UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

SCHEDULE 14A

Proxy Statement Pursuant to Section 14(a) of the Securities Exchange Act of 1934 (Amendment No.)

Filed by the Registrant \boxtimes

Filed by a Party other than the Registrant \Box

Check the appropriate box:

- □ Preliminary Proxy Statement
- □ Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))
- □ Definitive Proxy Statement
- Definitive Additional Materials
- □ Soliciting Material under §240.14a-12

Arsanis, Inc.

(Name of Registrant as Specified In Its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check the appropriate box):

- \boxtimes No fee required.
- \Box Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.
 - (1) Title of each class of securities to which transaction applies:
 - (2) Aggregate number of securities to which transaction applies:
 - (3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):
 - (4) Proposed maximum aggregate value of transaction:

(5) Total fee paid:

□ Fee paid previously with preliminary materials.

Check box if any part of the fee is offset as provided by Exchange Act Rule 0-11(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.

(1) Amount Previously Paid:

(2) Form, Schedule or Registration Statement No.:

(3) Filing Party:

(4) Date Filed:

ARSANIS, INC. 950 Winter Street, Suite 4500 Waltham, MA 02451

SUPPLEMENT TO NOTICE OF SPECIAL MEETING OF STOCKHOLDERS AND DEFINITIVE PROXY STATEMENT FOR THE SPECIAL MEETING OF STOCKHOLDERS TO BE HELD ON MARCH 11, 2019

The following disclosures were included in a Current Report on Form 8-K of Arsanis, Inc. ("Arsanis") dated March 1, 2019:

On February 14, 2019, Arsanis filed a final proxy statement, prospectus and information statement (the "Definitive Proxy Statement") with the Securities and Exchange Commission (the "SEC") with respect to the special meeting of Arsanis' stockholders scheduled to be held on March 11, 2019 in order to, among other things, obtain the stockholder approvals necessary to complete the planned merger ("Merger") of Artemis AC Corp., a wholly owned subsidiary of Arsanis ("Merger Sub"), with X4 Pharmaceuticals, Inc. ("X4"), pursuant to the Agreement and Plan of Merger, dated as of November 26, 2018, as amended, by and among Arsanis, X4 and Merger Sub (the "Merger Agreement"), pursuant to which, among other matters, and subject to the satisfaction or waiver of the conditions set forth in the Merger Agreement, Merger Sub will merge with and into X4, with X4 continuing as a wholly owned subsidiary of Arsanis and the surviving corporation of the Merger.

With this filing, Arsanis is hereby supplementing its disclosure in the Definitive Proxy Statement in connection with the matters described below. Nothing in this communication shall be deemed an admission of the legal necessity or materiality under applicable laws of any of the disclosures set forth herein.

SUPPLEMENT TO DEFINITIVE PROXY STATEMENT

As previously reported, on February 4, 2019, Arsanis and Arsanis Biosciences GmbH ("Arsanis GmbH"), a wholly owned subsidiary of Arsanis, received letters from counsel to Österreichische Forschungsförderungsgesellschaft GmbH ("FFG"), alleging that they breached reporting, performance and other obligations in connection with the grants and loans made by FFG to Arsanis GmbH between September 2011 and March 2017 to fund qualifying research and development expenditures, which Arsanis collectively refers to as the subsidies. The letters demanded the immediate repayment of all subsidies, totaling approximately EUR 18.1 million (\$20.6 million, based on an exchange rate of US\$1.14 per EUR 1.00 on February 28, 2019), on or before February 19, 2019, which consists of approximately EUR 7.2 million (\$8.2 million) for the reimbursement of grants previously received by Arsanis GmbH, approximately EUR 8.5 million (\$9.7 million) for the repayment of outstanding loan principal and approximately EUR 2.4 million (\$2.7 million) for assessed interest (collectively, the "FFG Demands").

Following negotiations among FFG, Arsanis, Arsanis GmbH and X4, Arsanis believes the parties have reached an agreement in principle for the terms of a final settlement to resolve the FFG Demands. Such terms provide that, in exchange for FFG's waiver of any rights to claim repayment of the grants, or to receive payments of any interest on the subsidies other than regularly scheduled interest payments on the outstanding loan amounts pursuant to the terms of the applicable funding contracts ("regular interest"), Arsanis GmbH would repay the outstanding loan principal equal to EUR 8,505,204 (\$9.7 million, based on an exchange rate of US\$1.14 per EUR 1.00 on February 28, 2019) (plus regular interest accrued thereon) on an accelerated payment schedule of three years instead of five years, with the final accelerated installment due and payable on June 30, 2021 (the "Due Date"). Such terms also provide that (i) the portion of such loans to be repaid in 2019 would be EUR 2,596,320 (\$3.0 million, based on an exchange rate of US\$1.14 per EUR 1.00 on February 28, 2019) (plus regular on an exchange rate of US\$1.14 per EUR 1.00 on February 28, 2019, (ii) until the Due Date"). Such terms also provide that (i) the portion of such loans to be repaid in 2019 would be EUR 2,596,320 (\$3.0 million, based on an exchange rate of US\$1.14 per EUR 1.00 on February 28, 2019) (the "2019 Payment") and such payment would be made on March 31, 2019, (ii) until the Due Date, a minimum cash balance equal to 70% of the then-outstanding principal amount of the loans would be maintained at Arsanis GmbH in an account held with an Austrian bank, and (iii) until December 31, 2021, Arsanis GmbH would maintain a physical premises in Austria with a minimum of eight full-time equivalent employees and retain ownership rights to intellectual property generated from or in relation to the projects that are subject to the subsidy agreements with FFG in Austria.

If a definitive settlement agreement on these terms is entered into, Arsanis and X4 also plan to enter into an amendment to the Merger Agreement to reflect Arsanis' agreement that 1/3rd of the 2019 Payment, which equals EUR 865,440 (approximately \$984,000, based on an exchange rate of US\$1.14 per EUR 1.00 on February 28, 2019) (the "Arsanis accelerated payment amount") would be deducted from Arsanis' "net cash" at closing (as defined in the Merger Agreement) and as a result would increase the exchange ratios for the X4 common stock and X4 preferred stock in the Merger. Specifically, the Merger Agreement currently excludes the approximately EUR 8.5 million principal amount of FFG loans to

Arsanis GmbH from the deduction for unpaid indebtedness that otherwise reduces Arsanis' "net cash" at closing. The parties would amend the Merger Agreement to provide this excluded amount (and thus "net cash") be reduced by the Arsanis accelerated payment amount, to approximately EUR 7.6 million (the "Merger Agreement Amendment").

Arsanis previously disclosed that, subject to the terms and conditions of, and the calculation of the exchange ratios for the X4 common stock and X4 preferred stock pursuant to, the Merger Agreement, it was currently anticipated that upon the closing of the Merger, the exchange ratios would be equal to 0.5529 shares of Arsanis common stock for each share of X4 capital stock, current Arsanis stockholders would own approximately 31.9% of the combined company and current X4 stockholders would own approximately 68.1% of the closing of the Merger. As a result of the Merger Agreement Amendment, and based on the foregoing assumptions, the exchange ratios would increase to 0.5632 shares of Arsanis common stock for each share of X4 capital stock, current Arsanis stockholders would own approximately 31.5% of the combined company and current X4 stockholders would own approximately 31.5% of the combined company and current X4 stockholders would own approximately 31.5% of the combined company and current X4 stockholders would own approximately 31.5% of the combined company and current X4 stockholders would own approximately 31.5% of the combined company and current X4 stockholders would own approximately 31.5% of the combined company and current X4 stockholders would own approximately 68.5% of the combined company on a pro forma basis.

The agreement in principle to resolve the FFG Demands described in the foregoing paragraphs is not binding, and the terms and conditions of the definitive settlement agreement by and among the parties have not yet been finalized. There can be no assurances that a definitive settlement agreement or the Merger Agreement Amendment will be executed, either on the terms described above, on other terms that may be favorable to Arsanis and X4, or at all. If the settlement negotiations fail and the FFG Demands are pursued by FFG, Arsanis intends to vigorously defend the claims.

PARTICIPANTS IN THE SOLICITATION

Arsanis, X4 and their respective directors and executive officers may be deemed to be participants in the solicitation of proxies from the holders of Arsanis common stock in connection with the proposed transaction. Information about Arsanis' directors and executive officers is included in the Definitive Proxy Statement. Additional information regarding these persons is set forth in Arsanis' Annual Report on Form 10-K for the year ended December 31, 2017, which was filed with the SEC on March 9, 2018, and the proxy statement for Arsanis' 2018 annual meeting of stockholders, which was filed with the SEC on April 23, 2018. Investors and security holders may obtain free copies of these documents as described in the paragraph below.

IMPORTANT INFORMATION ABOUT THE TRANSACTION IS FILED WITH THE SEC

In connection with the proposed Merger, Arsanis filed the Definitive Proxy Statement with the SEC on February 14, 2019. The Definitive Proxy Statement was first mailed on or about February 20, 2019 to Arsanis' stockholders of record as of the close of business on January 11, 2019. ARSANIS STOCKHOLDERS AND X4 EQUITY HOLDERS ARE URGED TO READ THE DEFINITIVE PROXY STATEMENT REGARDING THE PROPOSED TRANSACTION AND ANY OTHER RELEVANT DOCUMENTS FILED WITH THE SEC, AS WELL AS ANY AMENDMENTS OR SUPPLEMENTS TO THOSE DOCUMENTS, BECAUSE THEY CONTAIN IMPORTANT INFORMATION. Investors and security holders may obtain a free copy of the Definitive Proxy Statement and other filings containing information about Arsanis at the SEC's website at www.sec.gov. The Definitive Proxy Statement and the other filings may also be obtained free of charge by contacting: Arsanis, Inc., 950 Winter Street, Suite 4500, Waltham, Massachusetts 02451, Attention: Investor Relations.

Additional information regarding the interests of those participants and other persons who may be deemed participants in the transaction may be obtained by reading the Definitive Proxy Statement. Free copies of this document may be obtained as described in the preceding paragraphs.

NO OFFERS OR SOLICITATIONS

This communication shall not constitute an offer to sell or the solicitation of an offer to sell or the solicitation of an offer to buy any securities, nor shall there be any sale of securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such jurisdiction. No offer of securities shall be made except by means of a prospectus meeting the requirements of Section 10 of the Securities Act of 1933, as amended (the "Securities Act").

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements in this communication regarding the Merger, the prospects for a settlement agreement with FFG, the terms of the FFG settlement, the plan to enter into the Merger Agreement Amendment and the terms thereof, the expected exchange ratios under the Merger Agreement and the percentage ownership of the combined company following the Merger and the strategies, goals, prospects, plans, expectations, forecasts or objectives of Arsanis, X4 or the combined company constitute "forward-looking statements" within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and are usually identified by the use of words such as "anticipates," "believes," "estimates," "intends," "may," "plans," "projects," "seeks," "should," "will," "would," and variations of such words or similar expressions. Arsanis intends for these forward-looking statements to be covered by the safe harbor provisions for forward-looking statements contained in Section 27A of the Securities Act and Section 21E of the Exchange Act and is making this statement for purposes of complying with those safe harbor provisions. These forward-looking statements reflect Arsanis' current views about its plans, intentions, expectations, strategies and prospects as reflected in or suggested by those forward-looking statements are reasonable, Arsanis can give no assurance that the plans, intentions, expectations or strategies will be attained or achieved. Furthermore, actual results may differ materially from those described in the forward-looking statements and will be affected by a variety of important risks and factors that are beyond Arsanis' control.

Risks and uncertainties for Arsanis, X4 and the combined company include, but are not limited to, the: ability to finalize a settlement agreement with FFG, on favorable terms or at all; inability to complete the proposed Merger and other contemplated transactions; liquidity and trading market for shares prior to and following the consummation of the proposed Merger; costs and potential litigation associated with the proposed Merger; failure or delay in obtaining required approvals by the SEC or any other governmental or quasi-governmental entity necessary to consummate the proposed Merger, which may result in unexpected additional transaction expenses and operating cash expenditures on the parties; failure to obtain the necessary stockholder approvals or to satisfy other conditions to the closing of the proposed Merger and the other contemplated transactions; a superior proposal being submitted to either party; failure to issue Arsanis' or the combined company's common stock in other contemplated transactions exempt from registration or qualification requirements under applicable state securities laws; risks related to the costs, timing and regulatory review of the combined company's nonclinical studies and clinical trials; uncertainties in obtaining successful clinical results for product candidates such as X4's X4P-001 and unexpected costs that may result therefrom; inability or delay in obtaining required regulatory approvals for product candidates such as X4P-001, which may result in unexpected cost expenditures; failure to realize any value of certain product candidates developed and being developed, in light of inherent risks and difficulties involved in successfully bringing product candidates to market; inability to develop new product candidates; inability to commercialize and launch any product candidate that receives regulatory approval, including X4P-001; the combined company's anticipated capital expenditures, its estimates regarding its capital requirements and its need for future capital; uncertainties of cash flows and inability to meet working capital needs; cost reductions that may not result in anticipated level of cost savings or cost reductions prior to or after the consummation of the proposed Merger; the approval by the U.S. Food and Drug Administration and European Medicines Agency and any other similar foreign regulatory authorities of other competing or superior products brought to market; risks resulting from unforeseen side effects; risk that the market for the combined company's products may not be as large as expected; inability to obtain, maintain and enforce patents and other intellectual property rights or the unexpected costs associated with such enforcement or litigation; inability to obtain and maintain commercial manufacturing arrangements with third party manufacturers or establish commercial scale manufacturing capabilities; inability to establish and maintain licensing, collaboration or similar arrangements on favorable terms and the inability to attract collaborators with development, regulatory and commercialization expertise; inability to successfully commercialize any approved product candidates, including their rate and degree of market acceptance; unexpected cost increases and pricing pressures; the possibility of economic recession and its negative impact on customers, vendors or suppliers; and risks associated with the possible failure to realize certain benefits of the proposed Merger, including future financial, tax, accounting treatment, and operating results. Many of these factors that will determine actual results are beyond Arsanis', X4's, or the combined company's ability to control or predict.

Other risks and uncertainties are more fully described in the Definitive Proxy Statement, Arsanis' Annual Report on Form 10-K for the year ended December 31, 2017, filed with the SEC, and in other filings that Arsanis makes and may make with the SEC in connection with the proposed transactions described herein under "Important Information About the Transaction Is Filed with the SEC." Existing and prospective investors are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof. The statements made in this communication speak only as of the date stated herein, and subsequent events and developments may cause Arsanis' expectations and beliefs to change. While Arsanis may elect to update these forward-looking statements publicly at some point in the future, it specifically disclaims any obligation to do so, whether as a result of new information, future events or otherwise, except as required by law. These forward-looking statements should not be relied upon as representing Arsanis' views as of any date after the date stated herein.

3