rate 3 BP-Basis	-58,752.00
	Debited amount (EUR)	274,133.00
	Deposited amount (EUR)	2,021.00
	Balance per 10/31/2015 (EUR)	**-627,712.00**

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse
1090 Vienna

Phone +43(0)5 7755 - 0
Fax+43 (0) 5 7755 -97900
www.ffg.at, office@ffg.at
FN 252263a Comm. Court Vienna

Funding Contract

executed between the

Österreichische Forschungsförderungsgesellschaft mbH (FFG)

as Funding Agency

and

ARSANIS Biosciences GmbH
Helmut-Qualtinger-Gasse 2
1030 Vienna

Company Register No. 354305m

as Funding Recipient.

§ 1 Funding grant

1.1 On the basis of the funding application "Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal diseases" received on 5/7/2015 via eCall, and based on the expert decision of the Advisory Board in the meeting of 7/1/2015, funding is granted for the following project:

Project number: **851485**
eCall number: **5795972**
Pre-project number: 846178
Project name (purpose of the agreement):
Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal diseases
Program: Base program

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§ 2 Project period

2.1 The overall project period shall begin on 2/1/2013 and end on 5/31/2017.

2.2 Funding of the entire project by the FFG depends on the results as demonstrated in the submitted reports, the continued fulfillment of the evaluation and decision criteria, the budget available to the Funding Agency and a new positive funding decision.

§ 3 Funding period

3.1 The funding period of this project shall begin on the approval date **5/1/2015** and end on **4/30/2016**.

§ 4 Type and amount of funding

4.1 Funding will be awarded in the following form over the funding period specified in § 3:

Type of funding	Maximum amount
Subsidy granted by the FFG	**EUR 708,200.00**
Loan granted by the FFG	**EUR 794,000.00**

Loan conditions

Interest rate	0.75% p.a. per current account
Redemption date:	6/30/2022
Redemption amount:	EUR 794,000.00
Interest and loan collection:	automatic debit procedure
Interest payment due:	semi-annually in arrears and/or upon maturity of the loan

4.2 The funded financing of the project is 70.0% of the verifiable and eligible project costs. The Funding Recipient shall finance the remaining project costs. Based on the plan data, the cash value of the funding is EUR 833,687.00, i.e. 38.8% related to the eligible project costs pursuant to Point 5.1.

4.3 The maximum funding cash value according to the applicable Community Framework for public subsidies funding research, development and innovation is 45.0%.

4.4 A decrease in the eligible project costs shall entail a prorated cutback of the funding.

4.5 The eligible project costs pursuant to § 5 and the costs reported by way of interim and/or final accounts shall not be considered approved until a review by the FFG. The final amount of the approved overall project costs as well as the funding shall be determined only after the completion of the project in the course of the final audit.

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§ 5 Eligible costs

5.1 The funding is based on following eligible project costs:

Personnel costs	EUR	804,500.00
Cost of materials	EUR	656,200.00
Third-party costs	EUR	660,700.00
Travel costs	EUR	24,800.00
Total eligible costs	**EUR**	**2,146,200.00**

5.2 All costs attributable to the project which are incurred directly, actually and additionally (to the normal operating expenses) during the funding period pursuant to § 3 are eligible costs. Additional supplementary provisions regarding eligible costs may be found in the FFG Guidelines "KMU", the Cost Guidelines and Guide for Individual Projects of Experimental Development (in each case in the version mentioned under 14.1).

5.3 Major changes to the cost structure shall require the prior written approval of the FFG.

5.4 The turnover tax payable on the costs of eligible goods and services is not an eligible cost. However, it is considered an eligible cost component if said turnover tax must be borne verifiably in actual fact and without recourse by the Funding Recipient, i.e. if it is not entitled to the input tax deduction.

Any funds granted by the Funding Agency is a genuine subsidy not subject to the turnover tax because no exchange of services takes place and there is a public interest in the execution of the research project.

The funding amount is a gross amount. Any additional, separate refund of fees and taxes by the FFG – for whatever legal reason – shall be excluded.

The interest on the loan/the fee for assuming a liability is exempted from the turnover tax pursuant to § 6 para. 1 line 8 UStG [*Umsatzsteuergesetz* (Turnover Tax Act)].

5.5 If the amortization period of an asset (Sec. 285 ABGB [*Allgemeines Bürgerliches Gesetzbuch* (Civil Code)]) purchased for the implementation of the project exceeds the funding period, the depreciation costs shall be eligible in the manner described in the Guide for Individual Projects of Experimental Development and the Cost Guidelines (in each case in the version mentioned under 14.1).

5.6 Funds provided by the Funding Agency may not be used for the creation of reserves or accruals under the Income Tax Act 1988, Federal Gazette No. 400/1988. The funds may be used only for goods and services and for the purposes described in the funding application.

5.7 The costs of drawing up the agreement or the bank transfer expenses incurred by the Funding Recipient or its affiliates shall be borne by them and shall not be eligible costs.

5.8 The Funding Agency reserves the right to postpone, cut back or suspend the disbursement of funding if and as long as circumstances prevail which might make it impossible to guarantee the proper execution of the promoted project (e.g. if the documentary evidence for costs is not adequate).

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5.9 The funds made available by the FFG for paying the costs and expenses directly incurred in the promotion of science and research are taken from public funds and are tax-free pursuant to Sec. 3 para. 1 line 3 lit c) EStG [*Einkommensteuergesetz* (Income Tax Act)] in conj. with Sec. 3 para. 4 line 3 EStG.

§ 6 Terms and conditions

6.1 Project-specific special terms and conditions

1. The costs of Mrs. Nagy were reduced to 400h.
2. A complete resources summary of the involved project workers for all current FFG projects must be submitted in the course of the project close-out.
3. The funding shall be tied to the continued existence of the development location including the personal and the IP rights until at least 5/31/2020.

6.2 The original signed Funding Contract must be returned to the Funding Agency at the latest 4 weeks after receipt.

6.3 With the signing of this Funding Contract the Funding Recipient undertakes to inform the Funding Agency all applied for and/or approved public grants directly or indirectly concerning the project at the latest in the course of the planned reports.

§ 7 Disbursement of the funds

7.1 The first installment in the amount of 50% of the promised funds will be disbursed after signature of the Funding Contract and fulfillment of the terms and conditions stipulated in § 6.

The second installment in the amount of 30% will be disbursed after the approval of an interim report in which 50% of the approved total costs must be documented, as well as after fulfillment of the terms and conditions stipulated in § 6.

The final installment in the amount of 20% of the total promised funds will be disbursed only after fulfillment of all terms and conditions (final account, final reports, etc.) and after the audit and approval of the statement of use (discharge) by the FFG.

7.2 The funds will be transferred to the following account of the Funding Recipient

Account holder: ARSANIS Biosciences GmbH

Name of the bank:

IBAN:

BIC/SWIFT:

§ 8 Reporting obligations

8.1 According to Point 3 of the General Funding Terms and Conditions, the Funding Recipient must inform the FFG about the execution of the promoted project by submitting technical reports (interim and final reports) and billing statements. The reports and billing statements must be submitted via eCall (https://ecall.ffg.at). The use of the forms to be found in eCall is mandatory. Other documents might have to be submitted at the request of the FFG.

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8.2 In case of the promotion of prototypes, the Funding Recipient must inform the FFG about the whereabouts and/or the further use of the prototypes.

§ 9 Amendments

9.1 Changes to this agreement may be made only explicitly and in writing. This shall apply also to any deviation from this requirement.

9.2 Under special circumstances changes to the stipulated terms and conditions may, if necessary, be made later by mutual agreement in the form of written addenda if special circumstances are present and after a new advisory board decision.

§ 10 Legal liability

10.1 The Funding Recipient shall be unconditionally liable to the FFG for compliance with all contractual provisions. The Funding Recipient shall also be liable for the conduct of third parties for which it is responsible (e.g. owners, corporate officers, etc.). The Funding Recipient must hold the FFG harmless against third parties.

§ 11 Severability clause

11.1 In the event that be a provision of this Funding Contract is invalid, such event shall not affect the validity of the remaining provisions of the Funding Contract. The contractual partners undertake to replace an invalid provision by such provision as comes closest to the purpose of this Funding Contract.

§ 12 Applicable law

12.1 This agreement and all its attachments shall be governed by Austrian law to the exclusion of the reference norms of the Austrian IPRG.

§ 13 Legal venue

13.1 The legal venue agreed upon with regard to all legal disputes arising from the funding grant shall be the materially competent court in Vienna. The FFG reserves the right to take action against the Funding Recipient also at the latter's general legal venue.

§ 14 Integral parts of the contract

14.1 The following documents are an integral part of the Funding Contract:

- The funding application submitted via eCall ("Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal diseases") as amended on 5/7/2015
- General terms and conditions for Funding Contracts as amended (version 2015)
- Guide for Individual Projects of Experimental Development, version 3.0
- Guide Guidelines, version 2.0

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14.2 The legal bases of this Funding Contract are in particular:

- Implementation Act of the Österreichische Forschungsförderungsgesellschaft mbH (Research Promotion Structural Reform Act), as amended
- Community Framework for Public Subsidies Promoting Research, Development and Innovation (Federal Gazette C 198 of 6/27/2014)
- Regulation (EU) Nr.651/2014 of the Commission of June 17, 2014 for determining the compatibility of certain groups of subsidies with the domestic market in application of Articles 107 and 108 of the Treaty regarding the functioning of the European Union (TFEU 2014)
- Guidelines for the Österreichische Forschungsförderungsgesellschaft mbH for the promotion of applied research, development and innovation (FFG Guidelines “KMU” GZ: BMVIT 609.986/0012-III/12/2014 and BMWFW-98. 310/0102-C1/10/2014)—These Guidelines were filed for exemption with the European Commission on the basis of the TFEU 2014.

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Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse
1090 Vienna

Phone +43 (0)5 7755 - 0
Fax+43 (0) 5 7755 -97900
www.ffg.at, office@ffg.at
FN 252263a Comm. Court Vienna

The Funding Recipient confirms being aware of all contract components and accepts them unconditionally, taking also note of the fact that non-compliance with the specified contractual provisions may lead to the granted funds being reclaimed.

Die Funding Recipient confirms that no open reclaim order by the European Commission exists and that rescission, if any, of an incompatible funding is completed.

The Funding Recipient agrees that the data enumerated pursuant to Art. 9 para. 1 TFEU (Regulation EU No. 651/2014) Annex III will be used for publishing information if the cash value of the funding exceeds € 500,000.00 (gross subsidy equivalent).

For the Funding Agency:

Österreichische Forschungsförderungsgesellschaft mbH (FFG)

[stamp:] Austrian Research Promotion Agency

Vienna, on 7/8//2015

/s/ Dr. Henrietta Egeth-Stadlhuber
Dr. Henrietta Egerth-Stadlhuber
Director

/s/ Dr. Klaus Pseiner
Dr. Klaus Pseiner
Director

Funding Recipient

Vienna, on 7/20/2015

ARSANIS
Biosciences GmbH
MarxBox
Helmut-Qualtinger-Gasse 2
1030 Vienna

/s/ Dr. Estzer Nagy
(company name, please indicate name and position in block letters, company seal)

Dr. Eszter Nagy, Director

Attachments:
Guidelines for the Österreichische Forschungsförderungsgesellschaft mbH for promoting applied research, development and innovation (FFG Guidelines "KMU")
per link https://www.ffg.at/recht-finanzen/rechtsgrundlagen
General terms and conditions for Funding Contracts as amended (version 2015)
Guide for Individual Projects of Experimental Development, version 3.0
Cost Guidelines, version 2.0

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse
1090 Vienna

Phone +43 (0)5 7755 - 0
Fax+43 (0) 5 7755 -97900
www.ffg.at, office@ffg.at
FN 252263a Comm. Court Vienna

ARSANIS Biosciences GmbH
Attn.: Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement per 10/31/2015

Project 851485

Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal diseases

Account no.:	18514850
Fiscal year:	2015
Redemption amount (EUR):	397,000.00
Date of redemption:	6/30/2022
Interest rate:	0.75%

	Balance per 12/31/2014 (EUR)	**0.00**
Reference dates	**Description of the transaction**	**Transacted amount (EUR)**
7/23/2015	851485 DA Installment 1 GP basis	-397,000.00
	Debited amount (EUR)	397,000.00
	Deposited amount (EUR)	0.00
	Balance per 10/31/2015 (EUR)	**-397,000.00**

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Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse
1090 Vienna

Phone +43 (0)5 7755 - 0
Fax+43 (0) 5 7755 -97900
www.ffg.at, office@ffg.at
FN 252263a Comm. Court Vienna

Project no. 850226/30000 TICK/SAI

Funding contract

agreed between

Österreichische Forschungsförderungsgesellschaft mbH (FFG)

as funding donor
and

ARSANIS Biosciences GmbH
Helmut-Qualtinger-Gasse 2
1030 Vienna

Company register number 354305m

as funding recipient.

1 Awarding of the funding

1.1 Based on the funding application "KLIPHA: GMP manufacturing and Phase 1 testing of 2 human monoclonal antibodies against S. aureus infections" submitted via eCall on 2/2/2015 and based on the professional decision of the advisory board during the session of 5/13/2015, a funding for the following project is awarded

Project number: **850226**
eCall number: **5492068**
Project name (subject of the agreement):
KLIPHA: GMP manufacturing and Phase 1 testing of 2 human monoclonal antibodies against S. aureus infections.
Program: Basic program

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2 Project duration

2.1 The overall project duration begins on 2/2/2015 and ends on 1/31/2017.

2.2 The granting of the entire project by the FFG is dependent on the results of the submitted reports, the continued fulfillment of the evaluation and decision criteria, the budget available to the grant donor, as well as a renewed positive funding decision.

3 Funding period

3.1 The objective funding period of the project begins on **2/2/2015** as acceptance deadline and ends on **1/31/2017**

4 Type and level of funding

4.1 The funding is provided in the following form for the funding period specified in section 3:

Funding form	Amount up to max.
FFG loan	**EUR1,500,000.00**

Loan conditions

Interest rate	0.75% p.a. on current account basis
Repayment date:	on 3/31/2022
Repayment amount:	EUR 1,500,000.00
Interest and loan collection	in direct debit
Interest stipulation:	half-yearly in retrospect or on loan maturity

4.2 The funding quota of the project amounts to 50.0% of the demonstrable and eligible project costs. The remaining funding of the project costs is the responsibility of the funding recipient. Based on the planning data, the funding cash value amounts to EUR 237,065.00, that is 7.9% related to the eligible costs according to point 5.1.

4.3 The maximum aid intensity according to the current Union state aid framework for the funding of research, development and innovation amounts to 45.0%.

4.4 The consequence of the shortfall of the eligible project costs is an aliquot reduction of the funding.

4.5 The eligible project costs according to section 5 as well the costs reported through interim and final settlements do not represent any cost acknowledgment before an assessment by the FFG. The final amount of the eligible total project costs as well as the funding are determined only after completion of the project during invoice verification.

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5 Eligible costs

5.1 The funding is subject to the following eligible project costs:

Personnel costs	EUR	292,600.00
General and material costs	EUR	21,800.00
Third-party services	EUR	2,683,900.00
Travel expenses	EUR	1,700.00
Total eligible costs	**EUR**	**3,000,000.00**

5.2 Eligible costs are all those costs attributable to the project that result directly, actually and additionally from the usual operating costs for the duration of the funded research activity according to Article 3. Additional supplementary provisions to the eligible costs can arise from the FFG "KMU" guidelines, the cost guidelines and the Single Project Experimental Development guidelines (each in the version specified under 14.1).

5.3 Substantial changes to the cost structure require the prior written approval of the FFG.

5.4 The sales tax levied on the costs of the service is not eligible. In so far as this sales tax demonstrably and finally is to be borne by the funding recipient and consequently no pre-tax deduction is applicable for him/her, it is taken into account as an eligible cost component.

Funding by the funding donor constitutes a real grant that is not subject to sales tax, since no exchange of services takes place, but there is public interest in carrying out the research project.

The funding amount is a gross amount. An additional separate sales tax settlement is - for whatever legal reason - excluded.

The loan interest/guarantee commissions are exempt from sales tax according to Article 6 para. 1 line 8 UStG (Umsatzsteuergesetz) [sales tax law]

5.5 If the amortization period of an item (section 285 ABGB) purchased to carry out the project exceeds the funding period, the depreciation costs are eligible in the manner specified according to the Single Project Experimental Development guidelines and in the cost guidelines (each in the version specified under 14.1).

5.6 The funding means of the funding donor must not be used for the creation of reserves and provisions according to BGBI no. 400/1998 of the income tax law. The funding means must be used only for the services and objectives set out in the funding request.

5.7 The costs incurred by the funding recipient or his/her partners from preparation of the contract, or any transfer charges, must be borne by these parties and do not constitute eligible costs.

5.8 The funding donor reserves the right to defer, reduce or suspend payment of funding, if and as long as circumstances are such that the orderly execution of the sponsored project appears not to be guaranteed (e.g. the cost justification is not provided as planned).

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6 Conditions and requirements

6.1 Project-specific special conditions and requirements

1. Before payment of the 1st, a “safety assessment of the mAK” must be submitted.
2. Before payment of the 1st, a vote of approval from the Ethics Committee must be provided.
3. The maximum eligible costs within the framework of KLIPHA amount 3 million. The third party costs were therefore correspondingly reduced.
4. For the GMP material, a unique usage certificate for the current KLIPHA project “ASN100 Phase 1 Study” must be created.

6.2 The originally signed funding contract must be returned to the funding donor no later than 4 weeks after receipt.

6.3 By signing this funding contract, the funding recipient confirms that he/she—at the latest in the course of the planned reports—is aware of all requested and/or approved official subsidies that directly or indirectly concern the project.

7 Payment of the funding

7.1 The specified funding is transferred in accordance with the following **payment plan**:

On contract completion:	€750,000.00
after presentation and approval of the interim report and interim settlement on the deadline 3/31/2016	€450,000.00

Payment of the final installment in the amount of €300,000.00 follows after fulfillment of all conditions and requirements (final settlement, final reports, etc.) and after inspection and approval of the usage certificate (relief) by the FFG.

7.2 The transfer is made to the following account of the funding recipient

Account owner: ARSANIS Biosciences GmbH
Bank name:
IBAN:
BIC/SWIFT:

8 Reporting obligations

8.1 The funding recipient must report the implementation of the funded project by submitting technical reports (interim and final reports) and settlements to the FFG according to point 3 of the General Funding Conditions. Reporting and accounting must take place via eCall (https://ecall.ffg.at). Use of the forms defined in eCall is mandatory. Further documents must be made available to the FFG on request.

8.2 With a funding of prototypes, the funding recipient must report any retention or further use of the prototype(s) to the FFG.

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9 Contract changes

9.1 Changes to the current contract can be only made in written form. This applies also to a departure from this provision.

9.2 If necessary, subsequent changes to the agreed conditions and requirements can be made under special circumstances by mutual agreement in the form of written additional agreements, after reconsideration by the advisory board.

10 Liability

10.1 The funding recipient must be liable without limit to the FFG for adherence to all contractual conditions. The funding recipient is also liable for the behavior of third parties for whom he/she is responsible (e.g. owners, corporate bodies, etc.). The funding recipient indemnifies and holds the FFG harmless against the claims of third parties.

11 Severability clause

11.1 If a provision of this funding contract proves ineffective, the effectiveness of the remaining provisions of the funding contract are not affected. The contracting parties undertake to replace an ineffective provision by a provision that comes closest to the purpose of the contract.

12 Applicable law

12.1 This contract and all its annexes are subject to Austrian law excluding the reference provisions of the Austrian IPRG [International Private Law Act].

13 Jurisdiction

13.1 The competent court in Vienna has jurisdiction in all litigation arising from the granting of funds. The FFG also retains the right to sue the funding recipient in his/her general jurisdiction.

14 Contract components

14.1 The following documents are the integral elements of the funding contract:

- the funding request (“KLIPHA: GMP manufacturing and Phase 1 testing of 2 human monoclonal antibodies against S. aureus infections.”) in the version of 5/5/2015 submitted via eCall
- General funding conditions for funding contracts in the current version (2015)
- Guidelines for Single Project Experimental Development, Version 3.0
- Cost guidelines, Version 2.0

14.2 The following are regarded as the legal basis of this funding contract:

- Österreichische Forschungsförderungsgesellschaft mbH establishment act (research funding, structure reform act) in the currently applicable version

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- Union state aid framework for the funding of research, development and innovation (ABI. C 198 of 6/27/2014)
- (EU) Commission Implementing Regulation no. 651/2014 of June 17, 2014 declaring the compatibility of certain categories of aid with the internal market in application of Articles 107 and 108 of the contract on the operation of the European Union (AGVO 2014)
- Guideline for the Österreichische Forschungsförderungsgesellschaft mbH for the funding of applied research, development and innovation (FFG guideline "KMU" GZ: BMVIT- 609.986/0012- 111/12/2014 und BMWFW-98.310/0102-C1/10/2014)—This guideline was registered for release with the European Commission on the basis of AGVO 2014.

The funding recipient confirms his/her awareness of all contract components and accepts them without reservation and takes note that non-compliance with the specified contract requirements may lead to the funding being recovered.

The funding recipient confirms that no recovery order of the European Commission is currently outstanding and any withdrawal of the incompatible funding is excluded.

The funding recipient agrees that the data listed according to Article 9 para. 1 AGVO (VO EU no. 651/2014) annex III is used for the publication of information, as long as the cash value of the funding (gross grant-equivalent) exceeds €500,000.00.

For the funding donor:
Österreichische Forschungsförderungsgesellschaft mbH (FFG)

[seal:]
Austrian Research Promotion Agency mbH (FFG)

Vienna, on 7/6/2015

/s/ Dr. Henriette Egerth-Stadlhuber
Dr. Henrietta Egerth-Stadlhuber
Managing Director

/s/ Dr. Klaus Pseiner
Dr. Klaus Pseiner
Managing Director

Funding recipient

Vienna, on 7/20/2015

/s/ Dr. Eszter Nagy
Dr. Eszter Nagy
Managing Director

ARSANIS
Biosciences GmbH
MarxBox
Helmut-Qualtinger-Gasse 2
1030 Vienna

(Add company signature, name and position in block letters, company stamp)

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Attachments:

Guideline for the Österreichische Forschungsförderungsgesellschaft mbH for the funding of applied research, development and innovation (FFG guideline "KMU")
as per https://www.ffg.at/recht-finanzen/rechtsgrundlagen
General funding conditions for funding contracts in the current version (2015)
Guidelines for Single Project Experimental Development, Version 3.0
Cost guidelines, Version 2.0

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Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Phone +43(0)5 7755 -0
Fax+43 (0) 5 7755 -97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

ARSANIS Biosciences GmbH
Attention Dr. Eszter Nagy
Helmut-Qualtinger-Gasse 2
1030 Vienna

Account statement of 11/12/2015

Project 850226

KLIPHA: GMP manufacturing and Phase 1 testing of 2 human monoclonal antibodies against S. aureus infections.

Account no.:	18502260
Financial year:	2015
Redemption amount (EUR):	750,000.00
Repayment date:	3/31/2022
Interest rate:	0.75%

	Balance on 12/31/2014 (EUR)	0.00
Document date	**Posting text**	**Transaction amount (EUR)**
11.12.2015	850226 DA rate 1 BP basis	-750.000,00
	Total debits (EUR)	750,000.00
	Total credits (EUR)	0.00
	Balance on 11/12/2015 (EUR)	750,000.00

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Phone +43 (0)5 7755-0
Fax+43 (0)5 7755-97900
www.ffg.at, office@ffg.at
FN 252263a HG Vienna

Project number 856836 /30000 MAB/SAH

Funding Agreement

between

Österreichischen Forschungsförderungsgesellschaft mbH (FFG)

as the funding agency

and

ARSANIS Biosciences GmbH
Helmut-Qualtinger-Gasse 2
1030 Vienna

Co. Reg. 354305m

as the funding recipient.

Section 1 Award of Funding

1.1 Based on the research proposal "Development of antibody-based therapeutics for the treatment of life-threatening pneumococcal disease" submitted via eCall on 05/12/2016, and based on the expert decision of the Advisory council meeting on 06/27/2016. a grant is being made for the following project:

Project number:	**856836**
eCall number:	**7848218**
Previous project number:	851485
Project name (The subject of the agreement):	
	Development of antibody-based therapeutics for the treatment of life threatening pneumococcal disease
Program:	Basic program

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Section 2 Project Duration

2.1 The total project duration is from 02/01/2013 until 04/30/2017.

2.2 The grant for the entire project from FFG depends on visible results from submitted reports, continued compliance with the evaluation and decision-making criteria, also on the budget available to the granting body, and on a further positive funding decision.

Section 3 Funding Period

3.1 The current funding period of the project starts on **05/01/2016** as the date of award and ends on **04/30/2017**.

Section 4 Type and Amount of Funding

4.1 The funding will be provided in the following form for the funding period referred to in Section 3:

Type of funding	Amount up to max.
Subsidy from FFG	**EUR 550,900.00**
Loan from FFG	**EUR 432,900.00**

Terms of Loan

Interest rate	0.75% p.a. on current balance
Repayment date:	03/31/2020
Amount to be repaid:	EUR 432,900.00
Collection of Interest and Principal:	by Direct Debit
Interest Calculation:	every six months in arrears, or when loan falls due

4.2 The grant percentage of the project is 50.0% of the project costs that qualify and can be demonstrated. The financing of the remainder of the costs of the project must be provided by the grant recipient. On the basis of the information in the budget, the cash value of the grant is EUR 585,219.00, which is 29.7% in relation to the project costs that qualify under item 5.1.

4.3 The EU framework currently allows a level of subsidy by the state for Research, Development and Innovation of 45.0%.

4.4 Any reduction in expenditure on qualifying project costs will lead to a pro rata reduction in the subsidy.

4.5 The statement of the qualifying project costs under Section 5, as well as any interim or final report of costs do not imply, prior to checking by the FFG, any acceptance of the costs. The final level of the total qualifying project costs and of the grant will only be determined after the conclusion of the project as part of the review of the accounts.

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Section 5 Qualifying Costs

5.1 The grant is based on the following qualifying project costs:

Staff costs	EUR	922,316.00
Cost of materials and overheads	EUR	662,500.00
Third-party services	EUR	357,600.00
Travel expenses	EUR	25,375.00
Total qualifying costs	**EUR**	**1,967,791.00**

5.2 Qualifying costs are all the costs that are attributable to the project that arise directly, in fact and additionally (to the normal operating expenses) during the grant period defined in Section 3. Other supplementary provisions relating to the qualifying costs can be found in the FFG Directive “KMU”, the Cost Guidelines and the Guidelines for Individual Projects for Experimental Development (each in the version referred in 14.1).

5.3 Any significant modifications to the cost structure are subject to the prior written approval of FFG.

5.4 The VAT charged on the qualifying services cannot be funded. However, if this VAT can be shown to be actually paid as the final consumer by the grant recipient, meaning that they are not entitled to deduct any input tax, then it will be treated as a qualifying cost element.

The grant provided by the Funding Body is a genuine subsidy, not subject to VAT, as there is no exchange of goods or services, but instead a public interest in carrying out the activity of the research.

The grant value is a gross amount. No additional, separate payments of any costs and taxes by FFG are permitted - for any reason whatsoever.

The interest payable on the loan / the liability guarantee are subject to an exemption from VAT as per Section 6 para. 1 item 8 UStG (*Umsatzsteuergesetz* [Value Added Tax Act]).

5.5 If the term for amortization (under Section 285 ABGB (*Allgemeines Bürgerliches Gesetzbuch* [General Civil Code])) of an item that is acquired for the project exceeds the period of the grant, the depreciation costs qualify as per the Guidelines for Individual Projects for Experimental Development and the Cost Guidelines (each in the version listed under 14.1) for grants in the way defined there.

5.6 Grant funds from the Granting body, under the Einkommensteuergesetz [Income Tax Act 1988], Fed. Gazette number 400/1988 may not be used to created provisions or reserves. Grant funds are only to be used for the grant application activities and aims.

5.7 The costs incurred by the grant recipient or his partners in preparing contracts or bank transfer costs must be borne by them and are not qualifying costs.

5.8 The granting body reserves the right to defer the disbursement of a grant, to reduce or to suspend it, if and for as long as circumstances exist that appear to show that the funded project is not being carried out in a proper manner, (e.g. no schedule of costs is provided as defined).

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5.9 Grant funds that the FFG provides for the direct funding of science and research, to pay for costs or expenditure, come from public money and are therefore tax free under Section 3 para. 1 item 3 letter c) of the EStG (*Einkommensteuergesetz* [Income Tax Act]) in combination with Section 3 para. 4 line 3 EStG.

Section 6 Conditions and Duties

6.1 Special, project-specific conditions and duties

1. For Ms. Redl only the costs for the patent application are to be subsidized.

2 The grant is subject to the continued existence of the Development location including staff and IP rights until at least 06/30/2022.

6.2 The original, signed grant agreement must be returned to the granting body at the latest 4 weeks after receipt.

6.3 By signing this grant agreement, the grant recipient undertakes that they will keep the granting body informed - at the latest by means of the required reports - of all requested and/or approved public grants that relate either directly or indirectly to this project.

Section 7 Disbursement of the Grant

7.1 The disbursement of the 1st installment, totaling 50% of the agreed grant funds will be made after conclusion of the Grant Agreement and fulfillment of the agreed conditions and duties set out in Section 6.

The second installment of 30% will be disbursed on approval of an interim report, which must provide proof of 50% of the approved total costs, and on fulfillment of the conditions and duties in Section 6.

The disbursement of the final installment of 20% of the total approved grant funding will be made only after completion of all conditions and duties (final accounts, final report, etc.) and after checking and approval of the proofs of expenditure (acceptance of accounts) by the FFG.

7.2 The transfer will be made to the following account held by the grant recipient

Account holder: ARSANIS Biosciences GmbH
Bank name:
IBAN:
BIC/SWIFT:

Section 8 Reporting Requirements

8.1 The grant recipient shall report to FFG in accordance with Section 3 of the general grant terms on the execution of the subsidized project, by submitting professional reports (interim and final reports) and accounts. The reports and accounts must be submitted via eCall (https://ecall.ffg.at). The forms provided in eCall must be used. On request, other documents may also need to be submitted to FFG.

8.2.1 Where a grant is given for prototypes the grant recipient must inform FFG of the location or the future use of the prototype(s).

./5

Section 9 Amendments to the Agreement

9.1 Amendments to the present agreement may only be made explicitly and in writing. This also applies to any variation of this provision.

9.2 Subsequent amendments to the agreed conditions and duties may, if necessary because of the existence of special circumstances, be mutually agreed in the form of written addenda, and subject to renewed approval by the Advisory Board.

Section 10 Liability

10.1 The grant recipient accepts full liability vis a vis the FFG, for compliance with all contractual provisions. The grant recipient is also liable for the actions of third parties whom he represents (e.g. owners, company bodies, etc.). The grant recipient shall indemnify the FFG for any claims by third parties.

Section 11 Severability Clause

11.1 Should a provision of this grant agreement prove to be invalid, the validity of the other provisions of the grant agreement remain unaffected. The parties to the agreement undertake to replace the invalid provision with one that comes as close as possible to the intent of this grant agreement.

Section 12 Applicable Law

12.1 This agreement and all its Annexes are subject to Austrian Law, excluding the referral standards of Austrian international private law.

Section 13 Jurisdiction

13.1 The jurisdiction for all and any legal disputes arising from the grant is agreed to be the relevant court of jurisdiction in Vienna. The FFG retains the right to also sue the grant recipient at the latter's normal place of jurisdiction.

Section 14 Components of the Agreement

14.1 The following documents represent the total components of the grant agreement:

- the grant application submitted via eCall ("Development of antibody-based therapeutics for the treatment of life threatening pneumococcal disease") in the version dated 05/12/2016
- General grant conditions for grant agreements, in its current form (2015 Version)
- Guidelines for individual projects for experimental development, Version 3 .1
- Cost Guidelines Version 2.0

14.2 The legal bases for this grant agreement are specifically:

- The Österreichische Forschungsförderungsgesellschaft mbH-Errichtungsgesetz [law creating the Austrian Research Grant Company]) (Forschungsförderungs Strukturreformgesetz [Research Support Structural Reform Law]) each in their current version

./6

- EU framework for state subsidies to promote Research, Development and Innovation (OJ C 198 dated 06/27/2014)
- Commission Regulation (EU) 651/2014 dated June 17, 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty on the Functioning of the European Union (TFEU 2014)
- Directive for the Österreichische Forschungsförderungsgesellschaft mbH [Austrian Research Support Company] to further applied research, development and innovation (FFG-Directive "KMU" GZ: BMVIT- 609.986/0012-III/I2/2014 and BMWFW-98.310/0102-C1/10/2014). This Directive was submitted on the basis of TFEU 2014 to the European Commission for exemption.

The grant recipient confirms that they have knowledge of all parts of the agreement and accepts them unreservedly and is aware that non-compliance with the above provisions of the agreement can lead to a possible demand to return the grant monies.

The grant recipient confirms that no pending demands for return of monies by the European Commission currently exist, and that no retroactive demand of incompatible subsidies will be entertained.

The grant recipient gives its permission to use the data listed under Art. 9 para.1 TFEU (EU Regulation number 651/ 2014) Annex III for a publication of information, provided the cash value of the grant (gross subsidy equivalent) exceeds EUR 500,000.00.

For the Granting Body:
Österreichische Forschungsförderungsgesellschaft mbH (FFG)

[stamp:] Österreichische Forschungsförderungsgesellschaft mbH (FFG)

Vienna, on 06/27/2016

/s/ Dr. Henrietta Egerth-Stadlhuber
Dr. Henrietta Egerth-Stadlhuber
Managing Director

/s/ Dr. Klaus Pseiner
Dr. Klaus Pseiner
Managing Director

Grant Recipient

Vienna, on 07/14/2016

ARSANIS
Biosciences GmbH
MarxBox
Helmut-Qualtinger-Gasse 2
1030 Vienna

/s/ Dr. Eszter Nagy
(Authorized signature, please add name and job-title in block capitals)

Dr. Eszter Nagy
Managing Director

./7

Annexes:

Directive for the Österreichische Forschungsförderungsgesellschaft mbH to further applied research, development and innovation (FFG-Directive “KMU”) via link https://www.ffg.at/recht-finanzen/rechtsgrundlagen
General grant conditions for grant agreements in current form (2015 Version)
Guidelines for individual projects for experimental development, Version 3.1
Cost Guidelines Version 2.0

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel +43 (0)5 7755 - 0
Fax +43 (0)5 7755 - 97900
www.ffg.at.office@ffg.at
Reg. Co.252263a Vienna Comm. Court

Project No.: 858392 / 30000 MAB/SAH

Funding agreement

concluded between

Österreichische Forschungsförderungsgesellschaft mbH (FFG)

as a funding entity

and

ARSANIS Biosciences GmbH
Helmut-Qualtinger-Gasse 2
1030 Vienna

Commercial Register No.: 354305m

as a recipient.

§ 1 Granting of the funding

1.1 On the basis of the funding application submitted on 08/23/2016 via eCall ("KLIPHA: Phase 2 efficacy study with ASN100 for the prevention of Staphylococcus aureus pneumonia in ventilated patients" and on the basis of the special decision of the advisory committee brought forward in the meeting held on 02/01/2017, funding is granted for the following undertakings:

Project number:	**858392**
eCall number:	**8749999**
Project name (subject of the contract):	**KLIPHA Phase 2 efficacy study with ASN100 for the prevention of Staphylococcus aureus pneumonia in ventilated patients**
Program:	Basic program

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel: +43 (0) 5 7755 – 0
Fax: +43 (0) 5 7755 – 97900
www.ffg.at, office@ffg.at
FN 252263a Commercial Court of Vienna

§ 2 Project term

2.1 The overall term of the project begins on 11/01/2016 and ends on 10/31/2018.

2.2 The funding of the overall undertaking by FFG shall depend on the results presented in the submitted reports, on further compliance with assessment and decision criteria, on the budget placed at the disposal of the funding entity as well as on the new positive decision on funding.

§ 3 Period of funding

3.1 The respective period of funding the undertaking commences on **11/01/2016** as an acceptance deadline and ends on **10/31/2018**.

§ 4 Type and amount of funding

4.1 The funding shall be realized in the following form for the period of funding stipulated in § 3:

Funding form	Amount up to maximum	
Loan of FFG	**EUR**	**1,500,000.00**

Conditions of the loan

Interest rate	0.75 % per annum on a current account
Repayment deadline:	on 03/31/2023
Repayment amount:	EUR 1,500,000.00
Collection of the interests and loan:	by virtue of direct debit mandates
Determination of the interests:	on a semi-annual basis and retroactively or at the repayment deadline

4.2 The funding rate for the undertaking amounts to 50.0 % of the costs of the project, which must be proven and fundable. The remaining financing of the costs of the project must take place via the recipient. According to the planning data, the cash value of the funding amounts to EUR 201,665.00, or 6.7 % of the fundable costs of the project as per Item 5.1.

4.3 The maximum intensity of subsidies according to the applicable framework of the Union for government subsidies for supporting research, development and innovation amounts to 45.0 %.

4.4 The funding shall be reduced proportionally if the fundable costs of the project should turn out to be below the limit.

4.5 The fundable costs of the project as per § 5 as well as costs incurred due to interim and final accounting shall not constitute an acknowledgement of the costs prior to an audit to be carried out by FFG. The final amount of the acknowledged costs of the overall project as well as the funding shall only be determined after the project has been finalized within the framework of accounting control.

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel: +43 (0) 5 7755 – 0
Fax: +43 (0) 5 7755 – 97900
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FN 252263a Commercial Court of Vienna

§ 5 Fundable costs

5.1 The following fundable costs of the project have been taken as a basis for the funding:

Personnel costs	EUR	516,399.00
Costs of equipment and material	EUR	225,000.00
Third-party performance	EUR	2,237,476.00
Travel costs	EUR	21,125.00
Total fundable costs	**EUR**	**3,000,000.00**

5.2 All costs actually incurred within the framework of the project and in addition (to the usual operating expenditure) during the period of funding as per § 3 shall be deemed as fundable. Other amending provisions pertaining to the fundable costs can be found in the FFG Directive "KMU", the guidelines on costs as well as guidelines pertaining to individual project of experimental development (each in the version indicated below in Item 14.1).

5.3 Relevant changes in the structure of the costs require the prior written approval of FFG.

5.4 The turnover tax on the costs of fundable performance shall not be considered as fundable. However, insofar as this turnover tax must actually be borne by the recipient and if this can be proven, and if this should result in the recipient not being entitled to any withholding tax deduction, these shall be taken into consideration as a fundable cost component.

The funding provided by the funding entity constitutes a grant which is not subject to turnover tax, due to the fact that no exchange of services takes place, but rather a public interest in the realization of the research project.

The amount of the funding represents a gross amount. Another, separate settlement of any potential fees and taxes by FFG – irrespectively of the reasons for it – is precluded.

The loan interests / liability commissions are subject to the exemption from the obligation to pay turnover tax, in accordance with § 6 Para. 1 Clause 8 of UStG (*Umsatzsteuergesetz* [Austrian Turnover Tax Act]).

5.5 Should the amortization period for one item (§ 285 of ABGB (*Allgemeines bürgerliches Gesetzbuc*h [Austrian General Civil Code])) which has been acquired for the purpose of realizing the project takes longer than the period of funding, the amortization costs shall be considered as fundable in accordance with the provisions laid out in the guidelines pertaining to an individual project of experimental development as well as in the guidelines on costs (each in the version indicated below in Item 14.1).

5.6 The funds of the funding entity may not be utilized for formation of reserves or accruals pursuant to the Austrian Income Tax Act [*Einkommensteuergesetz*] as of 1988, BGBl. (*Bundesgesetzblatt* [Austrian Legal Gazette]) No. 400/1988. The funds may only be utilized for the services and objectives described in the funding application.

5.7 The costs of contract preparation or bank transfer fees incurred on the part of the recipient or his/her internal partner must be borne by him and do not constitute fundable costs.

5.8 The funding entity shall reserve the right to defer the disbursement of a funding, to reduce it or to suspend it if and as long as there are circumstances which prevent the proper realization of the funded undertaking (e.g. the proof of the costs incurred has not been produced in an appropriate form).

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§ 6 Conditions and requirements

6.1 Project-specific special conditions and requirements

1. A safe financing concept for the undertaking must be submitted within the period of 12 weeks after the date on which the contract has been issued, before the first installment has been disbursed.
2. The costs of Ms. Nagy and Ms. Zettl shall not be funded.
3. Clinical studies may only be funded until the amount of total costs reaches the amount of 3 million Euros. Accordingly, third-party costs shall be reduced as a general rule.
4. Funding depends on the existence of a development location including personnel and IP rights until 03/31/2023 at the earliest.

6.2 The original undersigned funding agreement must be sent back within the period of 4 weeks following the receipt thereof by the funding entity at the latest.

6.3 The recipient shall be obligated to inform the funding entity – in the course of the planned reporting at the latest—of all applied and/or approved public funding which pertains to the project, be it directly or indirectly, as from the time at which this funding agreement has been undersigned.

§ 7 Disbursement of the funding

7.1 The aforementioned funding shall be transferred according to the following **payment plan**:

7.2 The funds shall be transferred to the following bank account of the recipient:

Account holder: ARISANIS Biosciences GmbH
Bank designation:
IBAN:
BIC / SWIFT:

§ 8 Reporting obligations

8.1 The recipient must submit reports to FFG in accordance with Section 3 of General Terms and Conditions of Funding with respect to the realization of the funded undertaking by means of submitting specialist reports (interim and final reports) and accounts.

A specialist interim report and interim accounting must be submitted within the period of one month following the reporting deadlines stipulated in the funding agreement.

A specialist final report and final accounting must be submitted within the period of three months following the end of the period of funding stipulated in the contract at the latest.

Reports and accounts must be submitted via eCall (https://ecall.ffg.at). The forms stored in the eCall must be used by all means. Further documents must be submitted to FFG upon their request.

8.2 In case prototypes are being funded, the recipient must submit reports to FFG with respect to the continuation or further utilization of the prototype / prototypes.

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel: +43 (0) 5 7755 – 0
Fax: +43 (0) 5 7755 – 97900
www.ffg.at, office@ffg.at
FN 252263a Commercial Court of Vienna

§ 9 Amendments to the contract

9.1 Amendments to this contract may only be carried out expressly in writing. This shall also apply for annulment of this provision.

9.1 Subsequent amendments to the stipulated provisions and requirements may – insofar as necessary – be carried out under special circumstances by mutual consent in the form of an additional ancillary agreement after the advisory committee has reached a positive decision in this respect.

§ 10 Liability

10.1 The recipient shall be unrestrictedly liable vis-à-vis FFG for compliance with all contractual provisions. The recipient shall also be liable for the conduct of third parties assignable to the recipient (e.g. owners, company bodies etc.). The recipient shall indemnify and hold FFG harmless from and against the claims of third parties.

§ 11 Severability clause

11.1 Should one provision of this funding agreement be ineffective, the effectiveness of the remaining provisions of the funding agreement shall remain unaffected thereby. The contractual parties are obligated to replace an ineffective provision by another provision which serves the purpose of this funding agreement to the greatest extent possible.

§ 12 Applicable law

12.1 This contract and all its annexes are subject to the law of the Republic of Austria under exclusion of the laws rules of Austrian IPRG (*Gesetze zum Internationalen Privatrecht* [Legislation on private international law]).

§ 13 Place of legal jurisdiction

13.1 The competent court in Vienna shall have jurisdiction for all legal disputes which should arise from the funding grant. FFG shall reserve the right to sue the recipient at their place of jurisdiction as well.

§ 14 Integral parts of the contract

14.1 The following documents constitute integral parts of the funding agreement:

- the funding application submitted via eCall (“KLIPHA: Phase 2 efficacy study with ASN100 for the prevention of Staphylococcus aureus pneumonia in ventilated patients”) in the version as of 11/21/2016
- General Terms and Conditions of Funding for Funding Agreements in their respectively applicable version (Version 2015)
- Guidelines for individual project of experimental development, Version 3.2
- Guidelines on the costs, Version 2.0

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel: +43 (0) 5 7755 – 0
Fax: +43 (0) 5 7755 – 97900
www.ffg.at, office@ffg.at
FN 252263a Commercial Court of Vienna

14.2 The following is in particular taken as a legal basis for this funding agreement:

- Establishment Act of Österreichische Forschungsförderungsgesellschaft mbH [Act on Structural Reform of Research Funding] in the respective applicable version
- Union's framework for public subsidies for funding research, development and innovation ((ABl. (*Auswahlblatt* [Extract Sheet]) C 198 as of 06/27/2014)
- Directive (EU) No. 651/2014 of the Committee as of June 17,2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty on the Functioning of the European Union (AGVO (*Allgemeine Gruppenfreistellungsverordnung* [General Block Exemption Ordinance]) 2014)
- Directive for Österreichische Forschungsförderungsgesellschaft mbH on funding the applied research, development and innovation (FFG Directive "KMU"), Ref. No: BMVIT-609.986/0012-III/I2/2014 and BMWFW-98.310/0102-C1/10/2014) – This directive was enacted on the basis of AGVO 2014 with the European Commission.

Österreichische
Forschungsförderungsgesellschaft mbH
Sensengasse 1
1090 Vienna

Tel: +43 (0) 5 7755 – 0
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The recipient confirms that they are familiar with all integral parts of the contract and accept them without any restrictions and acknowledges that non-compliance with the stipulated contractual provisions can lead to a potential recall of the funds.

The recipient confirms that there are no pending recall order of the European Commission and a potential recession of incompatible funding is precluded.

The recipient agrees to utilization of the data listed in Article 9, Para. 1 of AGVO (EU Ordinance No. 651/2014) Annex III for the purpose of publishing the information, insofar as the cash value of the funding (gross subvention equivalent) exceeds the amount of EUR 500,000.00.

On behalf of the funding entity:

Österreichische Forschungsförderungsgesellschaft mbH (FFG)

In Vienna, on 02/13/2017

[seal] Österreichische Forschungsförderungsgesellschaft mbH (FFG) [emblem]

/s/ Dr. Henrietta Egerth-Stadlhuber
Dr. Henrietta Egerth-Stadlhuber
Managing Director

/s/ Dr. Klaus Pseiner
Dr. Klaus Pseiner
Managing director

Funding recipient

Vienna, on 3/23/2017

ARSANIS
Biosciences GmbH
MarxBox
Helmut-Qualtinger-Gasse 2
1030 Vienna

/s/ Dr. Eszter Nagy
(please write the company name, names and functions in block letters, company seal)

Dr. Eszter Nagy
Managing Director

Annexes:

Directive for Österreichische Forschungsförderungsgesellschaft mbH on funding the applied research, development and innovation (FFG Directive “KMU”)

via link: https://www.ffg.at/recht-finanzen/rechtsgrundlagen

General Terms and Conditions of Funding for Funding Agreements in the applicable version (Version 2015)

Guidelines for individual project of experimental development, Version 3.2

Guidelines on the costs, Version 2.0

Exhibit 21.1

List of Subsidiaries

The following is the name, jurisdiction of organization and percentage ownership by the Company of its Subsidiary.

	JURISDICTION OF INCORPORATION	COMPANY OWNED BY PERCENTAGE
Arsanis Biosciences GmbH	Austria	100%