UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 8-K/A
(Amendment No. 2)

CURRENT REPORT
Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): March 11, 2019

X4 Pharmaceuticals, Inc.
(Exact name of registrant as specified in its charter)

Delaware	001-38295	27-3181608
(State or other jurisdiction of incorporation)	(Commission File Number)	(IRS Employer Identification No.)

955 Massachusetts Avenue, 4th Floor Cambridge, Massachusetts	02139
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: (857) 529-8300

Not applicable
(Former name or former address, if changed since last report.)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☒

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock	**XFOR**	**The Nasdaq Capital Market**

Explanatory Note

X4 Pharmaceuticals, Inc. (the "Company") is filing this Amendment No. 2 on Form 8-K/A (the "Amendment") to amend its Current Report on Form 8-K which was originally filed with the Securities and Exchange Commission on March 13, 2019 and amended on April 3, 2019 (collectively, the "Original Form 8-K"). The purpose of this Amendment is to refile Exhibits 10.5, 10.6, 10.7 and 10.8, which were originally filed with the Original Form 8-K, to transition to the requirements set forth in Item 601(b) of Regulation S-K permitting registrants to omit confidential information from material contracts filed pursuant to Item 601(b)(10) without the need to submit a confidential treatment request to the Securities and Exchange Commission. The confidential information omitted from Exhibits 10.5, 10.6, 10.7 and 10.8 (i) is not material and (ii) would be competitively harmful if publicly disclosed.

This Amendment speaks as of the original filing date and does not reflect events occurring after the filing of the Original Form 8-K or modify or update disclosures that may be affected by subsequent events.

Except for the changes to Exhibits 10.5, 10.6, 10.7 and 10.8, this Amendment does not otherwise update any information or exhibits as originally set forth in or filed with the Original Form 8-K.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

Exhibit No.	Description
10.5#	License Agreement, dated as of July 10, 2014, by and between X4 Therapeutics, Inc. (formerly X4 Pharmaceuticals, LLC) and Genzyme Corp., a Sanofi company.
10.6#	Amendment No. 1 to License Agreement, dated as of October 23, 2014, by and between X4 Therapeutics, Inc. (formerly X4 Pharmaceuticals, Inc.) and Genzyme Corporation, a Sanofi company.
10.7#	License Agreement, dated as of December 13, 2016, by and between X4 Therapeutics, Inc. (formerly X4 Pharmaceuticals, Inc.) and Georgetown University.
10.8#	Exclusive License Agreement, dated as of December 23, 2016, by and between X4 Therapeutics, Inc. (formerly X4 Pharmaceuticals, Inc.) and Beth Israel Deaconess Medical Center.

Certain confidential portions of this Exhibit were omitted by means of marking such portions with brackets ("[***]") because the identified confidential portions (i) are not material and (ii) would be competitively harmful if publicly disclosed.

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

X4 PHARMACEUTICALS, INC.

By: /s/ Paula Ragan, Ph.D.
Paula Ragan, Ph.D.
President and Chief Executive Officer

Date: May 13, 2019

Exhibit 10.5

LICENSE AGREEMENT

This License Agreement (this "**Agreement**") is executed as of July 10, 2014 (the "**Effective Date**") by and between **Genzyme Corp.**, a corporation having an address at 500 Kendall Street, Cambridge, MA 02142 ("**Genzyme**" or "**Licensor**") and **X4 Pharmaceuticals, LLC**, a Massachusetts limited liability company having an address at 281 School Street, Belmont, MA 02478, United States ("**X4**"). Genzyme and X4 are sometimes referred to herein individually as a "**Party**" and collectively as the "**Parties**."

RECITALS

WHEREAS, Genzyme controls certain intellectual property rights in the Territory (as defined herein) with respect to the Licensed Compounds (as defined herein) and Licensed Products (as defined herein); and

WHEREAS, Genzyme wishes to grant to X4, and X4 wishes to receive, an exclusive license under such intellectual property rights to Develop (as defined herein) and Commercialize (as defined herein) Licensed Products in the Territory, in each case in accordance with the terms and conditions set forth below.

NOW, THEREFORE, in consideration of the premises and the mutual promises and conditions hereinafter set forth, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties, intending to be legally bound, do hereby agree as follows:

ARTICLE 1
DEFINITIONS

Unless otherwise specifically provided herein, the following terms shall have the following meanings:

1.1 "**Acceptance**" shall mean [***].

1.2 "**Accountant**" has the meaning set forth in Section 6.12.

1.3 "**Adverse Event**" means (a) the development of an undesirable medical condition or the deterioration of a pre-existing medical condition in a patient or clinical investigation subject during or following exposure to or use of a Licensed Product, whether or not considered causally related to such Licensed Product, (b) the exacerbation in a patient or clinical investigation subject of any pre-existing condition occurring during or following exposure to or use of a Licensed Product, or (c) any other adverse experience or adverse drug experience (as described in the FDA's Investigational New Drug safety reporting and NDA post-marketing reporting regulations, 21 C.F.R. §§312.32 and 314.80, respectively, and any applicable corresponding regulations outside the United States, in each case as may be amended from time to time), of a patient or clinical investigation subject occurring during or following exposure to or

use of a Licensed Product. For purposes of this Agreement, "undesirable medical condition" includes symptoms (e.g., nausea, chest pain), signs (e.g., tachycardia, enlarged liver) or the abnormal results of an investigation (e.g., laboratory findings, electrocardiogram), including unfavorable side effects, toxicity, injury, overdose or sensitivity reactions.

1.4 "**Agreement**" has the meaning set forth in the preamble hereto.

1.5 "**Affiliate**" means, with respect to a Party, any Person that, directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with such Party. For purposes of this definition, "control" and, with correlative meanings, the terms "controlled by" and "under common control with" means (a) the possession, directly or indirectly, of the power to direct the management or policies of a business entity, whether through the ownership of voting securities, by contract relating to voting rights or corporate governance, or otherwise, or (b) the ownership, directly or indirectly, of more than 50% of the voting securities or other ownership interest of a business entity (or, with respect to a limited partnership or other similar entity, status as a general partner).

1.6 "**Allo-HSCT Treatment**" means allogeneic hematopoietic stem cell transplantation (i.e. where the donor is a different person than the recipient).

1.7 "**Annual Net Sales**" means Net Sales of all Licensed Products in the Territory (excluding Net Sales of each Licensed Product in any country in the Territory for which the Royalty Term for such Licensed Product and country has expired) in a particular Calendar Year.

1.8 "**Applicable Law**" means applicable laws, rules and regulations, including any rules, regulations, guidelines or other requirements of the Regulatory Authorities that may be in effect from time to time and applicable to a particular activity hereunder in the Territory.

1.9 "**Auto-HSCT Treatments**" means autologous hematopoietic stem cell transplantation, (i.e. where the donor and the recipient are one and a same person).

1.10 "**Breaching Party**" has the meaning set forth in Section 12.3.

1.11 "**Business Day**" means a day other than a Saturday or Sunday and any other day on which banking institutions in New York, New York, United States are not closed.

1.12 "**Calendar Quarter**" means, with respect to the first such Calendar Quarter, the period beginning on the Execution Date and ending on the last day of the calendar quarter within which the Execution Date falls and thereafter each successive period of three calendar months commencing on January 1, April 1, July 1 and October 1.

1.13 "**Calendar Year**" means, with respect to the first such Calendar Year, the period beginning on the Execution Date and ending on December 31 of the calendar year within which the Execution Date falls and thereafter each successive period of twelve (12) calendar months commencing on January 1 and ending on December 31.

1.14 "**Change of Control**" means the purchase (direct or indirect, either through merger or otherwise) by a Third Party of (i) fifty per cent (50%) or more of the existing Units in X4 or (ii) the whole or a substantial part of the business of X4 to which this Agreement relates. For clarity, the Parties agree that (a) any Licensed Product shall constitute a substantial part of the business of X4 for purposes of this definition and (b) an investment transaction by venture capital or other financial investors not engaged in the pharmaceutical or biotechnology business and not otherwise affiliated with a pharmaceutical or biotechnology company, the sole purpose of which is to raise capital for X4 shall not be deemed to be a Change of Control for purposes of this Agreement.

1.15 "**Clinical Data**" means all data, reports and results with respect to the Licensed Compound and the Licensed Products made, collected or otherwise generated under or in connection with the conduct of Clinical Studies.

1.16 "**Clinical Studies**" means human clinical trials for a Licensed Product and any other tests and studies for a Licensed Product in human subjects, in any case, conducted by or on behalf of X4 pursuant to this Agreement.

1.17 "**Combination Product**" means a single product that consists of or contains a Licensed Compound as an active ingredient together with one or more other therapeutically active ingredients and is sold either as a fixed dose or as separate doses in a single package.

1.18 "**Commercialization**" means, with respect to a Licensed Product, any and all activities (whether before or after Regulatory Approval) directed to the marketing, promotion and sale of such Licensed Product in the Field in the Territory, including pre-launch and post-launch marketing, promoting, marketing research, distributing, offering to commercially sell and commercially selling such Licensed Product, importing, exporting or transporting such Licensed Product for commercial sale, medical education activities with respect to such Licensed Product, conducting Clinical Studies that are not required to obtain or maintain Regulatory Approval for such Licensed Product for an indication, which may include epidemiological studies, modeling and pharmacoeconomic studies, post-marketing surveillance studies, investigator sponsored studies and health economics studies and regulatory affairs (including interacting with Regulatory Authorities) with respect to the foregoing. When used as a verb, "**Commercializing**" means to engage in Commercialization and "**Commercialize**" and "**Commercialized**" shall have corresponding meanings.

1.19 "**Commercially Reasonable Efforts**" means [***].

1.20 "**Complaining Party**" has the meaning set forth in Section 12.3.

1.21 "**Confidential Information**" has the meaning set forth in Section 9.1.

1.22 "**Control**" means, with respect to any Information, Regulatory Documentation, Patent, or other intellectual property right, possession of the right, whether directly or indirectly, and whether by ownership, license or otherwise (other than by operation of the license and other grants in Section 2.1), to assign or grant a license, sublicense or other right to or under such Information, Regulatory Documentation, Patent, or other intellectual property right as provided for herein without violating the terms of any agreement or other arrangement with any Third Party. "**Controlled**" has a corresponding meaning.

1.23 "**Controlling Party**" has the meaning set forth in Section 7.4.1.

1.24 "**CREATE Act**" has the meaning set forth in Section 7.2.4.

1.25 "**Cumulative Net Sales**" means total Net Sales of a Licensed Product in the Territory since the First Commercial Sale of such Licensed Product in the Territory (excluding Net Sales of each Licensed Product in any country in the Territory for which the Royalty Term for any Licensed Product and country has expired). For purposes of clarity, Net Sales of any Sublicensee of X4 shall be included as part of Net Sales solely for purposes of determining Cumulative Net Sales.

1.26 "**Current Good Manufacturing Practices**" or "**cGMP**" means current good manufacturing practices and standards, as provided for (and as amended from time to time) in the Current Good Manufacturing Practice regulations promulgated by the FDA under the United States Food, Drug and Cosmetic Act (21 C.F.R. Part 210 et seq.) and in the European Community Directive 2003/94/EC (Principles and guidelines of good manufacturing practice for medicinal products), as well as applicable documents developed by the International Conference on Harmonization (ICH) harmonized Tripartite Guideline, Good Manufacturing Practice Guide for Active Pharmaceutical Ingredients, Q7a.

1.27 "**Development**" means, with respect to a Licensed Product, all activities related to research, preclinical and other non-clinical testing, test method development and stability testing, toxicology, formulation, the conduct of Manufacture Process Development, the conduct of Clinical Studies, including Manufacturing in support thereof (but excluding any commercial Manufacturing), the conduct of statistical analysis and report writing, the preparation and submission of Drug Approval Applications for such Licensed Product, regulatory affairs with respect to the foregoing and all other activities necessary or reasonably useful or otherwise requested or required by a Regulatory Authority as a condition or in support of obtaining or maintaining a Regulatory Approval for such Licensed Product. When used as a verb, "**Develop**" means to engage in Development.

1.28 "**Development Plan**" means the plan for the Development of the Licensed Products as described in Section 3.1.1, as updated from time to time pursuant to Section 3.1.1.

1.29 "**Disclosing Party**" has the meaning set forth in Section 9.1.

1.30 "**Dollars**" or "**$**" means United States Dollars.

1.31 "**Drug Approval Application**" means a New Drug Application (an "**NDA**") as defined in the FFDCA and the regulations promulgated thereunder (including all additions, supplements, extensions and modifications thereto), or any corresponding foreign application in the Territory, including, with respect to the European Union, a Marketing Authorization Application (an "**MAA**") filed with the EMA pursuant to the centralized approval procedure or with the applicable Regulatory Authority of a country in Europe with respect to the mutual recognition or any other national approval procedure (including all additions, supplements, extensions and modifications thereto).

1.32 "**Effective Date**" has the meaning set forth in the preamble hereto.

1.33 "**EMA**" means the European Medicines Agency and any successor agency thereto.

1.34 "**European Union**" means the economic, scientific and political organization of member states as it may be constituted from time to time, which as of the Effective Date consists of Austria, Belgium, Bulgaria, Czech Republic, Croatia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom of Great Britain and Northern Ireland and that certain portion of Cyprus included in such organization.

1.35 "**Executive Officers**" means the **Chief Executive Officer** of X4 and the Head of Strategy & Business Development of Genzyme (or his/her designee).

1.36 "**Exploit**" means, with respect to a Licensed Product, to make, have made, import, have imported, use, sell or offer for sale, research, Develop, Commercialize, register, Manufacture, have Manufactured, hold or keep (whether for disposal or otherwise), have used, export, have exported, transport, distribute, have distributed, promote, have promoted, market or have sold or otherwise dispose of such Licensed Product and "**Exploitation**" means the act of Exploiting a Licensed Product.

1.37 "**FDA**" means the United States Food and Drug Administration and any successor agency thereto.

1.38 "**FFDCA**" means the United States Food, Drug, and Cosmetic Act, as amended from time to time.

1.39 "**Field**" means all therapeutic, prophylactic and diagnostic uses in humans for all indications, excluding (a) the Mozobil Indications, and (b) any use for Auto-HSCT Treatments and Allo-HSCT Treatments.

1.40 "**Financial Commitment**" means a private placement of capital or debt ownership interests or securities of X4 (including rights or options to acquire ownership interests) which results in aggregate proceeds to X4 of at least [***].

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

1.41 "**First Commercial Sale**" means, with respect to a Licensed Product in a country in the Territory, the first sale to a Third Party for monetary value for use or consumption by the general public of such Licensed Product in such country after the applicable Regulatory Authority has approved the Drug Approval Application for such Licensed Product in such country. Sales prior to the approval of the applicable Drug Approval Application, such as so-called "treatment IND sales", "named patient sales" and "compassionate use sales", shall not constitute a First Commercial Sale.

1.42 "**Force Majeure Event**" has the meaning set forth in Section 13.1.

1.43 "**Genzyme**" has the meaning set forth in the preamble hereto.

1.44 "**Genzyme Indemnitees**" has the meaning set forth in Section 11.1.

1.45 "**Genzyme Knowledge**" has the meaning set forth in Section 10.3.

1.46 "**IFRS**" means International Financial Reporting Standards adopted by the International Accounting Standards Board or applicable generally accepted accounting principles, in each case consistently applied.

1.47 "**IND**" means an investigational new drug application filed with the FDA for authorization to commence Clinical Studies in the United States (including all additions, supplements, extensions and modifications thereto), or any corresponding foreign application in any country or region in the Territory (including all additions, supplements, extensions and modifications thereto).

1.48 "**Indemnification Claim Notice**" has the meaning set forth in Section 11.3.

1.49 "**Indemnified Party**" has the meaning set forth in Section 11.3.

1.50 "**Indemnifying Party**" means the Party from whom indemnification is sought pursuant to Section 11.1 or Section 11.2.

1.51 "**Information**" means all technical, scientific and other know-how and information, trade secrets, knowledge, technology, means, methods, processes, practices, formulas, instructions, skills, techniques, procedures, experiences, technical assistance, designs, drawings, assembly procedures, computer programs, specifications, data, results and other material, including Regulatory Documentation, pre-clinical trial results and Clinical Study results, Manufacturing procedures, test procedures, and purification and isolation techniques (whether or not confidential, proprietary, patented or patentable) in written, electronic or any other form now known or hereafter developed, and all other discoveries, developments, inventions (whether or not confidential, proprietary, patented or patentable), and tangible embodiments of any of the foregoing.

1.52 "**Infringement**" has the meaning set forth in Section 7.3.1.

1.53 "**Infringement Notice**" has the meaning set forth in Section 7.3.1.

1.54 "**Invoiced Sales**" has the meaning set forth in the definition of "Net Sales".

1.55 "**LIBOR**" means the London Interbank Offered Rate for deposits in Euros having a maturity of one month published by the British Bankers' Association, as adjusted from time to time on the first London business day of each month.

1.56 "**Licensed Compound**" means (a) any of the compounds listed on **Schedule 1.56** and (b) any other compound that is otherwise covered by a Valid Claim of a Licensed Patent. Notwithstanding the foregoing, for the avoidance of doubt, plerixafor (also known as AMD3100 and 1,1'-[1,4-phenylene-bis(methylene)]-bis-1,4,8,11- tetraazacyclotetradecane, and by the trade name Mozobil®) is not a Licensed Compound.

1.57 "**Licensed Know-How**" means the Information Controlled by Genzyme or its Affiliates during the Term that is related to, and necessary or useful for the Development and/or Commercialization of, the Licensed Compounds and/or Licensed Products but excluding any Information to the extent claimed or covered by published Licensed Patents. For purposes of clarity, Licensed Know-How is listed on Schedule 1.57 attached hereto.

1.58 "**Licensed Patents**" means (a) the national, regional and international patents and patent applications, including provisional patent applications set forth on Schedule 1.58, (b) all patent applications Controlled by Genzyme or its Affiliates during the Term that claim priority to any patents or patent applications in clause (a), including divisionals, continuations, continuations-in-part, converted provisionals, and continued prosecution applications, as well as any substitute applications with respect to any patent applications in clause (a), (c) any and all patents that have issued or in the future may issue from any of foregoing patent applications in clause (a) or clause (b), to the extent Controlled by Genzyme or its Affiliates during the Term, including utility patents, utility models, petty patents and design patents and certificates of invention, and (d) any and all re-issues re-examinations renewals, revalidations, restorations or extensions (including any supplementary protection certificates and the like) of any of the foregoing patents or patent applications in clause (a), clause (b), or clause (c) to the extent Controlled by Genzyme or its Affiliates during the Term.

1.59 "**Licensed Product**" means any pharmaceutical product containing a Licensed Compound, alone or in combination with one or more other active ingredients.

1.60 "**Licensed Product Agreement**" means, with respect to a Licensed Product, any agreement entered into by and between X4 or any of its Sublicensees or its or their respective Affiliates, on the one hand, and one or more Third Parties, on the other hand, that relates to the Exploitation of such Licensed Product in the Field in the Territory, including (a) any agreement pursuant to which X4, its Sublicensees or its or their respective Affiliates receives any license or other rights to Exploit such Licensed Product, (b) supply agreements pursuant to which X4, its Sublicensees or its or their respective Affiliates obtain or will obtain quantities of such Licensed Product, (c) clinical trial agreements with respect to the conduct of clinical trials for such Licensed Product, (d) contract research organization agreements with respect to the conduct of services for such Licensed Product and (e) service agreements with respect to the conduct of services for such Licensed Product.

1.61 "**Losses**" has the meaning set forth in Section 11.1.

1.62 "**MAA**" has the meaning set forth in the definition of "Drug Approval Application."

1.63 "**Major Markets**" means each of the United States, the United Kingdom, Spain, Italy, France, Germany, Japan, Brazil, Russia, India and China.

1.64 "**Manufacture**" and "**Manufacturing**" means, with respect to a Licensed Product, all activities related to the production, manufacture, processing, filling, finishing, packaging, labeling, release, shipping, holding, conduct of Manufacture Process Development, stability testing, quality assurance or quality control of such Licensed Product or any intermediate thereof.

1.65 "**Manufacture Process Development**" means the process development, process qualification and validation and scale-up of the process to manufacture a Licensed Product and analytic development and product characterization with respect thereto.

1.66 "**Markings**" has the meaning set forth in Section 4.6.

1.67 "**Material Safety Issue**" has the meaning set forth in Section 12.4.2.

1.68 "**Milestone Event**" means each of the events identified as a milestone event in Section 6.4.1.

1.69 "**Monetization**" means the monetization of all or a portion of Genzyme's rights to receive payments under this Agreement, including by means of a direct sale (through an auction process or otherwise) or a financing (through a borrowing of loans, an offering of securities or otherwise).

1.70 "**Mozobil Indications**" means mobilization of hematopoietic stem cells to the peripheral blood for collection with or without use of G-CSF and subsequent autologous transplantation in human patients with a) lymphoma or b) multiple myeloma.

1.71 "**NDA**" has the meaning set forth in the definition of "Drug Approval Application."

1.72 "**Net Sales**" means, for any period, the gross amount invoiced by X4 or any of its Affiliates (or, for the sole purpose of calculating Cumulative Net Sales hereunder, by X4's Sublicensees and their Affiliates) for the sale of a Licensed Product, as applicable (the "**Invoiced Sales**"), less deductions for: [***]. Any of the deductions listed above that involves a payment by X4 or any of its Affiliates (or, for the sole purpose of calculating

Cumulative Net Sales hereunder, by X4's Sublicensees and their Affiliates) shall be taken as a deduction in the Calendar Quarter in which the payment is accrued by such entity. For purposes of determining Net Sales, a Licensed Product shall be deemed to be sold when invoiced and a "sale" shall not include transfers or dispositions of such Licensed Product for pre-clinical or clinical purposes or as samples, in each case, without charge. In the case of pharmacy incentive programs, hospital performance incentive programs, chargebacks, disease management programs, similar programs or discounts on portfolio product offerings, all rebates, discounts and other forms of reimbursements shall be allocated among products on the basis on which such rebates, discounts and other forms of reimbursements were actually granted or, if such basis cannot be determined, in accordance with X4's or its Affiliates' (or, for the sole purpose of calculating Cumulative Net Sales hereunder, with X4's Sublicensees' and their Affiliates') existing allocation method; provided, that, any such allocation shall be done in accordance with Applicable Law, including any price reporting laws, rules and regulations. X4's or any of its Affiliates' transfer of any Licensed Product to an Affiliate or Sublicensee shall not result in any Net Sales. In the event a Licensed Product is sold which is or comprises a Combination Product, then Net Sales with respect to such Combination Product shall be calculated by multiplying the Net Sales (as described above) of the applicable Combination Product by the fraction A over A+B, in which A is the average sales price in such country in the applicable Calendar Quarter of Licensed Products containing as therapeutically active ingredients only the Licensed Compound (in the same doses and dosage form), and B is the average sales price in such country in the applicable Calendar Quarter of products that do not contain the Licensed Compound and which contain as therapeutically active ingredients all of (and only) the other therapeutically active ingredients that are contained in such Combination Product (in the same doses and dosage form). In the event there are no such separate sales of the Licensed Product used to determine A or the other product used to determine B for a given Combination Product in such country during the applicable Calendar Quarter, Net Sales with respect to such Combination Product shall be determined by the Parties in good faith, based upon commercially reasonable standards and available market information, using values of A and B where A is equal to the relative value, to the end-user, of the Licensed Compound contained in the applicable Combination Product, and B is equal to the relative value, to the end-user, of all the other therapeutically active ingredients included in the applicable Combination Product without the Licensed Compound.

1.73 "**Non-Controlling Party**" has the meaning set forth in Section 7.4.1.

1.74 "**Party**" and "**Parties**" each has the meaning set forth in the preamble hereto.

1.75 "**Patents**" means (a) all national, regional and international patent applications, including provisional patent applications and PCT applications, continuations, continuations in part, divisionals, and registration confirmations, and (b) all national or regional patents, including utility patents, utility models, petty patents, certificates of invention and design patents including any and all reissues, re-examinations, renewals, revalidations, restorations or extensions (including any supplementary protection certificates and the like).

1.76 "**Payments**" has the meaning set forth in Section 6.8.

1.77 "**Person**" means an individual, sole proprietorship, partnership, limited partnership, limited liability partnership, corporation, limited liability company, business trust, joint stock company, trust, unincorporated association, joint venture or other similar entity or organization, including a government or political subdivision, department or agency of a government.

1.78 "**Phase II Clinical Trial**" means a Clinical Study, the principal purpose of which is a determination of safety and efficacy of a Licensed Product in the target patient population or a similar Clinical Study prescribed by the Regulatory Authorities, from time to time, pursuant to Applicable Law or otherwise as more fully defined in 21 C.F.R. §312.21(b), as amended.

1.79 "**Phase III Clinical Trial**" means a Clinical Study on a sufficient number of subjects that is designed to establish that a Licensed Product is safe and efficacious for its intended use and to determine warnings, precautions and adverse reactions that are associated with such Licensed Product in the dosage range to be prescribed, as more fully defined in 21 C.F.R. §312.21(c), as amended, which Clinical Study is intended to support Regulatory Approval of such Licensed Product, including all tests and studies that are required by the FDA from time to time, pursuant to Applicable Law or otherwise.

1.80 "**Product Labeling**" means, with respect to a Licensed Product in a country in the Territory, (a) the Regulatory Authority-approved full prescribing information for such Licensed Product for such country, including any required patient information and (b) all labels and other written, printed or graphic matter upon any container, wrapper or any package insert utilized with or for such Licensed Product in such country.

1.81 "**Product Trademarks**" means the Trademark(s) to be used by X4, or its Affiliates or Sublicensees for the Commercialization of the Licensed Products in the Field in the Territory and any registrations thereof or any pending applications relating thereto in the Territory (excluding, in any event, any Trademarks that include any corporate name or logo of Genzyme or its Affiliates).

1.82 "**Prosecution and Maintenance**" has the meaning set forth in Section 7.2.1.

1.83 "**Receiving Party**" has the meaning set forth in Section 9.1.

1.84 "**Regulatory Approval**" means, with respect to a Licensed Product in a country in the Territory, any and all approvals (including Drug Approval Applications), licenses, registrations or authorizations of any Regulatory Authority necessary to commercially distribute, sell or market such Licensed Product in such country, including, where applicable, (a) pricing or reimbursement approval in such country**,** (b) pre- and post-approval marketing authorizations (including any prerequisite Manufacturing approval or authorization related thereto) and (c) labeling approval.

1.85 "**Regulatory Authority**" means any applicable supra-national, federal, national, regional, state, provincial or local regulatory agencies, departments, bureaus, commissions, councils or other government entities regulating or otherwise exercising authority with respect to the Exploitation of a Licensed Compound or a Licensed Product in the Territory.

1.86 "**Regulatory Documentation**" means all (a) applications (including all INDs and Drug Approval Applications), registrations, licenses, authorizations and approvals (including all Regulatory Approvals), (b) correspondence and reports submitted to or received from Regulatory Authorities (including minutes and official contact reports relating to any communications with any Regulatory Authority) and all supporting documents with respect thereto, including all regulatory drug lists, advertising and promotion documents, Adverse Event files and complaint files and (c) Clinical Data and any other data contained in any of the foregoing, in each case ((a), (b) and (c)), relating to the Licensed Product.

1.87 "**Regulatory Exclusivity**" means the period of data, market or other regulatory exclusivity under the FFDCA, European Parliament and Council Regulations (EC) Nos. 726/2004, 141/2000 and 1901/2006, or national implementations of Article 10 of Directive 2001/83/EC, and all equivalents (including in the United States and the European Union) of any of the foregoing.

1.88 "**Royalty Term**" means, with respect to each Licensed Product and each country in the Territory, the period beginning on the date of the First Commercial Sale of such Licensed Product in such country, and ending on the latest to occur of (a) the expiration of the last-to-expire Valid Claim within the Licensed Patents in such country that would be infringed by the sale of such Licensed Product in such country; (b) the expiration of Regulatory Exclusivity in such country for such Licensed Product and (c) the tenth (10^{th}) anniversary of the First Commercial Sale of such Licensed Product in such country.

1.89 "**Sublicense**" means an exclusive sublicense to Commercialize a Licensed Product granted by X4 pursuant to Section 2.3.2 to a Sublicensee. For clarity, any subcontracting agreement meeting the requirements of Section 3.5 or Section 4.8 pursuant to which X4 subcontracts the exercise of its rights and/or the performance of its obligations under this Agreement shall not constitute a Sublicense.

1.90 "**Sublicensee**" means a Person, other than an Affiliate, that is granted a Sublicense by X4.

1.91 "**Sublicense Percentage**" means (a) with respect to a Sublicense granted with respect to a Licensed Product prior to the dosing of the first patient in the first Phase II Clinical Trial conducted for such Licensed Product, [***]; (b) with respect to a Sublicense granted with respect to a Licensed Product on or after the dosing of the first patient in the first Phase II Clinical Trial for such Licensed Product and prior to the dosing of the first patient in the first Phase III Clinical Trial conducted for such Licensed Product, [***]; and (c) with respect to a Sublicense granted with respect to a Licensed Product on or after the dosing of the first patient in the first Phase III Clinical Trial conducted for such Licensed Product, [***].

1.92 "**Sublicense Revenue**" means cash payments received by X4 or its Affiliate from their respective Sublicensees pursuant to a Sublicense in consideration for the grant of a Sublicense, including any upfront payments, license maintenance fees, development or regulatory or sales milestone payments [***]. Notwithstanding the foregoing, Sublicense Revenue will not include [***].

1.93 "**Term**" has the meaning set forth in Section 12.2.

1.94 "**Termination Notice Period**" has the meaning set forth in Section 12.3.

1.95 "**Territory**" means worldwide.

1.96 "**Third Party**" means any Person other than Genzyme, X4 and their respective Affiliates.

1.97 "**Third Party Claims**" has the meaning set forth in Section 11.1.

1.98 "**Trademark**" means any word, name, symbol, color, designation or device or any combination thereof that functions as a source identifier, including any trademark, trade dress, brand mark, service mark, trade name, brand name, logo or business symbol, whether or not registered.

1.99 "**Trigger Notice**" has the meaning set forth in Section 4.7.

1.100 "**United States**" means the United States of America, including all possessions and territories thereof.

1.101 "**Valid Claim**" means a pending or issued claim of a patent or patent application which: (a) has not been held unpatentable, invalid or unenforceable by a court or other government agency of competent jurisdiction in a decision from which no appeal can or has been taken; and (b) which has not been admitted to be invalid or unenforceable through reissue, re-examination, disclaimer or otherwise. Notwithstanding the foregoing, in case of pending patent applications, it is understood and agreed that if the corresponding claim in the patent applications: (i) has been limited or cancelled because of patentability requirements such that the corresponding claim does not cover the applicable Licensed Product; (ii) has lapsed; (iii) has been finally rejected (and the rejection has been affirmed on appeal or the time for appeal or petition has lapsed); (iv) has been finally revoked (and the revocation has been affirmed on appeal or the time for appeal or petition has lapsed); or (v) [***], then such corresponding claim in such corresponding patent application pending in any country will not be deemed to be a Valid Claim.

1.102 "**X4**" has the meaning set forth in the preamble hereto.

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

1.103 "**X4 First Financing**" means the closing by X4, in a single transaction or a series of transaction, of a financing round in which X4 receives from one or more Third Parties funding in an aggregate amount of not less than [***] in exchange for debt or equity ownership interests or securities of X4.

1.104 "**X4 Indemnitees**" has the meaning set forth in Section 11.2.

1.105 "**X4 Know-How**" means any Information Controlled by X4 or its Affiliates as of the effective date of termination of this Agreement by Genzyme pursuant to Section 12.3 and/or 12.5 that is not generally known and is necessary or useful for the Exploitation of a Licensed Product in the Field in the Territory, but excluding any Information to the extent covered or claimed by published X4 Patents.

1.106 "**X4 Patents**" means any Patents Controlled by X4 or its Affiliates as of the effective date of termination of this Agreement by Genzyme pursuant to Section 12.3 and/or 12.5 that are necessary or useful (or, with respect to patent applications, would be necessary or useful if such patent applications were to issue as patents) for the Exploitation of a Licensed Product in the Field in the Territory.

ARTICLE 2
GRANT OF RIGHTS AND RELATED TRANSFER OBLIGATIONS

2.1 Grants to X4. Subject to Section 2.2, Section 2.3, Section 4.7 and the other terms and conditions of this Agreement, Genzyme hereby grants to X4:

2.1.1 an exclusive (including with regard to Genzyme and its Affiliates, excepting only the retained rights of Genzyme described in Section 2.2) license during the Term, with the right to grant sublicenses in accordance with Section 2.3, under the Licensed Patents and the Licensed Know-How to Exploit the Licensed Compounds and Licensed Products in the Field in the Territory.

2.1.2 a non-exclusive license during the Term, with the right to grant sublicenses in accordance with Section 2.3, to use any Trademark and/or logo of Genzyme or its Affiliates solely as necessary for X4 to perform its obligations under Section 4.6 and for no other purpose.

2.2 Retention of Rights and Negative Covenant by Genzyme.

2.2.1 Notwithstanding anything to the contrary in this Agreement, Genzyme retains, on behalf of itself and its Affiliates, the exclusive right in and to the Licensed Patents and the Licensed Know-How to Exploit Licensed Compounds and Licensed Products in the Territory outside of the Field and solely for use in Mozobil Indications, Allo-HSCT Treatments and Auto-HSCT Treatments; provided, that, the retained right of Genzyme to Exploit the Licensed Compounds and Licensed Products outside of the Field shall be subject, in each such case, to Section 2.2.2 and to the prior written consent of X4, which consent shall not be unreasonably withheld, delayed or conditioned.

2.2.2 Notwithstanding anything to the contrary in this Agreement, Genzyme retains, on behalf of itself and its Affiliates, the non-exclusive right in and to the Licensed Patents and the Licensed Know-How to conduct preclinical research, and testing with respect to the Licensed Compounds in the Field in the Territory, and to Manufacture the Licensed Compounds solely for use in the performance of such preclinical research and testing, subject to the remainder of this Section 2.2.2. For clarity, the foregoing rights shall exclude any clinical development or Commercialization of the Licensed Compounds of any kind in the Field and/or manufacture of the Licensed Compounds for such purpose. Genzyme further covenants that it will not, during the Term, engage in any clinical Development or Commercialization of any of the Licensed Compounds listed on **Schedule 1.56** outside the Field (including in the Mozobil Indications, for Allo-HSCT Treatments and for Auto-HSCT Treatments) and/or manufacture of the Licensed Compounds listed on Schedule 1.56 for any such purpose. Any proposed publication by Genzyme or its Affiliates of research results relating to the Licensed Compounds that are obtained in the performance of the research activities described in this Section 2.2.2 shall be subject to the restrictions of Section 9.5 hereof.

2.3 Sublicenses.

2.3.1 The rights and licenses granted to X4 under Section 2.1 shall include the right to grant sublicenses, which shall not be further sublicensable, to its Affiliates, and to academic collaborators and Third Party contractors to Develop the Licensed Compounds and Licensed Products in the Field in the Territory; provided, that, X4 shall require each such Sublicensee to agree in writing to be bound by the applicable terms and conditions of this Agreement, including Section 4.7, Section 12.7, ARTICLE 7 and ARTICLE 9. No such sublicense shall relieve X4 of any of its obligations hereunder and X4 shall use its Commercially Reasonable Efforts to enforce compliance by each such Sublicensee to the extent such enforcement is required to allow X4 to comply with its obligations hereunder. X4 shall promptly inform Genzyme in writing of any material breach by a Sublicensee of its sublicense agreement to the extent such material breach would reasonably be expected to affect Genzyme's rights under this Agreement, and any failure by X4 to promptly take reasonable steps in accordance with the terms of the sublicense to have Sublicensee remedy such material breach shall constitute a material breach of this Agreement.

2.3.2 Subject to X4's compliance with its obligations under Section 4.7, and subject to X4 having secured the X4 First Financing as required under Section 12.1, the rights and licenses granted to X4 under Section 2.1 shall include the right to grant sublicenses to its Affiliates and Third Parties to Develop and/or Commercialize the Licensed Compound and Licensed Products in the Field in the Territory. X4 shall (a) require each Sublicensee to agree in writing to be bound by the applicable terms and conditions of this Agreement, including Section 4.7, Section 12.7, ARTICLE 7 and ARTICLE 9, and (b) provide Genzyme with a written notice of the execution of such sublicense (which written notice shall include a copy of any such sublicense)., which copy may be redacted by X4 with respect to obligations that are not relevant to X4's obligations under this Agreement, the terms of which shall be Confidential Information of X4 and subject to Article 9. No such Sublicensee shall relieve X4 of any of its obligations hereunder and X4 shall use its Commercially Reasonable Efforts to enforce compliance by each such Sublicensee to the extent such enforcement is required to allow X4 to comply with its obligations hereunder. X4 shall promptly inform Genzyme in writing of any material breach by a Sublicensee of its

sublicense agreement to the extent such material breach would reasonably be expected to affect Genzyme's rights under this Agreement, and any failure by X4 to promptly take reasonable steps in accordance with the terms of the sublicense to have Sublicensee remedy such material breach shall constitute a material breach of this Agreement.

2.4 Paid-Up License. Upon the expiration of the Royalty Term with respect to a Licensed Product in a country, the licenses granted to X4 under Section 2.1 shall become fully paid-up, irrevocable and perpetual for such Licensed Product in that country.

2.5 Genzyme Trademarks. With respect to any Trademark and/or logo of Genzyme or its Affiliates licensed to X4 under Section 2.1.2, X4 agrees to conform to the guidelines of Genzyme in effect from time to time (as notified in writing to X4) with respect to manner of use and to maintain the quality standards of Genzyme for goods sold and services provided in connection with any such Trademark and/or logo of Genzyme or its Affiliates. X4 and its Affiliates shall, and shall include in each Sublicense agreement an obligation of each Sublicensee to, use diligent efforts not to do any act that endangers, destroys or similarly affects the value of the goodwill pertaining to the any Trademark and/or logo of Genzyme or its Affiliates. X4 and its Affiliates shall, and shall include in each Sublicense agreement an obligation of each Sublicensee to, execute any documents required in the reasonable opinion of Genzyme to be entered as a "registered user" or recorded licensee of the any Trademark and/or logo of Genzyme or its Affiliates or to be removed as registered user or licensee thereof.

2.6 No Implied Rights. For the avoidance of doubt, X4, its Sublicensees and its and their respective Affiliates shall have no right, express or implied, with respect to the Licensed Patents, the Licensed Know-How or any Trademark and/or logo of Genzyme or its Affiliates, except as expressly provided in Section 2.1.

2.7 Disclosure. Genzyme shall use commercially reasonable efforts to deliver the Licensed Know-How to X4, at Genzyme's sole cost and expense, within [***] after the Effective Date. Genzyme shall also provide to X4, where available, copies of any raw data from Clinical Studies, case report forms, protocols and amendments, trial master files and investigator brochures related to the Licensed Compound and the Licensed Products.

2.8 Initial Material Transfer. Within [***] after the Effective Date, Genzyme shall, at Genzyme's sole cost and expense, deliver to X4 approximately the quantity of Licensed Compound in powder form as shown on Schedule 1.56 (the "**Initial Materials**"), and a "Certificate of Analysis" with respect to the Initial Materials and will transfer ownership to X4 of any Initial Materials (or work in-process of Initial Materials) currently housed at Aptuit (Genzyme's contract manufacturer of AMD11070). X4 shall reimburse Genzyme for the reasonable out-of-pocket expenses incurred by Genzyme in delivering the Initial Materials to X4 pursuant to this Section 2.8. THE INITIAL MATERIALS SUPPLIED BY GENZYME UNDER THIS SECTION 2.8 ARE SUPPLIED "AS IS" AND GENZYME MAKES NO REPRESENTATIONS AND EXTENDS NO WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR

PURPOSE, OR THAT THE USE OF THE INITIAL MATERIALS DOES NOT INFRINGE ANY PATENT, COPYRIGHT, TRADEMARK, OR OTHER PROPRIETARY RIGHTS OF A THIRD PARTY. X4 assumes all liability for damages which may arise from its use, storage or disposal of the Initial Materials. Genzyme will not be liable to X4 for any loss, claim or demand made by X4, or made against X4 by any Third Party, due to or arising from the use of the Initial Materials except, to the extent permitted by applicable Laws, to the extent caused by the negligence or willful misconduct of Genzyme.

ARTICLE 3

DEVELOPMENT AND REGULATORY

3.1 Development.

3.1.1 Development Plans. The initial Development Plan, which covers the period from the Effective Date through the first Calendar Quarter of 2015, is attached to this Agreement as **Schedule 3.1.2**. [***], X4 shall prepare and submit an updated Development Plan to Genzyme. Each such update to the Development Plan shall set forth for the applicable Calendar Year the Development objectives, the planned Clinical Studies and other Development activities and the contemplated timelines for the foregoing. X4 shall manage the preparation of each such update so that it is submitted to Genzyme [***]. X4 shall consider in good faith any comments Genzyme may provide with respect to any such updates to the Development Plan.

3.1.2 Diligence. X4 shall use Commercially Reasonable Efforts to Develop, at is sole cost and expense, and obtain and maintain Regulatory Approvals for at least one Licensed Product for use in the Field in at least the USA and one of the other Major Markets.

3.2 Regulatory Matters.

3.2.1 Regulatory Responsibilities.

(a) X4 shall have the sole right and responsibility for preparing, obtaining and maintaining Drug Approval Applications and any other Regulatory Approvals and other submissions, and for conducting communications with the Regulatory Authorities, for Licensed Products in the Field in the Territory. As between the Parties, all Drug Approval Applications and Regulatory Approvals relating to Licensed Products in the Field with respect to the Territory shall be owned by, and shall be the sole property and held in the name of, X4 or its designated Affiliate or Sublicensee.

(b) Genzyme hereby assigns to X4 all of Genzyme's right, title and interest in and to the Drug Approval Applications and Regulatory Approvals with respect to the Licensed Compound Controlled by Genzyme on the Effective Date (the "**Assigned Regulatory Documentation**"), a list of which Assigned Regulatory Documentation is set forth on **Schedule 3.2.1**. Promptly following the completion of X4 First Financing, Genzyme shall take such steps as may be reasonably necessary to promptly complete the transfer to X4 of its ownership of the Assigned Regulatory Documentation. All such Assigned Regulatory Documentation will be owned by and held in the name of X4.

(c) Schedule 3.2.1(c) sets forth all Regulatory Documentation, other than the Assigned Regulatory Documentation, that is Controlled by Genzyme as of the Execution Date. Genzyme hereby grants to X4 the exclusive right, and right of reference, under Genzyme's right, title, and interest in and to all such Regulatory Documentation not assigned to X4 pursuant to Section 3.2.1(b), to use such Regulatory Documentation for the purposes of seeking Regulatory Approvals to Commercialize Licensed Products in the Field in the Territory in accordance with this Agreement. X4 may sublicense such rights in connection with any sublicense granted in accordance with Section 2.3.

(d) Genzyme shall, upon the written request of X4, notify the applicable Regulatory Authorities in writing that it is transferring responsibility for Regulatory Documentation, including the Assigned Regulatory Documentation, to X4, and X4 shall notify the applicable Regulatory Authorities in writing that it is accepting all regulatory responsibilities associated with such Regulatory Documentation (including the responsibility for reporting Adverse Events).

3.3 Reports. At least [***] commencing on the last day of the first full Calendar Year following the Effective Date and [***], X4 shall provide Genzyme with a detailed report describing (a) the Development activities it has performed, or caused to be performed, since the preceding report (including any filings, submissions, communications or meetings with any Regulatory Authorities) and (b) its Development activities in process (including any Clinical Data and Patent filings) and (c) safety findings related to the Licensed Compounds and Licensed Products. All information disclosed by X4 to Genzyme pursuant to this Section 3.3 shall be the Confidential Information of X4.

3.4 Records. X4 shall maintain, or cause to be maintained, all Regulatory Documentation Controlled by X4 and final supporting records and documentation therefor (but not draft records or documentation therefor except as otherwise required by Applicable Law), in sufficient detail and in compliance with Applicable Law. Such records and documentation shall be complete and accurate and shall fully and properly reflect all work done and results achieved in the performance of the applicable Development activities in a manner appropriate for any regulatory purpose and, when applicable, for use in connection with Patent filings, prosecution and maintenance. Such records and documentation shall be retained by X4 for [***].

3.5 Subcontracting. X4 may subcontract the exercise of its rights and the performance of its obligations under this ARTICLE 3; provided, that, (a) X4 shall oversee the performance by its subcontractors of the subcontracted activities in a manner that would be reasonably expected to result in their timely and successful completion and (b) any agreement pursuant to which X4 engages a subcontractor pursuant to this Section 3.5 must (i) be consistent with this Agreement and (ii) contain terms obligating such subcontractor to: (A) comply with confidentiality provisions that are consistent with those set forth in ARTICLE 9; and (B) provide Genzyme with substantially the same rights with respect to any Information, Patents and other intellectual property arising from the performance of the subcontracted obligation as Genzyme would have under this Agreement if such Information, Patents or other intellectual property had arisen from the performance of such obligation by X4.

3.6 Compliance. X4 shall perform or cause to be performed any and all of its Development activities under this Agreement in a good scientific manner and in compliance with all Applicable Law.

3.7 Regulatory Audits. During the period commencing on the Effective Date and continuing until the first to occur of the expiration of the Term, the termination of this Agreement or the consummation of a Transaction, Genzyme shall have the right, during normal business hours and upon reasonable notice, to inspect any regulatory records and correspondence kept by X4, its Affiliates or Sublicensees in accordance with this Article 3. Any such audit may not be conducted more than [***]. The cost of any audit shall be borne by Genzyme. Notwithstanding the foregoing, to the extent that X4 does not have the right to grant Genzyme the right to audit the records of any of its Sublicensees hereunder, X4 shall obtain for itself such right and, at Genzyme's request, X4 shall, subject to the limitations set forth in this Section 3.7, exercise such audit right with respect to such Sublicensees and shall provide the results of such audit to Genzyme.

ARTICLE 4
COMMERCIALIZATION

4.1 Commercialization. Subject to Section 4.7, X4 shall have the sole right, at is sole cost and expense, to control the Commercialization of Licensed Products in the Field in the Territory.

4.2 Commercial Diligence. X4 shall use Commercially Reasonable Efforts to Commercialize at least one Licensed Product in the Field in accordance with Applicable Law in each of the USA and at least one of the other Major Markets.

4.3 Compliance with Applicable Law. X4 and its Affiliates shall, and X4 shall include in each Sublicense agreement an obligation of each Sublicensee to, comply with all Applicable Law with respect to the Commercialization of the Licensed Products.

4.4 Sales and Distribution. X4 shall be solely responsible for invoicing and booking sales, establishing all terms of sale (including pricing and discounts) and warehousing and distributing the Licensed Products in the Field in the Territory and shall perform such activities in accordance with the terms and conditions of this Agreement. X4 shall be solely responsible for handling all returns, recalls and withdrawals, order processing, invoicing and collection, distribution and inventory and receivables with respect to the Licensed Product in the Field in the Territory.

4.5 Product Trademarks. X4 shall have the right to determine and own the Product Trademarks to be used with respect to the Exploitation of the Licensed Products in the Field in the Territory.

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

4.6 Markings. To the extent required by Applicable Law in a country in the Territory, the promotional materials, packaging and Product Labeling for the Licensed Product used by X4, its Sublicensees or its or their respective Affiliates in connection with the Licensed Product in such country shall contain (a) the Genzyme Corporate Name and (b) the logo and corporate name of the manufacturer (collectively, the "**Markings**"). The manner in which the Markings are to be presented on promotional materials, packaging and Product Labeling for the Licensed Product shall be subject to Section 2.5 and Section 7.1.2.

4.7 Genzyme Right of First Negotiation. Genzyme shall have a right of first negotiation, as described in this Section 4.7, to negotiate with X4 for an agreement providing rights for the grant to Genzyme or its Affiliates of the right to Exploit Licensed Products in the Field in the Territory (the "**Right of First Negotiation**"). If at any time during the Term, X4 determines, in its sole discretion, that it wishes to seek to grant a sublicense (an "**Out-License**") under the Licensed Patents and/or Licensed Know-How to a Third Party for the Development and/or Commercialization of any Licensed Product, then X4 will notify Genzyme in writing and provide a non-confidential summary of the Licensed Product that is the subject of the proposed Out-License, as well as the intended scope (i.e., field and territory) of the Out-License (a "**Trigger Notice**"). If Genzyme desires to evaluate such Out-License, Genzyme will provide X4 with a written notice of same [***] that provides the process and time lines for internal diligence and stage gate committee meetings that are required to advance into license negotiations (a "**Negotiation Notice**"). Promptly after X4's receipt of a Negotiation Notice, X4 will provide Genzyme with a confidential summary of the Licensed Product (each, a "**Data Package**"), including material Clinical Data and preclinical data Controlled by X4 (as well as such other information in X4's Control that Genzyme may reasonably request), which Data Package shall be Confidential Information of X4 under this Agreement. During the period commencing on the date of receipt by X4 of the Negotiation Notice [***] (the "**Diligence Period**"), Genzyme will complete its diligence and comply with the time lines set in the Negotiation Notice and Genzyme and X4 shall have weekly meetings (either in person or by phone) to discuss Genzyme's progress and to answer any questions related to diligence. During the period commencing on the last day of the Diligence Period [***] (the "**Exclusivity Period**"), Genzyme will have an exclusive right to negotiate with X4 for an exclusive, royalty-bearing license to such Licensed Product in the field and territory specified in the Trigger Notice. If (a) Genzyme (i) does not deliver a Negotiation Notice to X4 within the [***], (ii) does not deliver a binding written proposal to X4 for the terms of an Out-License to X4 during the Exclusivity Period, or (iii) declines in writing an Out-License to the Licensed Product after review of the Data Package, or (b) Genzyme and X4 do not mutually agree on the terms of an Out-License within the Exclusivity Period, Genzyme shall have no further rights under this Agreement with respect to such Licensed Product and X4 will be free to negotiate an Out-License for such Licensed Product with any Third Party, subject to the terms of Section 2.2 (Sublicenses).

4.8 Subcontracting. Subject to Section 4.7, X4 may subcontract the Commercialization of the Licensed Products in the Field in the Territory; provided, that, (a) X4 shall use its Commercially Reasonable Efforts to oversee the performance by its subcontractors of the subcontracted activities in a manner that would be reasonably expected to result in their timely and successful completion of such activities and (b) any agreement

pursuant to which X4 engages a subcontractor must (i) be consistent in all material respects with this Agreement and (ii) contain terms obligating such subcontractor to comply with confidentiality provisions that are at least as restrictive as those set forth in ARTICLE 9. For clarity, the foregoing shall not limit X4's right to grant Sublicenses pursuant to Section 2.3 and, subject to the requirements of Section 2.3, X4 shall have the right to exercise its rights and fulfill its obligations through one or more Affiliates or Sublicensees.

ARTICLE 5
MANUFACTURE AND SUPPLY

5.1 In General. X4 shall (a) be responsible for the Manufacture of Licensed Compounds and each Licensed Product in sufficient quantities to enable X4 to pursue the Exploitation of such Licensed Product in the Field in the Territory in accordance with its obligations under Section 4.12, and (b) use Commercially Reasonable Efforts to assure an efficient and reliable supply of Licensed Compounds and each Licensed Product conforming to the applicable specifications with respect thereto as necessary to Exploit and maintain Regulatory Approvals for such Licensed Product in the Field in the Territory in accordance with its obligations under Section 4.2 and Section 3.32, including developing commercially reasonable arrangements and strategies for back-up sources of supply of such Licensed Compounds and Licensed Product that appropriately and reasonably minimize the risk of supply shortfalls and that take into account expected inventory levels and demand.

5.2 Subcontracting of Manufacturing Rights. In furtherance of the obligations set forth in Section 5.1, X4 shall either itself Manufacture and supply, or may enter into one or more definitive Manufacturing and supply agreements with Genzyme or Third Parties to Manufacture and supply, clinical and commercial supplies of Licensed Compounds and each Licensed Product. X4 shall, shall cause its Affiliates to, and shall include in any agreement with any Third Party that Manufactures and supplies clinical or commercial supplies of Licensed Compounds and any Licensed Product an obligation of such Third Party to, comply with all Applicable Law with respect to the Manufacture of Licensed Compound and Licensed Products.

ARTICLE 6
PAYMENTS

6.1 Signature Fee. No later than ten (10) days after the Execution Date, X4 shall pay Genzyme an upfront amount equal to [***]. Such payment shall be nonrefundable (including in the case that this Agreement would not enter into force as per Section 12.1) and non-creditable against any other payments due hereunder.

6.2 X4 First Financing Fee. No later than thirty (30) days after the closing of the X4 First Financing, X4 shall pay Genzyme an upfront amount equal to Three Hundred Thousand Dollars ($300,000). Such payment shall be nonrefundable and non-creditable against any other payments due hereunder.

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

6.3 Equity Consideration.

6.3.1 Unit Issuance.

(a) Initial Grant. [***] after the closing of the X4 First Financing, X4 shall issue to Genzyme or to Genzyme's designated Affiliate a number of units of ownership interests of X4 ("Units") that represents, on an as-converted basis, ten per cent (10%) of the outstanding Units of X4 immediately following the closing of the X4 First Financing (the "**Initial Units**").

(b) Anti-Dilution Grant. If at any time prior to the date of [***], X4 issues Units (including any options, warrants or rights to purchase or acquire Units from X4) that would cause Genzyme's percentage ownership in X4 to drop below ten percent (10%), X4 shall issue additional Units to Genzyme to restore Genzyme's percentage ownership in X4 to ten percent (10%) (the "**Anti-Dilution Units**"). The obligation of X4 to issue Anti-Dilution Units shall terminate on the date of Financial Commitment.

(c) Execution of Documents. Concurrently with such issuance of the Initial Units and/or the issuance of the Anti-Dilution Shares, Genzyme shall or shall cause its designated Affiliate to execute and deliver to X4 and the Third Party investors in X4 customary documents (such as, without limitation, a restricted unit purchase agreement, an investor rights agreement and a voting agreement).

6.3.2 Put Option.

(a) Put Option. At any time during the Term, Genzyme or its Affiliate, as the holder of Units of X4, will have the one time right to request in writing that X4 purchase all (but not less than all) of the Units of X4 then held by Genzyme or such Affiliate (the "**Subject Units**"). Upon X4's receipt of such written notice, X4 shall purchase such Subject Units from Genzyme or such Affiliate, for a purchase price equal to [***] (the "**Purchase Price**").

(b) Put Closing.

(i) The closing of the purchase and sale of any Subject Units (each a "**Put Closing**") shall take place on, and payment therefor shall be made in full on, the date that is [***] after the notice from Genzyme pursuant to Section 6.3.2(a) exercising the right to require X4 to purchase Subject Units (the "**Put Closing Date**"). The Put Closing shall take place at 10:00 a.m. on the Put Closing Date.

(ii) The Purchase Price shall be paid in full by X4 at the Put Closing, by wire transfer of immediately available federal funds or by bank cashier's or certified check , and Genzyme shall deliver the Subject Units to be sold to X4 at Closing duly endorsed for transfer to X4, which Subject Units shall be, and upon the request of X4, Genzyme shall provide to X4 a certificate to the effect that, the Subject Units being sold are free and clear of all liens and encumbrances of any kind, nature and description other than applicable restrictions under federal and state securities laws.

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

6.4 Milestones.

6.4.1 Regulatory Milestone Payments. X4 shall pay Genzyme the following one-time, non-refundable, non-creditable milestone payments [***] after the first achievement of the corresponding Milestone Event by X4, its Sublicensees or their respective Affiliates:

Milestone Event	Milestone Payment
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

6.4.2 Sales Milestone Payment. X4 shall pay Genzyme the following one-time, non-refundable, non-creditable milestone payments [***] after the first achievement of the corresponding Milestone Event by X4, its Sublicensees and their respective Affiliates:

Milestone Event	Milestone Payment
[***]	[***]
[***]	[***]
[***]	[***]

6.4.3 Milestone Payment upon Change of Control. X4 shall pay to Genzyme a one-time, non-refundable, non-creditable milestone payment upon the closing during the Term of any transaction that constitutes a Change of Control (the "**Transaction**"), in an amount equal to five and half of one percent (5.5%) of the Net Consideration paid or payable to all X4's equity holders (including Genzyme) less the amount of Net Consideration that Genzyme (and its Affiliates, assignees and/or transferees) is entitled to receive in connection with the Transaction by reason of the ownership by any of them of shares of ownership interests of X4 (including securities, warrants, stock appreciation rights, options or similar rights, whether or not vested, that are convertible into ownership interests of X4). The milestone payment described in this Section 6.4.3 shall become due and payable as from the date on which X4's equity holders actually receive

the consideration owed to them under the Transaction and, for clarity, no payment under this Section 6.4.3 will be due by X4 to Genzyme with respect to any consideration resulting from a deferred payment under the Transaction until such deferred payment is made to X4's equity holders. For the purpose of this Section 6.4.3, "**Net Consideration**" shall mean [***]. If Genzyme reasonably disagrees with the calculation of the Net Consideration provided by X4 it shall provide X4 with written notice [***] of its receipt of the calculation provided by X4. To the extent that parties are unable to resolve the disagreement [***], the matter shall be resolved in accordance with Section 6.12.

6.4.4 Determination that Milestone Events Have Occurred. X4 shall notify Genzyme promptly of the achievement of each Milestone Event. In the event that, notwithstanding the fact that X4 has not provided Genzyme such a notice, Genzyme believes that any such Milestone Event has been achieved, it shall so notify X4 in writing and the Parties shall promptly meet and discuss in good faith whether such Milestone Event has been achieved. Any dispute under this Section 6.4.3 regarding whether or not a Milestone Event has been achieved shall be subject to resolution in accordance with Section 13.5.

6.4.5 No Multiple Payments. For purposes of clarity, in the event that any milestone event set forth in Section 6.4.1 and/or Section 6.4.2 is achieved by a Sublicensee, X4 shall be obligated to pay to Genzyme the applicable milestone payment contemplated by Section 6.4.1 or Section 6.4.2, as the case may be, but shall not be obligated to pay Genzyme the Sublicense Percentage of any such milestone payment received by X4 from such Sublicensee.

6.5 Royalties.

6.5.1 Royalty Rates. X4 shall pay Genzyme a royalty on Net Sales of all Licensed Products in the Territory (excluding Net Sales of each Licensed Product in any country in the Territory for which the Royalty Term for such Licensed Product and country has expired) in each Calendar Year (or partial Calendar Year) at the tiered rates set forth in the table below:

Annual Net Sales of all Licensed Products in the Territory	Royalty Rate
[***]	[***]
[***]	[***]
[***]	[***]

6.5.2 Blended Royalty. X4 acknowledges that (a) the Licensed Know-How and the Information included in the Regulatory Documentation licensed by Genzyme to X4 are proprietary and valuable and that without the Licensed Know-How and such Information, X4 may not be able to obtain and maintain Regulatory Approvals with respect to the Licensed Products, (b) such Regulatory Documentation may allow X4 to obtain and maintain Regulatory Exclusivity

with respect to the Licensed Products in the Field in the Territory, and (c) the milestone payments and royalties set forth in Section 6.4 and this Section 6.5, respectively, are, in part, intended to compensate Genzyme for the value of such exclusivity. The Parties agree that the royalty rates set forth in this Section 6.5 reflect an efficient and reasonable blended allocation of the value provided by Genzyme to X4.

6.5.3 Royalty Reduction.

(a) If X4 or any of its Affiliates, is required to pay a Third Party amounts with respect to a Licensed Product in any country under a written agreement under which X4 or its Affiliate obtains a license under or acquires a Patent Controlled by such Third Party that contains a Valid Claim that covers such Licensed Product in such country, X4 may provide written notice to Genzyme setting forth in reasonable detail the identity of such Third Party and such Third Party Patent (which written notice shall include a copy of any such license or acquisition agreement entered into by X4 or its Affiliate as applicable, including its financial terms) and, thereafter, X4 may deduct [***]. Notwithstanding the foregoing, [***].

(b) In the event a Licensed Product is sold in a country and is not covered by a Valid Claim in that country, the tiered royalty rates payable by X4 to Genzyme under Section 6.5.1 shall be reduced by [***] during the applicable Royalty Term with respect to that country.

(c) Generic Products. In the event that one or more Third Parties sell a Generic Product (as defined below) in any country in which a Licensed Product is then being sold by X4, then, (a) during any Calendar Quarter in which sales of the Generic Product by such Third Parties are equal to or greater than [***] (as measured by prescriptions or other similar information available from a Third Party data provider reasonably acceptable to the Parties and applicable to such country) the applicable royalties in effect with respect to such Licensed Product in such country as specified in Section 6.5.1 shall be reduced [***] and (b) during any Calendar Quarter in which sales of the Generic Product by such Third Parties are [***] (as measured by prescriptions or other similar information available from a Third Party data provider reasonably acceptable to the Parties and applicable to such country) the applicable royalties in effect with respect to such Licensed Product in such country as specified in Section 6.5.1 shall be reduced [***]. For purposes of this Section 6.5.3(c), a "Generic Product" means [***].

6.5.4 Payment Dates and Reports. Royalty payments shall be made by X4 [***] after the end of each Calendar Quarter commencing with the Calendar Quarter in which the first day of the first Royalty Term for the first Licensed Product occurs. X4 shall also provide to Genzyme, at the same time each such payment is made, a report showing: (a) the Invoiced Sales of Licensed Products by country (in the local currency) in the Territory and the Net Sales of Licensed Products by country (in Dollars); (b) the basis for any deductions from Invoiced Sales to determine Net Sales; (c) the applicable royalty rates for the Licensed Products; (d) the exchange rates used in calculating any of the foregoing; and (e) a calculation of the amount of royalty due to Genzyme.

6.6 Sublicense Revenue. X4 shall pay to Genzyme the applicable Sublicense Percentage of any Sublicense Revenue paid to X4 or any of its Affiliates in connection with any Sublicense.

6.7 Mode of Payment; Currency Conversion.

(a) All payments to Genzyme under this Agreement shall be made by electronic funds transfer of Dollars in the requisite amount to such bank account as Genzyme may from time to time designate by written notice to X4.

(b) If any currency conversion shall be required in connection with any payment hereunder, such conversion shall be made by using the arithmetic mean of the exchange rates for the purchase of Dollars as published in *The Wall Street Journal*, Eastern Edition, on the last Business Day of each month in the Calendar Quarter to which such payments relate.

6.8 Taxes. Genzyme alone shall be responsible for paying any and all income taxes (other than withholding taxes required by Applicable Law to be paid by X4) levied on account of, or measured in whole or in part by reference to, any milestones and other amounts payable by X4 to Genzyme pursuant to this Agreement ("**Payments**") it receives. X4 shall deduct or withhold from the Payments any taxes that it is required by Applicable Law to deduct or withhold. Notwithstanding the foregoing, if Genzyme or any of its Affiliates is entitled under any applicable tax treaty to a reduction of rate of, or the elimination of, applicable withholding tax, it may deliver to X4 or the appropriate governmental authority (with the assistance of X4) the prescribed forms (including the US Tax Residency Form 6166 or IRS Form W-8BEN-E) necessary to reduce the applicable rate of withholding or to relieve X4 of its obligation to withhold tax, and X4 shall apply the reduced rate of withholding, or dispense with withholding, as the case may be; provided that X4 has received from Genzyme delivery of all applicable forms (and, if necessary, its receipt of appropriate governmental authorization) at least fifteen (15) days prior to the time that the Payments are due. X4 shall notify Genzyme if X4 intends to withhold at least thirty (30) days prior to the time the Payments are due. If, in accordance with the foregoing, X4 withholds any amount, it shall pay to Genzyme the balance when due, make timely payment to the proper taxing authority of the withheld amount and send to Genzyme proof of such payment within fifteen (15) days following such payment.

6.9 Interest on Late Payments. If any Payment due to Genzyme under this Agreement is not paid in when due, then X4 shall pay interest on the unpaid amount and on any unpaid accrued interest (before and after any judgment) at an annual rate (but with interest accruing on a daily basis) of [***], or the maximum rate permitted by Applicable Laws, whichever is less, such interest to run from the date upon which payment of such amount became due until payment thereof in full together with such accrued interest.

6.10 Financial Records. X4 and its Affiliates shall, and X4 shall include in each of its Sublicense agreements an obligation of such Sublicensees to, keep complete and accurate books and records that are necessary to verify the milestone and royalty payments owed under Section 6.4 and Section 6.5, including books and records of Invoiced Sales

(including any deductions therefrom) and Net Sales of Licensed Products in the Territory. X4 and its Affiliates shall, and X4 shall include in each of its Sublicense agreements an obligation of such Sublicensee to, retain such books and records, until the later of [***], or for such longer period as may be required by Applicable Law.

6.11 Audit. At the request of Genzyme, X4 and its Affiliates shall, and X4 shall include in each of its Sublicense agreements an obligation of such Sublicensee to, permit an independent certified public accountant retained by Genzyme, at reasonable times and upon reasonable notice, to audit the books and records maintained pursuant to Section 6.10. In no event shall such independent certified public accountant disclose to Genzyme any information other than its findings regarding the accuracy of the reports and payments made by X4 under this Article 6. Such audits may not (a) be conducted for any Calendar Quarter [***], (b) be conducted [***] (unless a previous audit during such [***] revealed an underpayment with respect to such period or X4 restates or revises such books and records for such [***]) or (c) be repeated for any Calendar Quarter. Except as provided below, the cost of any audit shall be borne by Genzyme, unless the audit reveals [***], in which case X4 shall bear the cost of the audit. Unless disputed pursuant to Section 6.12, (a) if such audit concludes that additional payments were due and payable by X4, X4 shall pay the additional amounts, with interest from the date originally due as provided in Section 6.9 within thirty (30) days after the date on which such audit is completed and the conclusions thereof are notified to the Parties and (b) if such audit concludes that X4 overpaid Genzyme, [***]. Notwithstanding the foregoing, to the extent that X4 does not have the right to grant Genzyme the right to audit the records of any of its Sublicensees hereunder, X4 shall obtain for itself such right and, at Genzyme's request in accordance with the third sentence of this Section 6.11, X4 shall exercise such audit right with respect to such Sublicensees, using an independent certified public account reasonably acceptable to Genzyme, and shall provide the results of such audit to Genzyme.

6.12 Audit Dispute. In the event of a dispute over the results of any audit conducted pursuant to Section 6.11, Genzyme and X4 shall work in good faith to resolve such dispute. If the Parties are unable to reach a mutually acceptable resolution of any such dispute [***], the dispute shall be submitted for arbitration to a certified public accounting firm selected by each Party's certified public accountants or to such other Person as the Parties shall mutually agree (the "**Accountant**") or failing such agreement, as the Chairman of the International Chamber of Commerce (or such other body as the Parties may mutually agree), may nominate. The decision of the Accountant shall be final and the costs of such arbitration as well as the initial audit shall be borne between the Parties in such manner as the Accountant shall determine.

6.13 Confidentiality. Genzyme shall treat all information subject to review under this ARTICLE 6 in accordance with the confidentiality provisions of ARTICLE 9 and Genzyme shall cause the independent public accountant retained by Genzyme pursuant to Section 6.11 or the Accountant, as applicable, to enter into a reasonably acceptable confidentiality agreement that includes an obligation to retain all such financial information in confidence and to disclose to Genzyme solely its findings regarding the accuracy of the reports and payments made by X4 hereunder, and not any other such financial information.

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

ARTICLE 7
INTELLECTUAL PROPERTY

7.1 Ownership of Intellectual Property.

7.1.1 Ownership of Technology. Subject to the licenses granted under Section 2.1, as between the Parties, each Party shall own and retain all right, title and interest in and to any and all: (a) Information that is conceived, discovered, developed or otherwise made by or on behalf of such Party, its (sub)licensees or its and their respective Affiliates under or in connection with this Agreement, whether or not patented or patentable, and any and all Patents and other intellectual property rights with respect thereto and (b) other Information, Patents and other intellectual property rights that are owned or otherwise Controlled (other than pursuant to the license grants set forth in Section 2.1) by such Party, its (sub)licensees or its and their respective Affiliates. The determination of authorship, inventorship or ownership of any Information that is conceived, discovered, developed or otherwise made under or in connection with this Agreement shall be made under United States Applicable Law, irrespective of where such Information is actually conceived, discovered, developed or otherwise made.

7.1.2 Ownership of any Trademark and/or logo of Genzyme or its Affiliates. As between the Parties, Genzyme shall retain all right, title and interest in and to the any Trademark and/or logo of Genzyme or its Affiliates.

7.2 Patent Prosecution.

7.2.1 Filing, Prosecution and Maintenance. [***], X4 shall control and use Commercially Reasonable Efforts in conducting the preparation, filing, prosecution and maintenance (including with respect to any related interference, re-issuance, re-examination, post-grant review and opposition proceedings) ("**Prosecution and Maintenance**") of the Licensed Patents in the Territory at its sole cost and expense using counsel reasonably acceptable to Genzyme; provided that (a) [***] and (b) if X4 plans to abandon any Licensed Patent in a country or region, then X4 shall notify Genzyme in writing [***], the term "Licensed Patents" automatically shall be modified to exclude the patent or patent application excluded in Licensed Patents in such country or territory as of the date X4 provides such written request to Genzyme., and Genzyme shall have the option, but not the obligation, to assume the Prosecution and Maintenance of such Patent in the specific country or territory at its sole cost and expense.

7.2.2 Cooperation. Each Party shall assist the other Party at the reasonable request of the other Party from time to time in connection with its activities set forth in Section 7.1.1 or Section 7.2.1, as applicable. X4 shall keep Genzyme reasonably informed, not less often that once per Calendar Year, of key steps to be taken in the Prosecution and Maintenance of all the Licensed Patents, including all applications filed by it pursuant to Section 7.2.1. Upon Genzyme's written request, X4 shall furnish Genzyme with copies of such applications for Licensed Patents, amendments thereto and other related correspondence to and from patent offices, and, to the extent reasonably practicable, permit Genzyme an opportunity to offer its comments thereon before making a submission to a patent office, and X4 shall consider in good faith Genzyme's comments.

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

7.2.3 Patent Term Extensions. X4 shall have the right to control decisions regarding patent term extensions, including supplementary protection certificates and any other extensions that are now or become available in the future, wherever applicable, for the Licensed Patents in any country in the Territory. X4 shall have the right and shall use Commercially Reasonable Efforts to pursue such extensions in accordance with such decisions. Genzyme shall use commercially reasonable efforts to provide prompt and reasonable assistance, as reasonably requested by X4, including by taking such action as Licensed Patent holder as is required under any Applicable Law to obtain any such extension.

7.2.4 CREATE Act. Notwithstanding anything to the contrary in this Section 7.2, neither Party shall have the right to make an election under the Cooperative Research and Technology Enhancement Act of 2004, 35 U.S.C. 103(c)(2)-(c)(3) (the "**CREATE Act**") when exercising its rights under this Section 7.2 without the prior written consent of the other Party. With respect to any such permitted election, the Parties shall use reasonable efforts to cooperate and coordinate their activities with respect to any submissions, filings or other activities in support thereof. The Parties acknowledge and agree that this Agreement is a "joint research agreement" as defined in the CREATE Act.

7.3 Enforcement of Patents.

7.3.1 Notice. In the event either Party becomes aware of (a) any suspected infringement of any Licensed Patents or (b) any certification filed under the Hatch-Waxman Act claiming that any Licensed Patents are invalid or unenforceable or claiming that any Licensed Patents would not be infringed by the making, use, offer for sale, sale or import of a product for which an application under the Hatch-Waxman Act is filed, or any equivalent or similar certification or notice in any other jurisdiction in the Territory (each of clauses (a) and (b), an "**Infringement**"), such Party shall promptly notify the other Party and provide it with all details of such Infringement of which it is aware (each, an "**Infringement Notice**"); provided that each Party shall give the other Party an Infringement Notice [***].

7.3.2 Control of Enforcement. X4 shall have the first right, but not the obligation, through counsel of its choosing, to initiate an infringement action with respect to any Infringement of any Licensed Patents at its sole cost and expense or, subject to Section 2.3, to grant the infringing Third Party adequate rights and licenses necessary for continuing such activities. If X4 does not initiate such an infringement action [***] of learning of such Infringement, or earlier notifies Genzyme in writing of its intent not to so initiate an action, and X4 has not granted such infringing Third Party rights and licenses to continue its otherwise infringing activities, then Genzyme shall have the right, but not the obligation, to bring such an action; provided that, except with respect to any Infringement described in clause (b) of the definition thereof, if [***].

7.3.3 Settlement. The Party that controls the prosecution of a given Infringement claim pursuant to Section 7.3.2 shall also have the right to control settlement of such claim; provided that no settlement shall be entered into without the prior consent of the other Party if such settlement would adversely affect or diminish the rights and benefits of the other Party under this Agreement, or impose any new obligations or adversely affect any obligations of the other Party under this Agreement.

7.3.4 Cooperation. In the event a Party is entitled to and brings an infringement action in accordance with this Section 7.3, the other Party shall cooperate fully, including being joined as a party plaintiff in such action, providing access to relevant documents and other evidence and making its employees available at reasonable business hours, at the expense of the Party bringing the infringement action. If a Party pursues an action against such alleged Infringement, it shall consider in good faith any comments from the other Party and shall keep the other Party reasonably informed of any steps taken to preclude such infringement.

7.3.5 Costs and Recovery. The costs and expenses relating to any Infringement action commenced pursuant to this Section 7.3 shall be the responsibility of the Party controlling the prosecution thereof. Any damages or other amounts collected shall be [***].

7.4 Infringement Claims by Third Parties.

7.4.1 Defense of Third Party Claims. If a Third Party asserts that a Patent or other intellectual property right owned or otherwise controlled by it is infringed by the Exploitation of the Licensed Products in the Field in the Territory, the Party first made aware of such a claim shall promptly provide the other Party written notice of such claim along with the related facts in reasonable detail. X4 shall have the first right, but not the obligation, to control the defense of such claim. If X4 fails to assume control of the defense of such claim [***], then Genzyme shall have the right, but not the obligation, to defend against such claim. Notwithstanding the foregoing, the Party controlling such defense (the "**Controlling Party**") shall not be entitled to assert a claim or counterclaim against such Third Party based on the Patents or other intellectual property rights owned or otherwise controlled by the other Party (the "**Non-Controlling Party**") without the prior written consent of the Non-Controlling Party, such consent not to be unreasonably conditioned, withheld or delayed. The Non-Controlling Party shall cooperate with the Controlling Party, at the Controlling Party's reasonable request and expense, in any such defense and shall have the right, at its own expense, to be represented separately by counsel of its own choice in any such proceeding.

7.4.2 Settlement of Third Party Claims. The Controlling Party with respect to a particular claim pursuant to Section 7.4.1 also shall have the right to control settlement of such claim; provided that [***].

7.4.3 Allocation of Costs. All costs and expenses relating to any defense, settlement and judgments in an action commenced pursuant to this Section 7.4 shall be borne by the Controlling Party with respect to such action.

7.5 Invalidity or Unenforceability Defenses or Actions.

7.5.1 Third Party Defense or Counterclaim.

(a) If a Third Party asserts, as a defense or as a counterclaim in any infringement action under Section 7.3 or claim or counterclaim asserted under Section 7.4, or in a

declaratory judgment action or similar action or claim filed by such Third Party, that any Licensed Patent is invalid or unenforceable, then the Party pursuing such infringement action, or the Party first obtaining knowledge of such declaratory judgment action, as the case may be, shall promptly give written notice to the other Party.

(b) X4 shall have the first right, but not the obligation, through counsel of its choosing, at its sole cost and expense, to defend against such action or claim. If X4 [***], Genzyme shall have the right, through counsel of its choosing, at its sole cost and expense, to defend against such action or claim.

7.5.2 Assistance. Each Party shall assist and cooperate with the other Party as such other Party may reasonably request from time to time in connection with its activities set forth in Section 7.5.1, including by providing access to relevant documents and other evidence and making its employees available at reasonable business hours; provided that neither Party shall be required to disclose legally privileged information unless and until procedures reasonably acceptable to such Party are in place to protect such privilege. In connection with any such defense or claim or counterclaim, the controlling Party shall consider in good faith any comments from the other Party and shall keep the other Party reasonably informed of any steps taken, and shall provide copies of all documents filed, in connection with such defense, claim or counterclaim. In connection with the activities set forth in Section 7.5.1, each Party shall consult with the other as to the strategy for the defense of the Licensed Patents.

7.6 Third Party Licenses. If, in the reasonable opinion of counsel to X4, the Exploitation of the Licensed Product in the Field in the Territory by X4, its Sublicensees or its or their respective Affiliates infringes or misappropriates any Patent or any intellectual property right of a Third Party in any country or countries in the Territory, [***], then X4 shall have the first right, but not the obligation, to negotiate the terms of a license from such Third Party in the applicable country or, countries in the Territory. X4 shall keep Genzyme regularly informed in writing of any such decision to enter into negotiation, and of the outcome thereof. [***].

7.7 Product Trademarks.

7.7.1 Maintenance and Prosecution of Product Trademarks. X4 shall own all right, title, and interest to the Product Trademarks in the Territory, and shall be responsible for the registration, prosecution, and maintenance thereof. All costs and expenses of registering, prosecuting, and maintaining the Product Trademarks shall be borne solely by X4.

7.7.2 Enforcement of Product Trademarks. X4 shall have the right and responsibility for taking such action as X4 deems necessary against a Third Party based on any alleged, threatened, or actual infringement, dilution, misappropriation, or other violation of, or unfair trade practices or any other like offense relating to, the Product Trademarks by a Third Party in the Territory. X4 shall bear the costs and expenses relating to any enforcement action commenced pursuant to this Section 7.7.2 and any settlements and judgments with respect thereto, and shall retain any damages or other amounts collected in connection therewith.

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

7.7.3 Third Party Claims. X4 shall have the right and responsibility for defending against any alleged, threatened, or actual claim by a Third Party that the use or registration of the Product Trademarks in the Territory infringes, dilutes, misappropriates, or otherwise violates any Trademark or other right of such Third Party or constitutes unfair trade practices or any other like offense, or any other claims as may be brought by a Third Party against a Party in connection with the use of the Product Trademarks with respect to a Licensed Product in the Territory. X4 shall bear the costs and expenses relating to any defense commenced pursuant to this Section 7.7.3 and any settlements and judgments with respect thereto, and shall retain any damages or other amounts collected in connection therewith.

7.7.4 Notice and Cooperation. Each Party shall provide to the other Party prompt written notice of any actual or threatened infringement of the Product Trademarks in the Territory and of any actual or threatened claim that the use of the Product Trademarks in the Territory violates the rights of any Third Party. Each Party shall cooperate fully with the other Party with respect to any enforcement action or defense commenced pursuant to this Section 7.7; provided that X4 shall bear the reasonable and documented out-of-pocket costs and expenses incurred by Genzyme in connection with such cooperation.

ARTICLE 8
PHARMACOVIGILANCE AND SAFETY

8.1 Global Safety Database. X4 shall set up, hold, and maintain (at X4's sole cost and expense) the global safety database for the Licensed Products in the Territory.

8.2 Clinical Trial Register. Notwithstanding anything in this Agreement to the contrary, including ARTICLE 9, X4 shall have the right to disclose on publicly-accessible clinical trial registries the results or summaries of the results of all Clinical Studies for the Licensed Compound or Licensed Products conducted by or under authority of X4 in the Territory or as otherwise required by Applicable Law.

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

ARTICLE 9
CONFIDENTIALITY AND NON-DISCLOSURE

9.1 Confidentiality Obligations. At all times during the Term [***], each Party shall, and shall cause its Affiliates and, in the case of X4 as the Receiving Party, shall include in each Sublicense agreement an obligation of its Sublicensees to and its and their respective officers, directors, employees and agents to, keep completely confidential and not publish or otherwise disclose and not use, directly or indirectly, for any purpose, any Confidential Information furnished or otherwise made known to it, directly or indirectly, by the other Party, except to the extent such disclosure or use is expressly permitted by the terms of this Agreement or such use is reasonably necessary for the performance of its obligations or the exercise of its rights under this Agreement. "**Confidential Information**" means any information provided by one Party (the "**Disclosing Party**") to the other Party (the "**Receiving Party**") under or in connection with this Agreement, including the terms of this Agreement or any information relating to the Licensed Products (including the Regulatory Documentation and Regulatory Approvals and any information or data contained therein), any Exploitation of the Licensed Products in the Territory or the scientific, regulatory or business affairs or other activities of either Party. Notwithstanding the foregoing, Confidential Information shall not include any information that:

9.1.1 is or hereafter becomes part of the public domain through no wrongful act, fault or negligence on the part of the Receiving Party;

9.1.2 can be demonstrated by documentation or other competent proof to have been in the Receiving Party's possession prior to disclosure by the Disclosing Party without any obligation of confidentiality with respect to such information;

9.1.3 is subsequently received by the Receiving Party, without confidentiality restrictions, from a Third Party who is not bound by any obligation of confidentiality with respect to such information; or

9.1.4 can be demonstrated by documentation or other competent evidence to have been independently developed by or for the Receiving Party without use of or reference to the Disclosing Party's Confidential Information.

Specific aspects or details of Confidential Information shall not be deemed to be within the public domain or in the possession of the Receiving Party merely because the Confidential Information is embraced by more general information in the public domain or in the possession of the Receiving Party. Further, any combination of Confidential Information shall not be considered in the public domain or in the possession of the Receiving Party merely because individual elements of such Confidential Information are in the public domain or in the possession of the Receiving Party unless the combination and its principles are in the public domain or in the possession of the Receiving Party.

9.2 Permitted Disclosures. Each Receiving Party may disclose Confidential Information disclosed to it by the Disclosing Party to the extent that such disclosure by the Receiving Party is:

9.2.1 made in response to a valid order of a court of competent jurisdiction or other supra-national, federal, national, regional, state, provincial and local governmental or regulatory body of competent jurisdiction or, if in the reasonable opinion of the Receiving Party's legal counsel, such disclosure is otherwise required by Applicable Law or the requirements of a national securities exchange or other similar regulatory body; provided that the Receiving Party shall first have given notice, to the extent legally permitted, to the Disclosing Party and given the Disclosing Party a reasonable opportunity to quash such order and to obtain a protective order requiring that the Confidential Information and documents that are the subject of such order be held in confidence by such court or agency or, if disclosed, be used only for the purposes for which the order was issued; and provided further that if a disclosure order is not quashed or a protective order is not obtained, the Confidential Information disclosed in response to such court or governmental order shall be limited to the information that is legally required to be disclosed in response to such court or governmental order;

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

9.2.2 made by the Receiving Party to a Regulatory Authority as required in connection with any filing, application or request for Regulatory Approval; provided that reasonable measures shall be taken to obtain confidential treatment of such information;

9.2.3 made by the Receiving Party as necessary to file or prosecute Patent applications pursuant to Section 7.1.1 or Section 7.2.1, as applicable, prosecute or defend litigation or otherwise establish rights or enforce obligations under this Agreement; provided that reasonable measures shall be taken to obtain confidential treatment of such information; or

9.2.4 made by the Receiving Party to advisors, actual or prospective acquirers, merger candidates, actual or prospective investors or funding sources or actual or prospective Sublicensees (with respect to X4 as the Receiving Party), or, with respect to Genzyme as the Receiving Party, investors in connection with a Monetization (and to its and their respective Affiliates, representatives and financing sources); provided that (a) each such Third Party signs an agreement that contains obligations that are substantially similar to the Receiving Party's obligations hereunder except that the obligations under such agreement may terminate five years after disclosure of the relevant information, and (b) each such Third Party to whom information is disclosed shall (i) be subject to reasonable obligations of confidentiality, (ii) be informed of the confidential nature of the Confidential Information so disclosed, and (iii) agree to hold such Confidential Information subject to the terms thereof.

9.3 Use of Names. Except as expressly provided in this Agreement, neither Party shall mention or otherwise use the name, insignia, symbol, Trademark of the other Party (or any abbreviation or adaptation thereof) in any publication, press release, marketing and promotional material or other form of publicity without the prior written approval of such other Party in each instance, such approval not be unreasonably conditioned, withheld or delayed. The restrictions imposed by this Section 9.3 shall not prohibit either Party from making any disclosure (a) identifying the other Party as a counterparty to this Agreement to its investors, (b) that is required by Applicable Law or the requirements of a national securities exchange or another similar regulatory body or (c) with respect to which written consent has previously been obtained. Further, the restrictions imposed on each Party under this Section 9.3 are not intended, and shall not be construed, to prohibit a Party from identifying the other Party in its internal business communications, provided that any Confidential Information in such communications remains subject to this Article 9.

9.4 Press Releases. Neither Party shall issue any press release or other similar public communication relating to this Agreement, its subject matter or the transactions covered by it, or the activities of the Parties under or in connection with this Agreement, without the prior written approval of the other Party, except (a) for communications required by Applicable Law as reasonably advised by the issuing Party's counsel (provided that the other Party is given a reasonable opportunity to review and comment on any such press release or public communication in advance thereof to the extent legally permitted and the issuing Party shall act in good faith to incorporate any reasonable comments provided by the other Party on such press release or public communication), (b) for information that has been previously disclosed publicly or (c) as otherwise set forth in this Agreement. The Parties agree that X4 may issue a press release to announce the execution of this Agreement, a draft of which shall be provided to and approved by Genzyme.

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

9.5 Publications. Each Party acknowledges that the other Party's personnel may desire to publish in scientific journals or present at scientific conferences scientific, pre-clinical or clinical data derived from research and development related to the Licensed Compounds and Licensed Products conducted in accordance with the terms of this Agreement. Accordingly, no such publication will be submitted and no such presentation shall be made unless a written copy of such proposed publication or presentation is submitted by the Party wishing to publish ("**Publishing Party**") to the other Party ("**Consulted Party**") [***] before submission for publication or presentation. The Consulted Party shall notify the Publishing Party in writing [***] whether such draft contains (a) information of the Consulted Party which it considers to be Confidential Information, (b) information that if published would have an adverse effect on a patent application covering the subject matter of this Agreement, or (c) information that such Consulted Party reasonably believes would be likely to have a material adverse impact on the Development, Manufacture or Commercialization of a Licensed Product, or the Exploitation of rights retained under Section 2.2.2. In the case of item (a) above, the Publishing Party may not publish Confidential Information of the Consulted Party without its written consent. In the case of item (b) above, the Consulted Party may request a delay and the Publishing Party shall delay such publication or presentation, [***], to permit the timely preparation and filing of a patent application or an application for a certificate of invention covering the information at issue. In the case of item (c) above, if the Publishing Party disagrees with the Consulted Party's assessment of the impact of the publication or presentation, then the issue shall be resolved pursuant to Section 13.5. X4 and Genzyme will each comply with standard academic practice regarding authorship of scientific publications and recognition of contribution of other parties in any publication.

9.6 Destruction of Confidential Information. Within [***] after the earlier of (a) the expiration of the Term, (b) the termination of this Agreement, or (c) the written request of the Disclosing Party, the Receiving Party shall promptly destroy all documentary, electronic or other tangible embodiments of the Disclosing Party's Confidential Information to which the Receiving Party does not retain rights hereunder and any and all copies thereof, and destroy those portions of any documents that incorporate or are derived from the Disclosing Party's Confidential Information to which the Receiving Party does not retain rights hereunder, and provide a written certification of such destruction, except that the Receiving Party may retain one copy thereof, to the extent that the Receiving Party requires such Confidential Information for the purpose of performing any obligations or exercising any rights under this Agreement that may survive such expiration or termination, or for archival purposes. Notwithstanding the foregoing, the Receiving Party also shall be permitted to retain such additional copies of or any computer records or files containing the Disclosing Party's Confidential Information that have been created solely by the Receiving Party's automatic archiving and back-up procedures, to the extent created and retained in a manner consistent with the Receiving Party's standard archiving and back-up procedures, but not for any other use or purpose.

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

ARTICLE 10
REPRESENTATIONS AND WARRANTIES; COVENANTS

10.1 Mutual Representations and Warranties. Each Party hereby represents and warrants to the other Party as of the Effective Date as follows:

10.1.1 Corporate Authority. Such Party (a) has the power and authority and the legal right to enter into this Agreement and perform its obligations hereunder and (b) has taken all necessary action on its part required to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder. This Agreement has been duly executed and delivered by such Party and constitutes a legal, valid and binding obligation of such Party and is enforceable against it in accordance with its terms subject to the effects of bankruptcy, insolvency or other laws of general application affecting the enforcement of creditor rights and judicial principles affecting the availability of specific performance and general principles of equity, whether enforceability is considered in a proceeding at law or equity.

10.1.2 Consents and Approvals. All necessary consents, approvals and authorizations of all Regulatory Authorities and other Persons required to be obtained by such Party in connection with the execution and delivery of this Agreement have been obtained.

10.1.3 Conflicts. The execution and delivery of this Agreement and the performance of such Party's obligations hereunder (a) do not conflict with or violate any requirement of Applicable Law or any provision of the articles of incorporation or bylaws of such Party in any material way and (b) do not conflict with, violate or breach or constitute a default or require any consent under, any contractual obligation or court or administrative order by which such Party is bound.

10.2 Representations, Warranties and Covenants of X4. Neither X4 nor any of its Affiliates has been debarred or is subject to debarment and neither X4 nor any of its Affiliates will use in any capacity, in connection with the activities to be performed under this Agreement, any Person who, to X4's knowledge after due inquiry, has been debarred pursuant to Section 306 of the FFDCA or who is the subject of a conviction described in such section. X4 shall inform Genzyme in writing immediately if it or any Person who is performing activities hereunder is debarred or is the subject of a conviction described in Section 306 or if any action, suit, claim, investigation or legal or administrative proceeding is pending or, to the best of X4's knowledge, is threatened, relating to the debarment or conviction of X4 or any Person performing activities hereunder.

10.3 Representations and Warranties of Genzyme. Genzyme hereby represents and warrants to X4 that as of the Effective Date:

10.3.1 Genzyme or its Affiliate owns all right, title and interest in and to the Licensed Patents listed on Schedule 1.58, and, to Genzyme's Knowledge, the Licensed Patents listed in Exhibit 1.58 are the only Patents Controlled by Genzyme that claim (specifically or generically) the composition, method of manufacture or method of use of any Licensed Compound;

10.3.2 Genzyme has not granted to any Affiliate or Third Party any rights in the Licensed Know-How or Licensed Patents that are inconsistent with the rights granted to X4 under this Agreement;

10.3.3 No Third Party has made or threatened in writing a claim of infringement or misappropriation with respect to the Licensed Compounds;

10.3.4 To Genzyme's Knowledge, there is no infringement or misappropriation of any Licensed Patent or any Licensed Know-How by any Third Party;

10.3.5 All Licensed Patent Rights listed on Schedule 1.58 are existing and, to Genzyme's Knowledge, no issued Patents which are part of Licensed Patent Rights listed on Schedule 1.58 are invalid or unenforceable;

10.3.6 There are no claims, judgment or settlements against Genzyme pending, or to Genzyme's Knowledge, threatened, that invalidate or seek to invalidate the Licensed Patents;

10.3.7 Genzyme is not a party to any agreement with the U.S. Federal government or an agency thereof pursuant to which the U.S. Federal government or such agency provided funding for the development of a Licensed Compound;

For purposes of this Section 10.3, "**Genzyme's Knowledge**" means the actual knowledge (without enquiry or investigation) of Genzyme.

10.4 DISCLAIMER OF WARRANTY. EXCEPT FOR THE EXPRESS WARRANTIES SET FORTH IN SECTION 10.1 AND SECTION 10.2, NEITHER PARTY MAKES ANY REPRESENTATIONS OR GRANTS ANY WARRANTY, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, BY STATUTE OR OTHERWISE, AND EACH PARTY SPECIFICALLY DISCLAIMS ANY OTHER WARRANTIES, WHETHER WRITTEN OR ORAL, OR EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE OR ANY WARRANTY AS TO THE VALIDITY OF ANY PATENTS OR THE NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHTS OF THIRD PARTIES.

10.5 ADDITIONAL WAIVER. X4 AGREES THAT: (A) EXCEPT AS SPECIFICALLY PROVIDED IN SECTION 10.3, THE LICENSED PATENTS AND LICENSED KNOW-HOW ARE LICENSED "AS IS", "WITH ALL FAULTS" AND "WITH ALL DEFECTS", AND X4 EXPRESSLY WAIVES ALL RIGHTS TO MAKE ANY CLAIM WHATSOEVER AGAINST GENZYME FOR MISREPRESENTATION OR FOR BREACH OF PROMISE, GUARANTEE OR WARRANTY OF ANY KIND RELATING TO THE LICENSED PATENTS OR LICENSED KNOW-HOW; (B) GENZYME WILL HAVE NO LIABILITY TO X4 FOR ANY ACT OR OMISSION PRIOR TO THE EFFECTIVE DATE IN THE PREPARATION, FILING, PROSECUTION, MAINTENANCE, ENFORCEMENT, DEFENCE OR OTHER HANDLING OF THE LICENSED PATENTS; AND (C) X4 IS SOLELY RESPONSIBLE FOR DETERMINING WHETHER THE LICENSED PATENTS AND LICENSED KNOW-HOW HAVE APPLICABILITY OR UTILITY IN X4'S CONTEMPLATED EXPLOITATION OF THE LICENSED PRODUCT, AND X4 ASSUMES ALL RISK AND LIABILITY IN CONNECTION WITH SUCH DETERMINATION.

ARTICLE 11
INDEMNITY

11.1 Indemnification of Genzyme. X4 shall indemnify Genzyme, its Affiliates and its and their respective directors, officers, employees and agents (collectively, "**Genzyme Indemnitees**"), and defend and save each of them harmless, from and against any and all losses, damages, liabilities, costs and expenses (including reasonable attorneys' fees and expenses) (collectively, "**Losses**") in connection with any and all suits, investigations, claims or demands of Third Parties (collectively, "**Third Party Claims**") arising from or occurring as a result of: (a) the breach by X4 of any representation, warranty, covenant, obligation or agreement made or undertaken by X4 under this Agreement, (b) the gross negligence or willful misconduct on the part of any X4 Indemnitee or (c) the Exploitation of any Licensed Compounds or Licensed Products in the Field by or on behalf of X4, its Sublicensees or any of its or their respective Affiliates; provided that, with respect to any Third Party Claim for which X4 has an obligation to any Genzyme Indemnitee pursuant to this Section 11.1 and Genzyme has an obligation to any X4 Indemnitee pursuant to Section 11.2, each Party shall indemnify each of the Genzyme Indemnitees or the X4 Indemnitees, as applicable, for its Losses to the extent of its responsibility, relative to the other Party. The foregoing indemnification obligation shall not apply to the extent that the Genzyme Indemnitees fail to comply with the indemnification procedures set forth in Sections 11.3 and 11.4 and X4's defense of the relevant Claims is prejudiced by such failure.

11.2 Indemnification of X4. Genzyme shall indemnify X4, its Affiliates and its and their respective directors, officers, employees and agents (collectively, "**X4 Indemnitees**"), and defend and save each of them harmless, from and against any and all Losses in connection with any and all Third Party Claims arising from or occurring as a result of: (a) the breach by Genzyme of any representation, warranty, covenant, obligation or agreement made or undertaken by Genzyme under this Agreement or (b) the gross negligence or willful misconduct on the part of any Genzyme Indemnitee; provided that, with respect to any Third Party Claim for which Genzyme has an obligation to any X4 Indemnitee pursuant to this Section 11.2 and X4 has an obligation to any Genzyme Indemnitee pursuant to Section 11.1, each Party shall indemnify each of the Genzyme Indemnitees or the X4 Indemnitees, as applicable, for its Losses to the extent of its responsibility, relative to the other Party. The foregoing indemnification obligation shall not apply to the extent that the X4 Indemnitees fail to comply with the indemnification procedures set forth in Sections 11.3 and 11.4 and Genzyme's defense of the relevant Claims is prejudiced by such failure.

11.3 Notice of Claim. All indemnification claims in respect of a Genzyme Indemnitee or a X4 Indemnitee shall be made solely by Genzyme or X4, as applicable (each of Genzyme or X4 in such capacity, the "**Indemnified Party**"). The Indemnified Party shall give the Indemnifying Party prompt written notice (an "**Indemnification Claim Notice**") of any Losses or discovery of fact upon which such Indemnified Party intends to base a request

for indemnification under Section 11.1 or Section 11.2, but in no event shall the Indemnifying Party be liable for any Losses that result from any delay in providing such notice. Each Indemnification Claim Notice must contain a description of the claim and the nature and amount of such Loss (to the extent that the nature and amount of such Loss is known at such time). The Indemnified Party shall furnish promptly to the Indemnifying Party copies of all papers and official documents received in respect of any Losses and Third Party Claims.

11.4 Control of Defense.

11.4.1 Control of Defense. At its option, the Indemnifying Party may assume the defense of any Third Party Claim by giving written notice to the Indemnified Party [***]. The assumption of the defense of a Third Party Claim by the Indemnifying Party shall not be construed as an acknowledgment that the Indemnifying Party is liable to indemnify any Genzyme Indemnitee or X4 Indemnitee, as applicable, in respect of the Third Party Claim, nor shall it constitute a waiver by the Indemnifying Party of any defenses it may assert against a Genzyme Indemnitee's or a X4 Indemnitee's, as applicable, claim for indemnification. Upon assuming the defense of a Third Party Claim, the Indemnifying Party may appoint as lead counsel in the defense of the Third Party Claim any legal counsel selected by the Indemnifying Party. In the event the Indemnifying Party assumes the defense of a Third Party Claim, the Indemnified Party shall immediately deliver to the Indemnifying Party all original notices and documents (including court papers) received by any Genzyme Indemnitee or X4 Indemnitee, as applicable, in connection with the Third Party Claim. If the Indemnifying Party assumes the defense of a Third Party Claim, except as provided in Section 11.4.2, the Indemnifying Party shall not be liable to the Indemnified Party for any legal expenses subsequently incurred by such Indemnified Party or any Genzyme Indemnitee or X4 Indemnitee, as applicable, in connection with the analysis, defense or settlement of such Third Party Claim. In the event that it is ultimately determined that the Indemnifying Party is not obligated to indemnify, defend or hold harmless a Genzyme Indemnitee or X4 Indemnitee, as applicable, from and against a Third Party Claim, the Indemnified Party shall reimburse the Indemnifying Party for any and all costs and expenses (including attorneys' fees and costs of suit) incurred by the Indemnifying Party in its defense of such Third Party Claim.

11.4.2 Right to Participate in Defense. Without limiting Section 11.4.1, any Indemnified Party shall be entitled to participate in, but not control, the defense of a Third Party Claim and to employ counsel of its choice for such purpose; provided that such employment shall be at the Indemnified Party's own expense unless (a) the employment thereof has been specifically authorized by the Indemnifying Party in writing, (b) the Indemnifying Party has failed to assume the defense and employ counsel in accordance with Section 11.4.1 (in which case the Indemnified Party shall control the defense) or (c) the interests of the Indemnified Party and any Genzyme Indemnitee or X4 Indemnitee, as applicable, on the one hand, and the Indemnifying Party, on the other hand, with respect to such Third Party Claim are sufficiently adverse to prohibit the representation by the same counsel of all such Persons under Applicable Law, ethical rules or equitable principles.

11.4.3 Settlement. With respect to any Third Party Claims relating solely to the payment of money damages in connection with a Third Party Claim that shall not result in any

Genzyme Indemnitee or X4 Indemnitee, as applicable, becoming subject to injunctive or other relief or otherwise adversely affecting the business, rights, or interests of any Genzyme Indemnitee or X4 Indemnitee, as applicable, in any manner and as to which the Indemnifying Party shall have acknowledged in writing the obligation to indemnify such Genzyme Indemnitee or X4 Indemnitee, as applicable, hereunder, the Indemnifying Party shall have the sole right to consent to the entry of any judgment, enter into any settlement or otherwise dispose of such Third Party Claim, on such terms as the Indemnifying Party, in its sole discretion, shall deem appropriate. With respect to all other Third Party Claims, where the Indemnifying Party has assumed the defense of the Third Party Claim in accordance with Section 11.4.1, the Indemnifying Party shall have authority to consent to the entry of any judgment, enter into any settlement or otherwise dispose of such Third Party Claim, provided that it obtains the prior written consent of the Indemnified Party (such consent not to be unreasonably conditioned, withheld or delayed). The Indemnifying Party shall not be liable for any settlement or other disposition of a Third Party Claim by a Genzyme Indemnitee or a X4 Indemnitee that is reached without the prior written consent of the Indemnifying Party. So long as the Indemnifying Party is actively defending or prosecuting any Third Party Claim, the Indemnified Party shall not, and the Indemnified Party shall ensure that each Genzyme Indemnitee or X4 Indemnitee, as applicable, does not, admit any liability with respect to or settle, compromise or discharge, such Third Party Claim without the prior written consent of the Indemnifying Party, such consent not to be unreasonably conditioned, withheld or delayed. If the Indemnifying Party does not assume and conduct the defense of a Third Party Claim [***], the Indemnified Party may consent to the entry of any judgment or enter into any settlement with respect to such Third Party Claim in any manner the Indemnified Party may deem reasonably appropriate. For clarity, the assumption of the defense of any Third Party Claim by the Indemnified Party in accordance with the preceding sentence shall in no event relieve the Indemnifying Party from its obligations to indemnify and hold harmless the Indemnified Party from all Losses arising from such Third Party Claim.

11.4.4 Cooperation. Regardless of whether the Indemnifying Party chooses to defend or prosecute any Third Party Claim, the Indemnified Party shall, and shall cause each Genzyme Indemnitee or X4 Indemnitee, as applicable, to, cooperate in the defense or prosecution thereof and shall furnish such records, information and testimony, provide such witnesses and attend such conferences, discovery proceedings, hearings, trials and appeals as may be reasonably requested in connection therewith. Such cooperation shall include access during normal business hours afforded to the Indemnifying Party to, and reasonable retention by the Indemnified Party and any Genzyme Indemnitee or X4 Indemnitee, as applicable, of, records and information that are reasonably relevant to such Third Party Claim, and making all Genzyme Indemnitees or X4 Indemnitees, as applicable, and other employees and agents available on a mutually convenient basis to provide additional information and explanation of any material provided hereunder; provided that neither Party shall be required to disclose legally privileged information unless and until procedures reasonably acceptable to such Party are in place to protect such privilege, and the Indemnifying Party shall reimburse the Indemnified Party for all its reasonable costs and expenses in connection therewith.

11.4.5 Expenses. Except as provided above, the costs and expenses, including fees and disbursements of counsel, incurred by the Indemnified Party in connection with any Third Party Claim shall be reimbursed on a Calendar Quarter basis by the Indemnifying Party, without

prejudice to the Indemnifying Party's right to contest any Genzyme Indemnitee's or X4 Indemnitee's, as applicable, right to indemnification and subject to refund in the event the Indemnifying Party is ultimately held not to be obligated to indemnify a Genzyme Indemnitee or X4 Indemnitee, as applicable.

11.5 Limitation on Damages and Liability. [***], NEITHER PARTY NOR ANY OF THEIR RESPECTIVE AFFILIATES SHALL BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR FOR LOST PROFITS, WHETHER IN CONTRACT, WARRANTY, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE, ARISING OUT OF (a) THE DEVELOPMENT, MANUFACTURE, USE OR SALE OF THE LICENSED PRODUCTS UNDER THIS AGREEMENT, (b) THE USE OF OR REFERENCE TO THE LICENSED PATENTS, LICENSED KNOW-HOW OR REGULATORY DOCUMENTATION OR (c) ANY BREACH OF OR FAILURE TO PERFORM ANY OF THE PROVISIONS OF THIS AGREEMENT.

11.6 Insurance. X4 shall, and shall cause its Sublicensees and its and their respective Affiliates to maintain (a) no later than thirty days prior to the anticipated date of First Commercial Sale of a Licensed Product, (i) commercial general liability insurance covering bodily injury and property damage of not less than [***] per occurrence and in the aggregate, and (ii) clinical trials liability insurance coverage with minimum indemnity limits of [***] per occurrence and in the aggregate, and (b) following the First Commercial Sale of a Licensed Product, and thereafter during any period in which X4 has indemnification obligations to Genzyme, (i) commercial general liability insurance covering bodily injury and property damage of not less than [***] per occurrence and in the aggregate, and (ii) products liability/completed operations and clinical trials liability insurance coverage with minimum indemnity limits of [***] per occurrence and in the aggregate. Such policies shall be provided by insurance carrier(s) reasonably acceptable to Genzyme. [***]. If such policies are written on a claims made basis, they shall remain in effect for a minimum period of [***] and shall not be cancelled or subject to a reduction of coverage without the prior written authorization of Genzyme. Upon Genzyme's written request, X4 shall provide Genzyme with certificate(s) of insurance or certified copies of X4's insurance policies to evidence the purchase and/or maintenance of such policies. Maintenance of such insurance coverage shall not relieve X4 of any responsibility under this Agreement for damages in excess of insurance limits or otherwise.

ARTICLE 12
TERM AND TERMINATION

12.1 Termination upon Failure to Close the X4 First Financing. [***]. In the event that X4 does not consummate [***], then the Financing Exclusivity Period shall automatically be extended by [***]. In the event that X4 does not [***], as so extended, and the Parties have not otherwise agreed in writing to further extend such period, this Agreement shall immediately terminate and Genzyme shall have no further obligations to X4 with respect to the Licensed Patent and Licensed Know-How and shall be free to negotiate and enter into any agreement with a Third Party concerning the Licensed Patents or the Licensed Know How.

12.2 Term. This Agreement shall commence on the Effective Date and shall, unless earlier terminated in accordance with this ARTICLE 12, continue (a) with respect to each Licensed Product in each country in the Territory, until the expiration of the Royalty Term for such Licensed Product in such country and (b) with respect to this Agreement in its entirety, until the expiration of the last-to-expire Royalty Term for any Licensed Product in the Territory (such period, the "**Term**").

12.3 Termination of this Agreement for Material Breach. In the event that either Party materially breaches this Agreement (such Party, the "**Breaching Party**"), in addition to any other right and remedy the other Party (the "**Complaining Party**") may have, the Complaining Party may terminate this Agreement, in its entirety upon ninety (90) days' prior written notice (the "**Termination Notice Period**") to the Breaching Party, specifying the material breach and its claim of right to terminate, provided that the termination shall not become effective at the end of the Termination Notice Period if the Breaching Party cures the material breach complained of during the Termination Notice Period The Breaching Party may dispute any alleged breach by written notice to the Complaining Party within such ninety-(90) day period, in which case the Complaining Party shall not have the right to terminate this Agreement pursuant to this Section 12.3 unless and until it has been mutually agreed pursuant to Section 13.5 or determined in accordance with Section 13.5 below that this Agreement was materially breached by the Breaching Party, and the Breaching Party fails to comply with its obligations hereunder within ninety (90) days after such mutual agreement or determination, as applicable. Notwithstanding the foregoing, it is understood and agreed that termination of this Agreement pursuant to this Section 12.3 shall in no way limit either Party's right to seek all remedies available by law and in equity.

12.4 Unilateral Termination Rights.

12.4.1 In the event that X4 or any of its Affiliates anywhere in the Territory, institutes, prosecutes or otherwise participates in (or in any way aids any Third Party in instituting, prosecuting or participating in), at law or in equity or before any administrative or regulatory body, including the U.S. Patent and Trademark Office or its foreign counterparts, any claim, demand, action or cause of action for declaratory relief, damages or any other remedy or for an enjoinment, injunction or any other equitable remedy, including any interference, reexamination, post grant review, opposition or any similar proceeding, alleging that any claim in a Licensed Patent is invalid, unenforceable or otherwise not patentable (a "**Patent Challenge**") (except as required under a court order or subpoena), Genzyme may terminate this Agreement immediately upon written notice to X4. In the event that a Sublicensee of X4 or an Affiliate thereof anywhere in the Territory institutes, prosecutes or otherwise participates in (or in any way aids any Third Party in instituting, prosecuting or participating in) a Patent Challenge (except as required under a court order or subpoena), then Genzyme may send a written demand to X4 to terminate such sublicense in the event such Sublicensee fails to withdraw such Patent Challenge or such Patent Challenge is otherwise not dismissed [***]. If such Sublicensee fails to withdraw such Patent Challenge or such Patent Challenge is not dismissed [***], and thereafter, X4 shall terminate such Sublicense [***]. Notwithstanding the foregoing, Genzyme shall not have any termination rights pursuant to

this Section 12.4.1 on account of any Patent Challenge that is either (i) a legal or administrative challenge asserted as a counterclaim in an action initiated by or under the authority of Genzyme against X4, its Sublicensees or their respective Affiliates, or (ii) a declaratory action proceeding brought against Genzyme with respect to the validity, patentability or enforceability of any Licensed Patent as a result of Genzyme threatening to bring any action against X4, its Sublicensees, or their respective Affiliates.

12.4.2 X4 may terminate this Agreement in its entirety immediately upon notice to Genzyme for a Material Safety Issue. "**Material Safety Issue**" shall mean the reasonable belief of X4 or any of its Affiliates' or Sublicensees' based upon additional information that becomes available or an analysis of the existing information at any time, that the medical risk/benefit profile of the Licensed Compound or a Licensed Product is so unfavorable that it would be incompatible with the welfare of patients to Develop or Commercialize such Licensed Compound or Licensed Product or to continue to Develop or Commercialize it. In the event of a dispute as to whether a Material Safety Issue exists, the Parties shall resolve the dispute in accordance with Section 13.5, unless the Data Safety Monitoring Board or any institutional Review Board or any Regulatory Authority has recommended to X4 or Genzyme, or their Sublicensees or Affiliates, to terminate an ongoing Clinical Study of the Licensed Compound or Licensed Product or has halted or placed any such ongoing Clinical Study on hold, or a Regulatory Authority has withdrawn or requested that X4 withdraw any applicable Regulatory Approval for a Licensed Product, all of which foregoing circumstances shall be deemed conclusive evidence of the existence of a Material Safety Issue giving rise to X4's right to terminate under this Section 12.4.2.

12.5 Termination Upon Insolvency. Either Party may terminate this Agreement if, at any time, the other Party (a) files in any court or agency pursuant to any statute or regulation of any state, country or jurisdiction, a petition in bankruptcy or insolvency or for reorganization or for an arrangement or for the appointment of a receiver or trustee of such other Party or of its assets, (b) is declared insolvent or bankrupt by a court of competent jurisdiction, (c) is served with an involuntary petition against it, filed in any insolvency proceeding that is not dismissed within ninety (90) days after the filing thereof, (d) proposes or is placed in a process of complete liquidation, or (e) makes an assignment of substantially all of its assets for the benefit of its creditors.

12.6 Rights in Bankruptcy. All rights and licenses granted under or pursuant to this Agreement by X4 or Genzyme are, and shall otherwise be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of right to "intellectual property" as defined under Section 101 of the U.S. Bankruptcy Code. The Parties agree that the Parties, as licensees of such rights under this Agreement, shall retain and may fully exercise all of their rights and elections under the U.S. Bankruptcy Code.

12.7 Consequences of Termination.

12.7.1 In the event of a termination of this Agreement for any reason, any Sublicense agreement entered into by X4 as of the effective date of termination shall remain in full force and effect; provided, that, (a) the applicable Sublicensee is not then in breach of its Sublicense agreement with X4 and agrees to be bound to Genzyme as a direct licensee under the terms and conditions of the Sublicense agreement and (b) the Sublicensee promptly enters into appropriate agreements or amendments to the Sublicense agreement to substitute Genzyme for X4 as the licensor thereunder.

12.7.2 In the event of a termination of this Agreement for any reason other than as provided in Section 12.7.4, all rights and licenses granted by Genzyme hereunder shall immediately terminate; provided, that, if such termination occurs after the First Commercial Sale of a Licensed Product hereunder, X4 and its Sublicensees and Affiliates shall have the right to continue selling any or all Licensed Product remaining in their inventory for [***], provided that the sale of such remaining inventory will be subject to the royalty obligations set forth in Section 6.5.

12.7.3 Upon termination of this Agreement by Genzyme pursuant to Section 12.3 or 12.4.1, X4 shall promptly, to the extent requested by Genzyme:

(a) where permitted by Applicable Law, assign to Genzyme all of its right, title and interest in and to, and transfer possession to Genzyme of, all Regulatory Documentation (including, for clarity, Regulatory Approvals) then in its name applicable to any Licensed Product in the Territory;

(b) notify the applicable Regulatory Authorities and take any other action reasonably necessary to effect the transfer set forth in clause (a) above;

(c) grant Genzyme [***], under all Regulatory Documentation (including any Regulatory Approvals) then owned or Controlled by X4 then in its name that are not assigned to Genzyme pursuant to clause (a) above that are necessary or useful for Genzyme or any of its Affiliates to Exploit any Licensed Compound or Licensed Product in the Field in the Territory and any improvement to any of the foregoing, as such Regulatory Documentation exists as of the effective date of such termination of this Agreement and X4 shall continue to maintain such Regulatory Documentation (including any Regulatory Approvals) unless and until Genzyme notifies X4 that such maintenance is no longer required;

(d) to the extent requested in writing by Genzyme, grant Genzyme [***], under the X4 Know-How and the X4 Patents, to Exploit Licensed Products in the Field and, following any such termination, the provisions of ARTICLE 7 that apply to Licensed Patents shall survive with respect to such X4 Patents with Genzyme having, with respect to such X4 Patents, the rights and obligations that X4 has with respect to the Licensed Patents; provided, that, the survival of the licenses granted to Genzyme pursuant to this Section 12.7.3(d) shall be subject to [***]. For purposes of this Section 12.7.3(d), the term "X4 Licensed Product" shall mean any Licensed Product that is covered by a Valid Claim of any X4 Patents and for uses or incorporates any X4 Know-How and "Applicable Post-Termination Percentage" means, with respect to each X4 Licensed Product described in this Section 12.7.3(d), (1) if the effective date of termination is [***] with respect to any such X4 Licensed Product in any country in the Territory, [***], (2) if the effective date of termination is [***] with respect to any such X4 Licensed Product in any country in the Territory but [***] with respect to such X4 Licensed Product in any country in the Territory, [***], (3) if the effective date of termination is on or after [***] with respect to any such X4 Licensed Product in any country in the Territory but prior to [***] with respect to any such X4 Licensed Product in any country in the Territory, [***], and (z) if the effective date of termination is [***] with respect to any such X4 Licensed Product in any country in the Territory, [***].

(e) unless expressly prohibited by any Regulatory Authority, transfer control to Genzyme of all Clinical Studies of each Licensed Product being conducted as of the effective date of termination and continue to conduct such Clinical Studies, at Genzyme's cost and expense, [***] to enable such transfer to be completed without interruption of any such Clinical Study; provided, that, Genzyme shall not have any obligation to continue any Clinical Study unless required by Applicable Law and (ii) with respect to each Clinical Study for which such transfer is expressly prohibited by the applicable Regulatory Authority, X4 shall continue to conduct such Clinical Study [***] at Genzyme's reasonable cost and expense.

(f) assign (or cause its Affiliates to assign) to Genzyme all Licensed Product Agreements, unless, with respect to any such Licensed Product Agreement, such Licensed Product Agreement expressly prohibits such assignment or relates to products in addition to the Licensed Product, in which case X4 shall cooperate with Genzyme in all reasonable respects to secure the consent of the applicable Third Party to such assignment and if any such consent cannot be obtained with respect to a Licensed Product Agreement, X4 shall use Commercially Reasonable Efforts at Genzyme's cost and expense to try to obtain for Genzyme substantially all of the practical benefit and burden under such Licensed Product Agreement, including by (i) pursuing appropriate and reasonable alternative arrangements (such as splitting Licensed Product Agreements non exclusively related to Licensed Products) on terms mutually agreeable to Genzyme and X4 and (ii) subject to the consent and control of Genzyme, pursuing the enforcement, at Genzyme's cost and expense and for the account of Genzyme, of any and all rights of X4 against the other party thereto arising out of the breach or cancellation thereof by such other party or otherwise; [***];

(g) provide Genzyme with copies of all reports and data generated or obtained by X4 or any of its Affiliates that relate to any Licensed Product that have not previously been provided to Genzyme;

(h) where permitted by Applicable Laws, assign to Genzyme all right, title, and interest of X4 in each Product Trademark; and

(i) sell to Genzyme some or all of the inventory of Licensed Compound and/or Licensed Product in possession of X4 and Affiliates as of the termination date, at a price equal to [***].

Except in the event of termination of this Agreement by Genzyme pursuant to Section 12.3, Genzyme shall reimburse X4 for all reasonable, documented out-of-pocket expenses incurred by X4 in performing its obligations under Section 12.7.3(a) to (h).

12.7.4 Upon termination by X4 pursuant to Section 12.3 or 12.5, then: (a) the licenses granted by Genzyme to X4 pursuant to Section 2.1 hereof shall survive on a country-by-country and Licensed Product-by-Licensed Product basis until the expiration of the Royalty Term

for each such Licensed Product in each such country, subject to [***]; and (b) each Party shall promptly return or destroy all Confidential Information of the other Party; provided, further that, each Party may retain, subject to ARTICLE 7 hereof, (i) one (1) copy of the Confidential Information of the other Party in its archives for the purpose of establishing the contents thereof and ensuring compliance with its obligations hereunder and (ii) any Confidential Information of the other Party contained in its laboratory notebooks or databases; and X4 may retain and use Genzyme's Confidential Information solely in connection with the exercise of its rights set forth in clause (a) of this Section 12.7.4.

12.7.5 Without limiting Genzyme's rights under other provisions of this ARTICLE 12, in the event of any termination by Genzyme pursuant to Section 12.3 or by X4 pursuant to 12.4.2, X4 shall, at the request and expense of Genzyme, use Commercially Reasonable Efforts to provide Genzyme with such assistance, [***], as is reasonably necessary to effectuate a smooth and orderly transition of any Development, Manufacture and Commercialization activities to Genzyme or its designee so as to minimize any disruption of such activities. Further, upon Genzyme's request and expense, in the event of any termination by Genzyme pursuant to Section 12.3 or by X4 pursuant to 12.4.2 after the First Commercial Sale of a Licensed Product hereunder, X4 shall provide such technical assistance, [***], as may reasonably be requested to transfer all Manufacturing technology that is or had been used by or on behalf of X4 and its Affiliates in connection with the Manufacture of any Licensed Compound or Licensed Product.

12.8 Accrued Rights; Surviving Obligations.

12.8.1 Accrued Rights. Termination or expiration of this Agreement for any reason shall be without prejudice to any rights that shall have accrued to the benefit of a Party prior to such termination or expiration. Such termination or expiration shall not relieve a Party from obligations that are expressly indicated to survive the termination or expiration of this Agreement.

12.8.2 Survival. Without limiting the foregoing, Article 1, Section 2.6, Section 3.4 (last sentence), Article 6 (with respect to any payment accrued but not paid prior to termination or expiration), Section 6.4.3 (with respect to deferred payments under a Transaction), Section 6.10 (for the length of time specified therein), Section 7.1, Sections 7.3 through 7.5 (with respect to any action or proceeding initiated prior to termination or expiration), Section 7.7 (with respect to any action or proceeding initiated prior to termination or expiration), Article 8, Article 9 (for the length of time specified in Section 9.1), Sections 10.4 and 10.5, Article 11, Sections 12.6 through 12.8 and Article 13 shall survive the termination or expiration of this Agreement for any reason. In addition, upon the expiration, but not an earlier termination, of this Agreement, Section 2.4 shall also survive.

ARTICLE 13
MISCELLANEOUS

13.1 Force Majeure. Neither Party shall be held liable or responsible to the other Party or be deemed to have defaulted under or breached this Agreement for failure or delay in fulfilling or performing any term of this Agreement (other than an obligation to make payments) when such failure or delay is caused by or results from events beyond the

reasonable control of the non-performing Party, including fires, floods, earthquakes, embargoes, shortages, epidemics, quarantines, war, acts of war (whether war be declared or not), terrorist acts, insurrections, riots, civil commotion, strikes, lockouts or other labor disturbances (whether involving the workforce of the non-performing Party or of any other Person), acts of God or acts, omissions or delays in acting by any governmental authority (each, a "**Force Majeure Event**"). The non-performing Party shall notify the other Party of a Force Majeure Event [***] by giving written notice to the other Party stating the nature of such Force Majeure Event, its anticipated duration, and any action being taken to avoid or minimize its effect. The suspension of performance shall be of no greater scope and no longer duration than is necessary and the non-performing Party shall use commercially reasonable efforts to remedy its inability to perform. In the event that such suspension of performance [***] and in the absence of such Force Majeure Event such suspension of performance would be a material breach of this Agreement, such other Party shall have the right to terminate this Agreement pursuant to Section 12.3.

13.2 Export Control. This Agreement is made subject to any restrictions concerning the export of products or technical information from the United States or other countries that may be imposed on or related to the Parties from time to time. Each Party agrees that it will not export, directly or indirectly, any technical information acquired from the other Party under this Agreement or any products using such technical information to a location or in a manner that at the time of export requires an export license or other governmental approval, without first obtaining the written consent to do so from the appropriate agency or other governmental entity in accordance with Applicable Law.

13.3 Assignment. Neither Party shall sell, transfer, assign, delegate, pledge or otherwise dispose of, whether voluntarily, involuntarily, by operation of law or otherwise, this Agreement or any of its rights or duties hereunder without the prior written consent of the other Party; provided that (a) Genzyme may, without such consent, assign this Agreement and its rights and obligations hereunder to an Affiliate, to the purchaser of the Licensed Patents or Licensed Know-How or to its successor entity or acquirer in the event of a merger, consolidation or change in control of Genzyme and (b) X4 may without such consent, [***], assign this Agreement and its rights and obligations hereunder in connection with a Change of Control; provided, further, that in either case ((a) or (b)), the assignee or transferee shall assume all obligations of its assignor or transferor under this Agreement and such assignor or transferor shall remain responsible to the other Party for the performance by such assignee or transferee of the rights and obligations of the assigning Party hereunder. Any attempted assignment or delegation in violation of the preceding sentence shall be void and of no effect. All validly assigned and delegated rights and obligations of the Parties hereunder shall be binding upon and inure to the benefit of and be enforceable by and against the successors and permitted assigns of Genzyme or X4, as the case may be. [***].

13.4 Severability. To the fullest extent permitted by Applicable Law, the Parties waive any provision of law that would render any provision in this Agreement invalid, illegal, or unenforceable in any respect. If any provision of this Agreement is held to be invalid, illegal, or unenforceable, in any respect, then such provision will be given no effect by the Parties and shall not form part of this Agreement. To the fullest extent permitted by

Applicable Law and if the rights or obligations of either Party will not be materially and adversely affected, all other provisions of this Agreement shall remain in full force and effect, and the Parties shall use their best efforts to negotiate a provision in replacement of the provision held invalid, illegal, or unenforceable that is consistent with Applicable Law and achieves, as nearly as possible, the original intention of the Parties.

13.5 Dispute Resolution. If a dispute arises between the Parties in connection with the interpretation, validity or performance of this Agreement or any document or instrument delivered in connection herewith, then either Party shall have the right to refer such dispute to the Executive Officers for attempted resolution by good faith negotiations during a period of [***]. Any final decision mutually agreed to by the Executive Officers shall be conclusive and binding on the Parties. If such Executive Officers are unable to resolve such dispute within such [***] period, either Party shall be free to institute litigation in accordance with Section 13.6 and seek such remedies as may be available. Notwithstanding anything in this Agreement to the contrary, either Party shall be entitled to institute litigation in accordance with Section 13.6 immediately if litigation is necessary to prevent irreparable harm to that Party.

13.6 Governing Law, Jurisdiction, Venue and Service.

13.6.1 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of [***], excluding any conflicts or choice of law rule or principle that might otherwise refer construction or interpretation of this Agreement to the substantive law of another jurisdiction. The Parties agree to exclude the application to this Agreement of the United Nations Convention on Contracts for the International Sale of Goods.

13.6.2 Jurisdiction. Subject to Section 13.5 and Section 13.10, the Parties hereby irrevocably and unconditionally consent to the exclusive jurisdiction of the courts of [***] for any action, suit or proceeding (other than appeals therefrom) arising out of or relating to this Agreement, and agree not to commence any action, suit or proceeding (other than appeals therefrom) related thereto except in such courts. The Parties irrevocably and unconditionally waive their right to a jury trial.

13.6.3 Venue. The Parties further hereby irrevocably and unconditionally waive any objection to the laying of venue of any action, suit or proceeding (other than appeals therefrom) arising out of or relating to this Agreement in the courts of [***], and hereby further irrevocably and unconditionally waive and agree not to plead or claim in any such court that any such action, suit or proceeding brought in any such court has been brought in an inconvenient forum.

13.6.4 Service. Each Party further agrees that service of any process, summons, notice or document by registered mail to its address set forth in Section 13.7.2 shall be effective service of process for any action, suit or proceeding brought against it under this Agreement in any such court.

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

13.7 Notices.

13.7.1 Notice Requirements. Any notice, request, demand, waiver, consent, approval or other communication permitted or required under this Agreement shall be in writing, shall refer specifically to this Agreement and shall be deemed given only if delivered by hand or sent by facsimile transmission (with transmission confirmed) or by internationally recognized delivery service that maintains records of delivery, addressed to the Parties at their respective addresses specified in Section 13.7.2 or to such other address as the Party to whom notice is to be given may have provided to the other Party in accordance with this Section 13.7. Such notice shall be deemed to have been given as of the date delivered by hand or transmitted by facsimile (with transmission confirmed) or on the third Business Day (at the place of delivery) after deposit with an internationally recognized delivery service. Any notice delivered by facsimile shall be confirmed by a hard copy delivered as soon as practicable thereafter. This Section 13.7 is not intended to govern the day-to-day business communications necessary between the Parties in performing their obligations under the terms of this Agreement.

13.7.2 Address for Notice.

If to X4, to:

X4 Pharmaceuticals, LLC
281 School Street,
Belmont, MA 02478
Attention: **CEO**
Facsimile: +001 801 285 7570
E-Mail: pmragan@gmail.com

with a copy to (which shall not constitute notice):

Mintz Levin
One Financial Center
Boston, MA 02111
Attention: John Cheney
Facsimile: (617) 542-2241
E-Mail: jjcheney@mintz.com

If to Genzyme, to:

Genzyme Corp.
500 Kendall Street,
Cambridge, MA 02142
Attention: General Counsel
Facsimile: + 1 617 768 6938
E-Mail: tracey.quarles@genzyme.com

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

with a copy to (which shall not constitute notice):

Sanofi – Legal Operations
54 rue la Boétie
75008 Paris
France
Attention: Vice President, Legal Operations
Facsimile: +33 (0) 1 5377 4048
E-Mail: jose.ferrer@sanofi.com

13.8 Entire Agreement; Amendments. This Agreement, together with the Schedules attached hereto, sets forth and constitutes the entire agreement and understanding between the Parties with respect to the subject matter hereof and all prior agreements, understandings, promises and representations, whether written or oral, with respect thereto are superseded hereby, including that certain Material Transfer Agreement dated 11 February 2014 between X4 and Sanofi, an Affiliate of Genzyme. Each Party confirms that it is not relying on any representations or warranties of the other Party except as specifically set forth herein. No amendment, modification, release or discharge shall be binding upon the Parties unless in writing and duly executed by authorized representatives of both Parties.

13.9 English Language. This Agreement shall be written and executed in, and all other communications under or in connection with this Agreement shall be in, the English language. Any translation into any other language shall not be an official version thereof, and in the event of any conflict in interpretation between the English version and such translation, the English version shall control.

13.10 Equitable Relief. The Parties acknowledge and agree that the restrictions set forth in ARTICLE 9 are reasonable and necessary to protect the legitimate interests of the other Party and that such other Party would not have entered into this Agreement in the absence of such restrictions, and that any breach or threatened breach of any provision of ARTICLE 9 may result in irreparable injury to such other Party for which there will be no adequate remedy at law. In the event of a breach or threatened breach of any provision of ARTICLE 9, the non-breaching Party shall be entitled to seek to obtain from any court of competent jurisdiction injunctive relief, whether preliminary or permanent, specific performance and an equitable accounting of all earnings, profits and other benefits arising from such breach, which rights shall be cumulative and in addition to any other rights or remedies to which such non-breaching Party may be entitled in law or equity. Nothing in this Section 13.10 is intended, or should be construed, to limit either Party's right to equitable relief or any other remedy for a breach of any other provision of this Agreement.

13.11 Waiver and Non-Exclusion of Remedies. Any term or condition of this Agreement may be waived at any time by the Party that is entitled to the benefit thereof, but no such waiver shall be effective unless set forth in a written instrument duly executed by or on behalf of the Party waiving such term or condition. The waiver by either Party of any right hereunder or of the failure to perform or of a breach by the other Party shall not be deemed a waiver of any other right hereunder or of any other breach or failure by the other Party whether of a similar nature or otherwise.

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

13.12 No Benefit to Third Parties. The representations, warranties, covenants and agreements set forth in this Agreement are for the sole benefit of the Parties and their successors and permitted assigns, and they shall not be construed as conferring any rights on any other Persons.

13.13 Further Assurance. Each Party shall duly execute and deliver, or cause to be duly executed and delivered, such further instruments and do and cause to be done such further acts and things, including the filing of such assignments, agreements, documents and instruments, as may be necessary or as the other Party may reasonably request in connection with this Agreement or to carry out more effectively the provisions and purposes hereof, or to better assure and confirm unto such other Party its rights and remedies under this Agreement.

13.14 Relationship of the Parties. It is expressly agreed that Genzyme, on the one hand, and X4, on the other hand, shall be independent contractors and that the relationship between the two Parties shall not constitute a partnership, joint venture or agency. Neither Genzyme, on the one hand, nor X4, on the other hand, shall have the authority to make any statements, representations or commitments of any kind, or to take any action, which shall be binding on the other Party, without the prior written consent of the other Party to do so, such consent not to be unreasonably conditioned, withheld or delayed. All persons employed by a Party shall be employees of such Party and not of the other Party and all costs and obligations incurred by reason of any such employment shall be for the account and expense of such Party.

13.15 Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. This Agreement may be executed by facsimile or other electronic signatures and such signatures shall be deemed to bind each Party as if they were original signatures.

13.16 References. Unless otherwise specified, (a) references in this Agreement to any Article, Section or Schedule means references to such Article, Section or Schedule of this Agreement, (b) references in any section to any clause are references to such clause of such section and (c) references to any agreement, instrument or other document in this Agreement refer to such agreement, instrument or other document as originally executed or, if subsequently varied, replaced or supplemented from time to time, as so varied, replaced or supplemented and in effect at the relevant time of reference thereto.

13.17 Construction. Except where the context otherwise requires, wherever used, the singular shall include the plural, the plural the singular, the use of any gender shall be applicable to all genders and the word "or" is used in the inclusive sense (and/or). The captions of this Agreement are for convenience of reference only and in no way define, describe, extend or limit the scope or intent of this Agreement or the intent of any provision contained in this Agreement. The term "including" as used herein means including, without limiting the generality of any description preceding such term. The language of this Agreement shall be deemed to be the language mutually chosen by the Parties and no rule of strict construction shall be applied against either Party.

[*SIGNATURE PAGE FOLLOWS.*]

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

THIS AGREEMENT IS EXECUTED by the authorized representatives of the Parties as of the date first written above.

GENZYME CORP	**X4 PHARMACEUTICALS, LLC.**
By: /s/ Constantine Chinoporos	By: /s/ Paula Ragan, PhD
Name: Constantine Chinoporos	Name: Paula Ragan, PhD
Title: Vice President	Title: Managing Partner

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

Schedule 1.57
Licensed Know-How

[Attached]

[***]

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

Schedule 1.58
Licensed Patents

[Attached]

[***]

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

Schedule 1.56
Licensed Compound

Licensed Compound Designation	[***]
AMD11070 (ph1)	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

Schedule 3.1.2
Development Plan

[***]

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

Schedule 3.2.1
Regulatory Documents Assigned by Genzyme to X4

[***]

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

Exhibit 10.6

Execution Copy

AMENDMENT NO. 1 TO LICENSE AGREEMENT

This Amendment No. 1 to License Agreement (this "**Amendment**") is dated as of October 23, 2014 (the "**Amendment Effective Date**") by and between **Genzyme Corp**., a corporation having an address at 500 Kendall Street, Cambridge, MA 02142 ("**Genzyme**" or "**Licensor**") and X**4 Pharmaceuticals, INC**., a Delaware corporation having an address at 281 School Street, Belmont, MA 02478, United States ("**X4**"). Each of Genzyme and X4 may be referred to herein as a "**Party**" and together as the "**Parties**". Capitalized terms used but not otherwise defined herein shall have the meanings ascribed to such terms in the License Agreement by and between the Parties effective as of July 10, 2014 (the "**Agreement**").

WHEREAS, the Parties hereto desire to amend the Agreement as set forth herein to, among other things, include the right of X4 to extend a certain milestone date and to reflect the conversion of X4 from a limited liability company to a corporation; and

WHEREAS, pursuant to Section 13.8 of the Agreement, the Agreement may be amended by a written instrument duly executed by authorized representatives of both Parties.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Parties hereto, intending to be legally bound, hereby agree as follows:

1. Amendments to Agreement.

(a) The reference in the first recital to "**X4 Pharmaceuticals, LLC**, a Massachusetts limited liability company" is hereby deleted and "**X4 Pharmaceuticals, INC**., a Delaware corporation" is hereby inserted in lieu thereof

(b) All references in the Agreement to "X4 Pharmaceuticals, LLC" are hereby deleted and "X4 Pharmaceuticals, INC." is hereby inserted in lieu thereof.

(c) Section 6.2 of the Agreement is hereby deleted in its entirety and the following is hereby inserted in lieu thereof:

"6.2 X4 First Financing Fee.

6.2.1 No later than [***] after the closing of the X4 First Financing, X4 shall pay Genzyme an upfront amount equal to Three Hundred Thousand Dollars ($300,000) (the "**First Financing Fee**"). The payment of the First Financing Fee shall be [***].

6.2.2 X4 shall have the right in its sole discretion to extend the Financing Exclusivity Period (as defined in Section 12.1.1 below) during the term thereof by providing written notice to Genzyme (the "**Financing Exclusivity Extension Notice**")

(d) Section 6.3.1(a) of the Agreement is hereby deleted in its entirety and the following is hereby inserted in lieu thereof:

"(a) Initial Grant. No later than [***] after the closing of the X4 First Financing, X4 shall issue to Genzyme or to Genzyme's designated Affiliate a number of shares of the Common Stock, $.001 par value per share, of X4 ("**Shares**") that represents, on an as-converted basis, ten percent (10%) of the outstanding Shares of X4 immediately following the closing of the X4 First Financing (the "**Initial Shares"**)."

(e) All references in the Agreement to "Units" and "Anti-Dilution Units" are hereby deleted and "Shares" and "Anti-Dilution Shares" is hereby inserted in lieu thereof.

(f) All references in the Agreement to "Subject Units" are hereby deleted and "Subject Shares" is hereby inserted in lieu thereof.

(g) Section 12.1 of the Agreement is hereby deleted in its entirety and the following is hereby inserted in lieu thereof:

"12.1 Termination upon Failure to Close the X4 First Financing.

12.1.1 Financing Exclusivity Period. X4 will use its Commercially Reasonable Efforts to **consummate** the X4 First Financing [***] (such period, as extended pursuant to this Section 12.1, the "Financing Exclusivity Period").

12.1.2 Extension of Financing Exclusivity Period.

(a) Extension Due to Payment of Financing Exclusivity Extension Payment. Upon the delivery by X4 of the Financing Exclusivity Extension Notice, the Financing Exclusivity Period shall automatically be extended [***].

(b) Extension Due to Signed Term Sheet. In the event that X4 does not consummate the X4 First Financing on or before the expiration of the Financing Exclusivity Period (whether or not extended according to 12.1.2(a) above) and [***], then the Financing Exclusivity Period shall automatically be extended by [***].

12.1.3 **Right to Terminate**. In the event that X4 does not consummate the X4 First Financing on or before the expiration of the Financing Exclusivity Period and the Parties have not otherwise agreed in writing to further extend the Financing Exclusivity Period, this Agreement shall immediately terminate and Genzyme shall have no further obligations to X4 with respect to the Licensed Patent and Licensed Know-How and shall be free to negotiate and enter into any agreement with a Third Party concerning the Licensed Patents or the Licensed Know How.

(h) All references in the Agreement to the "Execution Date" are hereby deleted and "Effective Date" is hereby inserted in lieu thereof.

(i) Schedule 1.58 to the Agreement is hereby deleted and replaced by the attached revised Schedule 1.58.

2. Miscellaneous. The Parties hereby confirm and agree that, except as amended hereby, the Agreement remains in full force and effect and is a binding obligation of the Parties hereto. This Amendment may be executed in counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

This Amendment is executed by the authorized representatives of the Parties as of the date first written above.

GENZYME CORP

By: /s/ Constantine Chinoporos
Name: Constantine Chinoporos
Title: Vice President

X4 PHARMACEUTICALS, INC.

By: /s/ Paula Ragan
Name: Paula Ragan
Title: CEO

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

Schedule 1.58

[***]

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

Exhibit 10.7

GU Reference: 2016-058

EXCLUSIVE LICENSE AGREEMENT

BETWEEN

GEORGETOWN UNIVERSITY

AND

X4 PHARMACEUTICALS, INC.

This Exclusive License Agreement (hereinafter "Agreement") is entered into and effective as of the 13th day of December, 2016 (hereinafter "Effective Date"), by and between GEORGETOWN UNIVERSITY, a Congressionally-chartered academic institution of higher education organized under the laws of the District of Columbia, having its principal place of business located at 37th and O Streets, N.W., Washington, D.C. 20057 (hereinafter "GEORGETOWN" or "LICENSOR"), and X4 Pharmaceuticals, Inc., a corporation organized under the laws of the state of Delaware with offices located at 784 Memorial Drive, Suite 140, Cambridge, MA 02139 (hereinafter "LICENSEE").

WHEREAS, GEORGETOWN AND LICENSEE are joint owners of certain Licensed Patents (as later defined herein) relating to Methods for Treating Cancer;

WHEREAS, Dr. Michael Atkins of GEORGETOWN is a co-inventor of the Licensed Patents;

WHEREAS, GEORGETOWN desires to have the Licensed Patents developed and commercialized to benefit the public and is willing to grant a license to LICENSEE hereunder;

WHEREAS, LICENSEE has represented to GEORGETOWN, to induce it to enter into this Agreement, that LICENSEE shall commit itself to a diligent program of exploiting the Licensed Patents so that public utilization shall result therefrom; and

WHEREAS, LICENSEE desires to obtain an exclusive license to GEORGETOWN's joint ownership rights under the Licensed Patents upon the terms and conditions hereinafter set forth.

NOW, THEREFORE, the Parties agree as follows:

ARTICLE 1
Definitions

1.1 Terms in this Agreement (other than names of parties and Article headings) that are set forth with a capitalized first letter have the meanings established for such

terms in this Article 1 unless otherwise expressly defined in this Agreement (such definitions shall be equally applicable to both the singular and plural forms of the defined terms). The words "hereof," "herein" and "hereunder" and words of like import when used in this Agreement shall refer to this Agreement as a whole and not to any particular provision of this Agreement, and Section references are to this Agreement unless otherwise specified.

1.2 "Affiliate" shall mean any corporation or other entity that directly or indirectly controls, is controlled by or is under common control with a Party to this Agreement. A corporation or other entity shall be regarded as in control of another corporation or entity if it owns or directly or indirectly controls more than fifty percent (50%) of the voting stock or other ownership interest of the other corporation or entity, or if it possesses, directly or indirectly, the power to direct or cause the direction of the management and policies of the corporation or other entity or the power to elect or appoint fifty percent (50%) or more of the members of the governing body of the corporation or other entity.

1.3 "Commercially Reasonable Efforts" shall mean, [***].

1.4 "Effective Date" shall mean the date first written above.

1.5 "End User" shall mean a Person who acquires a Licensed Product directly or indirectly from Licensee, for use and not for resale following First Commercial Sale.

1.6 "Field" means all therapeutic, prophylactic and diagnostic uses in all disease indications in humans and animals.

1.7 "First Commercial Sale" means the initial transfer by or on behalf of LICENSEE or its Sublicensees of Licensed Products to a Third Party in exchange for cash or some equivalent to which value can be assigned for the purpose of determining Net Sales. For avoidance of doubt, First Commercial Sale excludes transfers or dispositions of a Licensed Product between LICENSEE and its Affiliates and Sublicensees or for charitable, promotional (including samples), pre-clinical, clinical or regulatory purposes.

1.8 "Licensed Method" means any method that is covered in whole or in part by a Valid Claim contained in the Licensed Patents.

1.9 "Licensed Patents" means [***].

1.10 "Licensed Product" means any product that (a) either is covered by a Valid Claim in the Licensed Patents, or whose manufacture, use, import, offer for Sale or Sale would constitute, but for the license granted to the LICENSEE pursuant to this

Agreement and LICENSEE's joint ownership of the Licensed Patents, an infringement of any Valid Claim within the Licensed Patents, or (b) is developed, made, Sold, registered or practiced using the Licensed Methods or which is authorized to be used to practice the Licensed Methods, in whole or in part.

1.11 "Net Sales" means the gross amount invoiced by LICENSEE and its Sublicensees billings to unrelated Third Parties for the Sale of Licensed Products, less the sum of the following items, to the extent included in the gross amounts invoiced for such Licensed Products or otherwise directly paid, incurred, allowed, accrued or specifically allocated by LICENSEE or its Sublicensees with respect to the Sale of such Licensed Products:

(a) discounts given and actually taken in amounts customary in the trade for quantity/volume purchases, cash payments, prompt payments, wholesalers and distributors;

(b) rebates and chargebacks allowed, given or accrued (including cash, governmental and managed care rebates, hospital or other buying group chargebacks, cash and non-cash coupons, and governmental taxes in the nature of a rebate based on usage levels or Sales of such Licensed Products);

(c) sales, value added, import, export, excise and other taxes directly imposed and with reference to particular Sales;

(d) outbound transportation, customs charges, and insurance charges prepaid or allowed; and

(e) amounts allowed or credited on returns or rejections.

No other deductions shall be made for commissions paid to individuals whether they are with independent sales agencies or regularly employed by Licensee and on its payroll, or for the cost of collections. Licensed Products shall be considered "sold" [***] after billing or invoicing, or upon receipt of payment, whichever comes first, provided, however, that Licensed Products are actually shipped to unrelated Third Party customers. If a Licensed Product is distributed or invoiced for a discounted price substantially lower than customary in the trade, Net Sales shall be based on the customary amount billed for such Licensed Products. Without limiting the generality of the foregoing, transfers or dispositions of a Licensed Product for charitable, promotional (including samples), pre-clinical, clinical, or regulatory purposes will be excluded from Net Sales.

1.12 "Party" means each of LICENSOR and LICENSEE, and "Parties" means both LICENSOR and LICENSEE.

1.13 "Person" means any legal person or entity, including without limitation any individual, corporation, partnership, joint venture, association, joint stock company, trust, unincorporated association, limited liability corporation, governmental entity, or other person or entity of similar nature.

1.14 To "Sell" a product means to sell, transfer, lease or otherwise dispose of or commercialize a product. "Sale" and "Sold" have the corollary meanings ascribed thereto.

1.15 "Sublicense" means present, future, or contingent transfer of any license, right, option, first right to negotiate or other right granted under the Licensed Patents, in whole or in part. "Sublicense" includes, without limitation, strategic partnerships, marketing collaborations, and distribution agreements.

1.16 "Sublicensee" means any Third Party to whom LICENSEE has granted a license to make, have made, use and/or Sell the Licensed Product or practice the Licensed Method under the Licensed Patents, provided said Third Party has agreed in writing with LICENSEE to accept any applicable conditions and restrictions agreed to by LICENSEE in this Agreement.

1.17 "Territory" means worldwide.

1.18 "Third Party" means any Person other than the Parties and their respective Affiliates.

1.19 "Valid Claim" means either:

(a) a claim of an issued and unexpired patent that has not been held permanently revoked, unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction, unappealable or unappealed within the time allowed for appeal, and that has not been admitted to be invalid or unenforceable through reissue or disclaimer or otherwise; or

(b) a claim of a pending patent application that was filed in good faith and has not been abandoned or finally disallowed without the possibility of appeal or refiling of said application.

ARTICLE 2
Grant

2.1 Subject to the terms and conditions herein, LICENSOR hereby grants to LICENSEE, in the Field and Territory, an exclusive license under LICENSOR's interest in the Licensed Patents to practice the Licensed Methods and to make, have made, use, offer to Sell, Sell and import Licensed Products during the Term. The license includes the right, but not the obligation, to grant one or more Sublicenses in accordance with the terms of Article 3.

2.2 LICENSEE acknowledges and agrees that no license is granted or implied under the Licensed Patent outside the Field and Territory and will not practice under the Licensed Patent outside the Field and Territory.

2.3 This Agreement confers no license, ownership interest in or other rights by implication, estoppel or otherwise upon LICENSEE in any technology, know how, patents, pending patent applications, or products of LICENSOR except as explicitly set forth in this Agreement, regardless of whether such technology or patent rights shall be dominant or subordinate to any Licensed Patents.

ARTICLE 3
Sublicensing

3.1 LICENSEE shall assure itself of the integrity and financial responsibility of each Person to whom a Sublicense is granted.

3.2 Each Sublicensee shall agree to be bound by all of the obligations, terms and conditions that obligate, bind or affect LICENSEE under this License Agreement to the extent that such obligations, terms and conditions are relevant given the nature of the rights granted by LICENSEE to any given Sublicensee.

3.3 LICENSEE shall be and remain responsible for the performance by each Sublicensee of all of such Sublicensee's obligations provided herein.

3.4 LICENSEE shall agree to ascertain, compute and audit and shall faithfully ascertain, compute and audit all Net Sales by each Sublicensee hereunder.

3.5 LICENSEE shall not grant any rights under the Licensed Patents to Sublicensee that are inconsistent with this Agreement or that would be a breach of this Agreement if performed by a Sublicensee.

3.6 LICENSEE shall contractually require that each Sublicensee (excluding Third Party Contractors) shall not at any time, directly or indirectly, in any legal or administrative proceeding oppose the grant of, dispute the validity of, or cooperate in any suit against any patent or claim included in the Licensed Patents (except as required under a court order or subpoena).

3.7 Within [***] after entering into any Sublicense (excluding Sublicenses granted to Third Parties that are clinical research organizations, contract manufacturers, contract laboratory organizations, and other similar Third Parties that support the development and commercialization of Licensed Products on a fee-for-service basis ("Third Party Contractors") or any amendment to any such Sublicense, LICENSEE shall notify LICENSOR of the identity of the Sublicensee and shall provide to LICENSOR a copy of the Sublicense or amendment, which copy may be redacted to omit proprietary and other sensitive information to the extent that such redaction does not impact LICENSOR's ability to confirm LICENSEE's compliance with this Agreement.

3.8 LICENSEE shall provide to LICENSOR notice of any termination of the Sublicenses described in Section 3.7 within [***] after such event.

3.9 Any Sublicense entered into by LICENSEE in violation of the requirements of this Article 3 shall be null and void and without effect.

ARTICLE 4
Reservation of Rights

4.1 LICENSOR expressly reserves all rights not granted herein. LICENSOR reserves all right to disseminate and publish scientific findings from research conducted by LICENSOR on its own behalf (and not, for clarity, on behalf of LICENSEE) related to the Licensed Patents and Licensed Method, subject to Article 12. LICENSEE reserves all right to disseminate and publish scientific findings from research conducted by or on behalf of LICENSEE related to the Licensed Patents and Licensed Method.

ARTICLE 5
Licensee Diligence Obligations

5.1 LICENSEE shall use Commercially Reasonable Efforts, or shall cause its Sublicensees to use Commercially Reasonable Efforts, to develop Licensed Product and to introduce Licensed Product into the commercial market; thereafter, LICENSEE or its Sublicensees shall use Commercially Reasonable Efforts to make Licensed Product reasonably available to the public.

5.2 LICENSEE shall use its Commercially Reasonable Efforts to obtain required government regulatory approval to manufacture, market and Sell the Licensed Product in the Field in those countries of the Territory where it is commercially reasonable, in LICENSEE's judgment, to seek such approvals, and shall use its Commercially Reasonable Efforts to market the Licensed Product in quantities sufficient to meet the market demands for such Licensed Product.

ARTICLE 6
License Issue Fee and Milestone Payments

6.1 License Issue Fee. LICENSEE shall pay to LICENSOR within [***] of the Effective Date of this Agreement, a license issue fee of fifty thousand dollars ($50,000). The payment is nonrefundable and is not creditable against any other fee or payment.

6.2 Milestone Payments. In addition to the License Issue Fee, LICENSEE shall, upon the achievement of the events set forth below, make the following payments to LICENSOR for each Licensed Product Sold by LICENSEE, its Affiliates and its Sublicensees:

(a) [***] dollars ($[***]) upon First Commercial Sale of a Licensed Product.

(b) [***] dollars ($[***]) upon achieving the first [***] dollars ($[***]) in Net Sales from the Sale of Licensed Product.
(c) [***] dollars ($[***]) upon achieving the first [***] dollars ($[***]) in Net Sales from the Sale of Licensed Product.

LICENSEE shall notify LICENSOR within [***] of LICENSEE's determination of the occurrence of each such event and shall remit payment due under this Section within [***] of providing such notice to LICENSOR. Payments made pursuant to this Section 6.2 shall be nonrefundable and shall not be creditable against any other fee or payment. For purposes of this Section 6.2, [***]. For purposes of example and without limitation, [***]. Similarly, if, instead of [***]. In addition, [***] for purposes of this Section 6.2.

6.3 Sales or transfers to LICENSEE's Affiliates or Sublicensees shall not be included in the calculation of Net Sales until the actual Sale and shipment by such Affiliate or Sublicensee to a Third Party, except if such Affiliate or Sublicensee is an End User of the Licensed Product. Under such circumstances where an Affiliate or Sublicensee of LICENSEE is an End User, Net Sales shall be based on the lowest Sales price of Licensed Product charged to Third Parties for the calendar quarter in which the Licensed Product is shipped to such Affiliate or Sublicensee and which calendar quarter shall be deemed the calendar quarter of payment, taking into account volumes of purchases.

6.4 The LICENSEE agrees to pay all bank transfer charges, and all taxes, fees and other governmental charges imposed on the payments to the LICENSOR pursuant to the terms and conditions of this Agreement (excluding any income tax or similar tax imposed on LICENSOR as a result of its receipt of payments hereunder).

6.5 All payments under this Agreement should be made payable to "Georgetown University" and sent to the address identified in Section 17.1 herein. Each payment should reference this Agreement and identify the obligation under this Agreement that the payment satisfies.

6.6 All payments due under this Agreement shall be drawn on a United States bank and shall be payable in United States dollars. Conversion of foreign currency to U.S. dollars for purposes of calculating Net Sales shall be made in accordance with LICENSEE's then customary and usual currency conversion procedures, consistently applied, which shall be consistent with LICENSEE's usual and customary generally accepted accounting principles consistently applied and which procedures shall be disclosed to LICENSOR. Such payments shall be without deduction of exchange, collection, or other charges, and, specifically, without deduction of withholding or similar taxes or other government imposed fees or taxes, except as permitted in the definition of Net Sales.

6.7 Any payments by LICENSEE that are not paid on or before the date such payments are due under this Agreement shall bear interest, to the extent permitted by law, at an annual rate equal to one percentage point above the U.S. prime rate of interest as reported in the Wall Street Journal on the date payment is due, with interest accruing on a daily basis.

ARTICLE 7
Reports and Records of Licensee

7.1 Frequency of Reports.

(a) Before First Commercial Sale. Prior to First Commercial Sale of any Licensed Product, LICENSEE shall deliver progress reports to LICENSOR annually, within [***] after the end of each calendar year. Such progress reports shall describe for each Licensed Product the LICENSEE's work related to the development and testing of the Licensed Product and its efforts in obtaining any required government approvals for marketing the Licensed Product. Each report will include information sufficient to enable the LICENSOR to determine the LICENSEE's progress in commercially developing the Licensed Product, including a summary of any material work completed by LICENSEE during such calendar year and any material work planned to be conducted by LICENSEE during the subsequent calendar year, with respect to the Licensed Product. In the event LICENSOR, in good faith, does not reasonably deem the information set forth in the report sufficient for determining progress in commercially developing the Licensed Product, LICENSEE shall modify the report accordingly.

(b) Upon First Commercial Sale of a Licensed Product. LICENSEE shall report to LICENSOR the date of First Commercial Sale of a Licensed Product within [***] of its determination of the occurrence thereof.

(c) After First Commercial Sale. After the First Commercial Sale of a Licensed Product and until the payment of all of the milestone payments in Section 6.2 for such Licensed Product, LICENSEE shall deliver a report to LICENSOR within [***] days after December 31 of each year of Net Sales from the Sale of such Licensed Product during the immediately preceding [***] period containing the information concerning the immediately preceding [***] period, as further described in Section 7.2(b).

7.2 Reports and Payments.

(a) LICENSEE shall keep full, true and accurate books and records which shall contain all information that may be reasonably necessary for the purpose of showing LICENSEE's compliance with this Agreement, including without limitation, the amounts payable to LICENSOR hereunder. Said books of account shall be kept at LICENSEE's principal place of business. Said books and the supporting data shall be open to inspection on behalf of LICENSOR upon no less than [***] days written notice during reasonable business hours to the extent necessary for the purpose of verifying LICENSEE's statement of Net Sales provided under Section 7.2(b) or compliance in other respects with this Agreement. Such inspection shall be made not more often than once each calendar year at the expense of LICENSOR by an independent Certified Public Accountant appointed by LICENSOR and to whom LICENSEE has no reasonable objection. LICENSEE shall not be required to retain such records for more than [***] after the date such records have been created. Notwithstanding the foregoing, in the event that the payment due date for any milestone payment herein is determined by the independent Certified Public Accountant to have been due at a date more than [***] earlier than determined by LICENSEE, then unless LICENSEE disputes such determination (pursuant to the process set forth in Section 7.2(a)(i) below), LICENSEE shall, within [***] of such Certified Public Accountant's determination, remit the milestone payment due (if not previously paid) and reimburse LICENSOR for the reasonable, out-of-pocket costs of the audit incurred by LICENSOR. If LICENSEE disputes the Certified Public Accountant's determination and such dispute is resolved against LICENSEE, then Licensee shall, within [***] of the conclusion of such dispute resolution, remit the milestone payment due (if not previously paid) and reimburse LICENSOR for the reasonable, out-of-pocket costs of the audit incurred by LICENSOR.

(i) LICENSEE may dispute a determination made by LICENSOR's Certified Public Accountant pursuant to this Section 7.2(a) by providing written notice to LICENSOR of such dispute within [***] of LICENSEE's receipt of such Certified Public Accountant's determination. If LICENSEE commences such dispute, the disputed determination shall be decided by an independent expert having at least ten (10) years

professional experience in the calculation of net sales of pharmaceutical products. The Parties shall reasonably cooperate with the expert's investigation of the dispute. The decision of the expert shall be final and binding. If the expert rules in favor of LICENSEE, then the costs and expenses of the expert shall be paid by LICENSOR, and if the expert rules in favor of LICENSOR, then the costs and expenses of the expert shall be paid by LICENSEE.

(b) LICENSEE shall, within [***] days after December 31 of each year, to the extent required under Section 7.1(c), deliver to LICENSOR a full and detailed report for the preceding [***] period setting forth the Net Sales of each of LICENSEE and Affiliate, and each Sublicensee of LICENSEE , including at least the following information:

(i) Total amount invoiced for Licensed Product Sold; and
(ii) Deductions applicable as provided in the definition of Net Sales.

ARTICLE 8
Patents and Intellectual Property Rights

8.1 Patent Prosecution. LICENSEE shall have the first right, but not the obligation, to prepare, file, prosecute (including to seek extensions of), maintain and defend all pending patent applications and patents comprising Licensed Patents (including any *inter partes* and opposition proceedings relative to Licensed Patents). LICENSOR shall reasonably cooperate with LICENSEE in the filing, prosecution, maintenance and defense of the Licensed Patents. Such cooperation includes promptly executing all documents, or requiring inventors, subcontractors, employees and consultants and agents of LICENSOR and its Affiliates to execute all documents, and joining as a party in any proceedings, as reasonable and appropriate so as to enable the filing, prosecution, maintenance and defense of any Licensed Patents in any country. If LICENSEE elects not to file, prosecute, maintain and defend any of the Licensed Patents, LICENSOR may (but shall not be obligated to), upon notice to LICENSEE, undertake such filing, prosecution, maintenance and defense of such Licensed Patents at LICENSOR's sole cost and expense, subject to LICENSEE's prior written consent, not to be unreasonably withheld. LICENSEE may prepare, file, prosecute, maintain and defend all Licensed Patents using counsel of its choice. In the event that LICENSEE changes counsel for any reason, LICENSEE shall replace such counsel with new counsel of its choice that is reasonably acceptable to LICENSOR, provided, however, that if LICENSOR rejects the choice of new counsel by LICENSEE [***], then LICENSEE shall be free, in its sole discretion,

to choose an attorney of its choice. LICENSEE shall instruct counsel to promptly provide LICENSOR with copies of all relevant documentation so that LICENSOR may be currently and promptly informed and appraised of the prosecution of Licensed Patents, but in no case [***] in advance of any deadline for filing a response, and so that LICENSOR may comment upon such documentation sufficiently in advance of any final deadline for filing a response, provided, however, that if LICENSOR has not commented upon such documentation [***] to the final deadline for filing a response, LICENSEE shall be free to respond appropriately without waiting for LICENSOR's comments, if any. LICENSEE shall, in good faith, consider all reasonable comments provided by LICENSOR. LICENSEE shall not finally and irrevocably cancel all Valid Claims in a Licensed Patent without LICENSOR's prior written consent, not to be unreasonably withheld, it being understood that abandonment of a Licensed Patent shall not be deemed a cancellation of all Valid Claims in such Licensed Patent if a continuation or similar application claiming priority (directly or indirectly) to such Licensed Patent is filed and which continuation or other application includes one or more Valid Claims of the abandoned Licensed Patent. Both parties hereto shall keep this documentation in confidence in accordance with the provisions of Article 12 herein.

8.2 Costs. Except as provided in Section 8.1, all costs, including without limitation attorneys' fees, incurred by LICENSEE for preparing, filing, prosecuting, copying LICENSOR, and maintaining and defending the Licensed Patents, whether incurred prior to or after the Effective Date, shall be borne by LICENSEE. The costs of all oppositions initiated or defended by LICENSEE shall be considered prosecution expenses and also shall be borne by LICENSEE.

8.3 Duration of Obligation. LICENSEE's obligation to pay costs as set forth in this Article 8 shall continue until [***] after receipt by either Party of a Notice of Termination or expiration of this Agreement.

8.4 Communication between Parties. Each Party shall promptly inform the other as to all matters that come to its attention that reasonably could be expected to materially adversely affect the prosecution, maintenance or defense of the Licensed Patents.

ARTICLE 9
Patent Marking

Patent Marking. LICENSEE shall mark the Licensed Products with a patent notice referring to the Licensed Patents in accordance with 35 U.S.C. §287.

ARTICLE 10
Enforcement of the Licensor's Intellectual Property

10.1 Third Party Infringement. Each Party shall inform the other Party promptly in writing of any alleged infringement of the Licensed Patents by a Third Party and of any available evidence thereof.

10.2 During the term of this Agreement, LICENSEE shall have the initial right, but not the obligation, to prosecute at its own expense any infringement of the Licensed Patents. If LICENSEE prosecutes any infringement, LICENSOR agrees that LICENSEE may include LICENSOR as a co-plaintiff in any such suit, and LICENSOR agrees to join in any such suit, without any expense to LICENSOR. The total cost of any infringement action commenced or defended by LICENSEE shall be borne by LICENSEE and LICENSEE shall keep all recovery or damages derived therefrom.

10.3 If after [***] of having been notified of any alleged infringement of the Licensed Patents or such shorter time proscribed by law, LICENSEE:

(a) has been unsuccessful in persuading the alleged infringer to desist, or

(b) has not brought and has not been diligently prosecuting an infringement action, or

(c) if LICENSEE notifies LICENSOR at any time prior thereto of its intention not to bring suit against any alleged infringer, then, and in those events only, and subject to the rights of other co-owners of the Licensed Patents, LICENSOR shall have the right, but not the obligation, to prosecute at its own expense any infringement of the Licensed Patents, and LICENSOR may, for such purposes, require joinder of LICENSEE as involuntary parties to the litigation, provided, however, that such right to bring an infringement action remains in effect only for so long as the license granted herein remains exclusive. No settlement, consent judgment or other voluntary final disposition of the suit may be entered into without the consent of LICENSEE which consent shall not unreasonably be withheld, conditioned or delayed. LICENSOR shall indemnify LICENSEE against any order for costs that may be made against LICENSEE in such proceedings or any action arising there from, including without limitation, abuse of process and malicious prosecution. The total cost of any infringement action commenced or defended by LICENSOR shall be borne by LICENSOR and, subject to the rights of other co-owners of the Licensed Patents, LICENSOR shall keep all recovery or damages for past infringement derived therefrom.

10.4 In any infringement suit as either Party may institute to enforce the Licensed Patents pursuant to this Agreement, the other Party hereto shall, at the request and expense of the Party initiating such suit, cooperate in all respects and, to the extent possible, have its employees testify when requested and make available relevant records, papers, information, samples, specimens, and the like.

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

ARTICLE 11
Indemnification and Insurance

11.1 LICENSOR's Right to Indemnification. LICENSEE shall indemnify, defend and hold harmless LICENSOR, its directors, trustees, officers, faculty, employees, students, and agents and their respective successors, heirs and assignees (the "Indemnitees"), against any and all claims, suits, losses, liabilities, damages, costs, fees and expenses, including reasonable attorneys' fees and expenses, incurred by or imposed upon any of the Indemnitees in connection with any claims, suits, actions or demands of Third Parties ("Claims") asserted against them to the extent arising out of any theory of liability (including without limitation actions in the form of tort, product liability, negligence, warranty, strict liability, violation of government regulation, infringement of patent or other proprietary rights, breach of any representations or warranties by LICENSEE, failure by LICENSEE to perform any of its obligations under this Agreement, trademark or trade dress infringement arising out of the use of any trademark or trade dress by LICENSEE in connection with the Sale of Licensed Product, copyright infringement arising out of any material published by LICENSEE, and regardless of whether such action has any factual basis) concerning any Licensed Product that is made, used, Sold, distributed, supplied or provided, or any Licensed Method performed, pursuant to any right or license granted under this Agreement or any Sublicense, except to the extent that any Claims shall have arisen from the gross negligence or willful misconduct of any LICENSOR Indemnitee or the breach of this Agreement by any LICENSOR Indemnitee.

LICENSOR Indemnitee shall promptly notify LICENSEE of any Claim with respect to which such LICENSOR Indemnitee is seeking indemnification hereunder, upon becoming aware thereof, and permit LICENSEE at LICENSEE's cost to defend against such Claim and shall cooperate in the defense thereof. Neither such LICENSOR Indemnitee nor LICENSEE shall enter into, or permit, any settlement of any such Claim without the express written consent of the other Party, which shall not unreasonably be withheld, conditioned or delayed. Such LICENSOR Indemnitee may, at its option and expense, have its own counsel participate in any proceeding which is under direction of LICENSEE and will cooperate with LICENSEE and its insurer in the disposition of any such matter; provided, however, that if LICENSEE shall not defend such Claim, such LICENSOR Indemnitee shall have the right to defend such Claim itself and recover from LICENSEE all reasonable attorneys' fees and expenses incurred by it during the course of such defense.

11.2 Failure to Defend. With respect to any Claim which pursuant to Section 11.1, LICENSEE shall fail to defend, LICENSEE shall not thereafter question the liability of LICENSEE hereunder to the Indemnitee for any loss (including reasonable counsel fees and other reasonable expenses of defense) arising from such Claim.

11.3 Claims Period. Notwithstanding the foregoing, the indemnification provisions of Section 11.1 hereof shall survive termination or expiration of this Agreement, but only with respect to claims which arose from acts or circumstances which occurred prior to termination.

11.4 Insurance. LICENSEE shall obtain and carry in full force and effect, or shall provide through self-insurance, commercial general liability insurance, including product liability and errors and omissions insurance, which shall protect LICENSEE and Indemnitees with respect to events covered by Section 11.1 above. Such insurance (i) shall list LICENSOR as an additional insured thereunder, (ii) shall be endorsed to include product liability coverage, and (iii) shall require [***] written notice to be given to LICENSOR prior to any cancellation or material change thereof. The limits of such insurance shall be consistent with limits as are customary in the U.S. pharmaceutical industry for the activities to be conducted by LICENSEE under this Agreement. LICENSEE shall provide LICENSOR with Certificates of Insurance evidencing compliance with this Section. LICENSEE shall continue to maintain such insurance or self-insurance after the expiration or termination of this Agreement during any period in which LICENSEE or any SUBLICENSEE continues to make, use, or Sell a product that was a Licensed Product under this Agreement, and thereafter for a period of [***].

ARTICLE 12
Confidentiality Provisions

12.1 Confidential Information. All information disclosed by one Party to another Party hereunder ("Confidential Information") shall be maintained in confidence by the receiving Party and shall not be disclosed to any Third Party or used for any purpose other than performance of its obligations and exercise of its rights under this Agreement ("Permitted Purpose") without the prior written consent of the disclosing Party for the term of this Agreement and a period of [***] thereafter, except to the extent that such information is:

(i) now in the public domain or subsequently enters into the public domain through no fault of the receiving Party;

(ii) known by the receiving Party at the time of its receipt and not through a prior disclosure by the disclosing Party on a confidential basis as documented by the receiving Party's written records;

(iii) developed by or for the receiving Party independently of Confidential Information received from the disclosing Party as documented by the receiving Party's written records;

(iv) subsequently disclosed to the receiving Party by a Third Party who may lawfully do so and is not under an obligation of confidentiality to the disclosing Party;

(v) disclosed to governmental or other regulatory agencies in order to obtain patents or to gain or maintain approval to conduct clinical trials or to market and Sell Licensed Products or perform Licensed Methods, but such disclosure may be only to the extent reasonably necessary to obtain patents or authorizations; and/or

(vi) deemed necessary by LICENSEE to be disclosed to Sublicensees, agents, consultants, and/or other Third Parties for the development and/or commercialization of Licensed Products and/or in connection with a licensing transaction and/or a permitted assignment under this Agreement, and/or loan, financing, or investment and/or acquisition, merger, consolidation, or similar transaction (or for such entities to determine their interest in performing such activities) in each case on the condition that any third parties to whom such disclosures are made agree to be bound by confidentiality and non-use obligations substantially similar to those contained in this Agreement.

Confidential Information pertaining to the Licensed Patents shall be deemed Confidential Information of both Parties.

12.2 Each Party shall keep in confidence and shall each use its Commercially Reasonable Efforts to cause its respective officers, directors, employees, professors, researchers, students, trustees, regents, agents, consultants, clinical research associates and clinical investigators to whom it is permitted to disclose information pursuant to the terms of this Agreement to retain in confidence all Confidential Information of the disclosing Party and not use such Confidential Information for any purpose other than the Permitted Purpose. Without limiting the foregoing, each Party shall exercise the same degree of diligence and care with respect to the Confidential Information of the disclosing Party as it exercises with respect to its own confidential and proprietary information.

12.3 If a Party is required by judicial or administrative process to disclose Confidential Information that is subject to the non-disclosure provisions of this Article 12, such Party shall promptly inform the other Party of the disclosure that is being sought in order to provide the other Party an opportunity to challenge or limit the disclosure obligations. Confidential Information that is disclosed by judicial or administrative process shall remain otherwise subject to the confidentiality and non-use provisions hereof, and the disclosing Party, pursuant to law or court order, shall take all steps reasonably necessary, including without limitation obtaining an order of confidentiality, to ensure the continued confidential treatment of such Confidential Information.

12.4 Either Party may disclose the terms of this Agreement to the extent required, in the reasonable opinion of such Party's legal counsel, to comply with applicable laws, including without limitation the rules and regulations promulgated by the United States Securities And Exchange Commission. Notwithstanding the foregoing, prior to such disclosure, the Parties will consult with one another on the terms of this Agreement that are to be redacted in making any such disclosure. If a Party discloses this Agreement or any of the terms hereof in accordance with this Section, such Party agrees, at its own expense, to seek confidential treatment of portions of this Agreement or such terms as may be reasonably requested by the other Party.

12.5 Publicity. No Party will make any media release or other public announcement relating to or referring to this Agreement without the prior written consent of the other Party.

ARTICLE 13
Representation or Warranties; Disclaimer

13.1 Warranties. LICENSOR represents and warrants to Licensee that:

(a) LICENSOR has full right and authority to enter into this Agreement and to grant the licenses and other rights to LICENSEE as herein described;

(b) to the best of LICENSOR's knowledge after reasonably due inquiry, the execution, delivery and performance of this Agreement does not conflict with any other agreement, contract, instrument or understanding, oral or written, to which LICENSOR is a party, or by which it is bound; and

(c) none of LICENSOR or any of its Affiliates has entered into any agreement or otherwise licensed, granted, assigned, transferred, conveyed or otherwise encumbered or disposed of any right, title or interest in or to any of the Licensed Patents that would conflict with or impair the scope of any rights or licenses granted hereunder.

13.2 Except as may otherwise be expressly set forth in this Agreement, LICENSOR makes no representation and extends no warranties of any kind concerning the Licensed Patents, express or implied, including without limitation warranties of merchantability, fitness for a particular purpose, noninfringement, validity of Licensed Patents claims, whether issued or pending, and the absence of latent or other defects, whether or not discoverable. Specifically, and not to limit the foregoing, LICENSOR makes no warranty or representation (i) regarding the validity or scope of the Licensed Patents, (ii) that the exploitation of the Licensed Patents or any Licensed Product or Licensed Method will not infringe any patents or other intellectual property rights of LICENSOR or of a Third Party and (iii) that the Licensed Products will be safe or non-hazardous.

13.3 In no event shall LICENSOR, its trustees, directors, officers, employees and Affiliates, under any circumstances, be liable or obligated in any manner for any special, incidental, consequential or exemplary damages arising out of or related to this Agreement or the transactions contemplated hereunder, even if LICENSOR is informed in advance of the possibility of such damages occurring. This limitation is separate and independent of any other remedy limitations and shall not fail if such other limitation on remedy fails.

13.4 LICENSEE hereby represents and warrants to LICENSOR that LICENSEE has the right, power and authority to enter in to this Agreement and to fully perform all of its obligations hereunder; and entering into this Agreement does not violate any agreement or obligation existing between LICENSEE and any Third Party.

ARTICLE 14
Assignment

LICENSEE may not assign, voluntarily, by operation of law, or otherwise, this Agreement without LICENSOR's prior written consent, and any attempt to do so without such consent will be void and of no effect, except that LICENSEE may assign its rights and obligations under this Agreement without LICENSOR's consent to an Affiliate of LICENSEE or to a successor of LICENSEE in connection with the merger, consolidation, or sale of all or substantially all of LICENSEE's assets or equity or that portion of its business to which this Agreement relates, which assignment shall be disclosed to LICENSOR by written notice as soon as possible, but in no event no longer than [***] after the assignment is effective.

ARTICLE 15
Compliance with the Law

15.1 LICENSEE shall use Commercially Reasonable Efforts to comply with all commercially material local, state, federal, and international laws and regulations relating to the development, manufacture, use and Sale of Licensed Products.

15.2 LICENSEE acknowledges that it is subject to the United States laws and regulations controlling the export of technical data, computer software, laboratory prototypes and other commodities. The transfer of such items may require a license from the cognizant agency of the United States Government and written assurances by LICENSEE that LICENSEE shall not export data or commodities to certain foreign countries without prior approval of such agency. LICENSOR neither represents that a license shall not be required nor that, if required, it shall be issued.

ARTICLE 16
Term and Termination

16.1 Term of License. Unless sooner terminated pursuant to another provision of this Agreement, this Agreement shall continue in full force and effect and shall have a term expiring upon the last expiration or last final invalidation of the Licensed Patents, including any extension or reissues thereof.

16.2 Voluntary Termination by LICENSEE. LICENSEE shall have the right to terminate this Agreement, for any reason upon at least sixty (60) days' prior written notice to LICENSOR, such notice to state the date, at least sixty (60) days in the future, upon which termination is to be effective.

16.3 Termination for Default. LICENSOR may terminate this Agreement and the license granted hereunder or render this license non-exclusive, effective upon written notice from LICENSOR to LICENSEE, for any of the following:

(a) If LICENSEE does not make a payment due hereunder and fails to cure such nonpayment (including the payment of interest) within thirty (30) days after the date of notice of such nonpayment by LICENSOR;

(b) If LICENSEE defaults in its obligations to procure and maintain insurance in accordance with Section 11.4 and does not cure such failure within forty-five (45) days after the date of notice of such failure by LICENSOR; or

(c) If LICENSEE shall become insolvent, shall make an assignment for the benefit of creditors, or shall have a petition in bankruptcy filed for or against it that is not dismissed within sixty (60) days of filing or if a receiver, trustee, or any similar officer is appointed to take possession, custody, or control of all or substantially all of LICENSEE's assets or property or if LICENSEE adopts any resolution of its Board of Directors or stockholders for the purpose of effecting any of the foregoing.

16.4 Except as provided for in Section 16.3(a) through 16.3(c) above, if LICENSEE materially defaults in the performance of any material obligations under this Agreement (including its obligations under Article 5) and the default has not been cured within [***] after the date of written notice of such default by LICENSOR, LICENSOR may terminate this Agreement and the license granted hereunder or render this license non-exclusive. Such termination rights shall be in addition to and not in substitution for any other remedies that may be available to LICENSOR. Termination pursuant to this Section 16.4 shall not relieve the LICENSEE from liability and damages to LICENSOR for breach of this Agreement.

16.5 If LICENSEE in good faith disagrees as to whether there has been a default under Section 16.3 or Section 16.4, (a) LICENSEE shall provide written notice to LICENSOR that it disputes such claim of default within [***] of receipt of the written notice of default from LICENSOR, (b) LICENSEE may contest the allegation of default in a court of competent jurisdiction, (c) from the date of receipt of such notice by LICENSOR until such time as the dispute has become finally settled, the running of the time periods as to which LICENSEE must cure such alleged default shall be suspended, and (d) LICENSOR shall not have the right to terminate this Agreement unless and until the existence of such default has been determined. It is understood and acknowledged that during the pendency of such a dispute, all of the terms and conditions of this Agreement shall remain in effect and the Parties shall continue to perform all of their respective obligations hereunder.

16.6 Waiver by either Party of a single default or a succession of defaults shall not deprive such Party of any right to terminate this Agreement arising by reason of any subsequent default.

16.7 Patent Challenge on Sublicensed Patents. LICENSEE shall include provisions in all agreements granting Sublicenses of LICENSEE's rights hereunder (excluding Sublicenses with Third Party Contractors) providing that if the Sublicensee undertakes a challenge in a legal or administrative proceeding to the validity, patentability or enforceability of any of the Licensed Patents or otherwise opposing in a legal or administrative proceeding any of the Licensed Patents (each a "Patent Challenge") with respect to which the Sublicensee is Sublicensed, LICENSEE shall be permitted to terminate such Sublicense. If a Sublicensee of LICENSEE undertakes a Patent Challenge of any such Licensed Patent under which such Sublicensee is Sublicensed, then LICENSEE within [***] after receipt of notice from LICENSOR of such Patent Challenge demanding termination of the Sublicense shall terminate the applicable Sublicense agreement. If LICENSEE fails to so terminate such Sublicense agreement, LICENSOR may terminate this Agreement.

16.8 Effect of Termination.

(a) Termination of Licensee's Rights. Upon termination of this Agreement, the license granted hereunder shall terminate and all of the Parties' rights granted under this Agreement shall immediately terminate. Any such termination shall not relieve either Party from any obligations accrued prior to the date of such termination. For clarity, termination of LICENSEE's rights under this Agreement shall not affect LICENSEE's rights as a co-owner of the Licensed Patents or rights obtained from other co-owners of the Licensed Patents.

(b) Upon termination, each Party shall promptly return to the other Party, or destroy, all Confidential Information of the other Party provided to it under this Agreement, regardless of medium, including without limitation, magnetically recorded writings or legible and readable copies thereof, which are in its possession, custody, or control, provided, however, a Party shall not be obligated to return or destroy Confidential Information of the other Party which such Party can show that it independently developed or which is Confidential Information of both LICENSOR and LICENSEE. Notwithstanding the foregoing, each Party may retain one copy of the Confidential Information of the other Party in its confidential legal files for the purpose of establishing the extent of the disclosure and its obligations hereunder.

(c) The provisions under which this Agreement may be terminated will be in addition to any and all other legal remedies which either Party may have for the enforcement of any and all terms hereof, and do not in any way limit any other legal remedy such Party may have.

(d) The following provisions of this Agreement shall survive termination: Articles 1, 11, 12, 16.8, and 17 will survive the termination of this Agreement.

ARTICLE 17
Miscellaneous

17.1 Notice. Any notices required or permitted under this Agreement shall be in writing, shall specifically refer to this Agreement, and shall be sent by hand, recognized national overnight courier, confirmed facsimile transmission, confirmed electronic mail, or registered or certified mail, postage prepaid, return receipt requested, to the following addresses or facsimile numbers of the Parties:

If to GEORGETOWN:

By courier:

Vice President
Office of Technology Commercialization
Georgetown University
Harris Building, Suite 1500
3300 Whitehaven Street, N.W.
Washington, DC 20007
Fax: 202-687-3111

By United States Postal Service:

Vice President
Office of Technology Commercialization
Georgetown University
Box 571408
Washington, DC 20057-1408

If to X4: Attn: John Celebi
Chief Operating Officer
X4 Pharmaceuticals, Inc.
784 Massachusetts Avenue, Suite 140
Cambridge MA 02139

All notices under this Agreement shall be deemed effective upon receipt. A Party may change its contact information immediately upon written notice to the other Parties in the manner provided in this Section.

17.2 Governing Law. This Agreement and all disputes arising out of or related to this Agreement (whether in contract, tort or otherwise), and the validity, performance, interpretation, enforcement, breach or termination hereof, and any remedies relating thereto, shall be governed by and construed in all respects under, the laws of the State of New York without giving effect to its conflicts of law principles.

17.3 Force Majeure. No Party shall be liable or responsible hereunder by reason of any failure or delay in the performance of its obligations hereunder on account of strikes, shortages, riots, insurrection, fires, flood, storm, explosions, acts of God, war, governmental action, labor conditions, earthquakes, or any other cause which is beyond the reasonable control of such Party.

17.4 Further Assurances. Each Party agrees to cooperate fully with the other Parties and to execute such further instruments, documents and agreements and to give such further written assurances, as may be reasonably requested by the other Party, to better evidence and reflect the transactions contemplated hereby, and to carry into effect the intent and purposes of this Agreement.

17.5 Amendment and Waiver. This Agreement may be amended, supplemented, or otherwise modified only by a writing that refers explicitly to this Agreement and that is signed on behalf of all Parties. No term or provision hereof will be considered waived by a Party, and no breach excused by a Party, unless such waiver or consent is in writing signed on behalf of the Party against whom the waiver is asserted. No consent by either Party to, or waiver of, a breach by either Party, whether express or implied, will constitute a consent to, waiver of, or excuse of any other different or subsequent breach by a Party.

17.6 Binding Effect. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective permitted successors and assigns.

17.7 Non-Use of LICENSOR Name. LICENSEE and Sublicensees shall not use the name of "Georgetown University," or any variation, adaptation, or abbreviation thereof, or of any of its trustees, officers, faculty, students, employees, or agents, or any trademark, service mark, seal, mascots, crests or logo owned by GEORGETOWN or any of its personnel, or any adaptation of them, or any terms of this Agreement in any promotional, advertising or sales literature or, except as permitted by Section 12.4, other public announcement or disclosure without the prior written consent of Georgetown. The foregoing notwithstanding, without the consent of GEORGETOWN, LICENSEE may state that it is licensed by LICENSOR under one or more of its patents and/or patent applications comprising the Licensed Patents.

17.8 Equitable Relief. Each Party agrees that certain breaches of this Agreement by the other Party may result in irreparable harm to the other Party, the extent of which would be difficult and/or impracticable to assess, and that money damages would not be an adequate remedy for such breach. Accordingly, the other Party shall be entitled to seek immediate equitable and other provisional relief, including without limitation specific performance of this Agreement and a temporary restraining order and/or preliminary and/or permanent injunction, as a remedy for such breach in addition to any and all other remedies available to a Party at law or in equity and without prejudice to any such other remedies.

17.9 Relationship of Parties. Each Party's relationship with the other is that of an independent contractor, and nothing in this Agreement is intended to, or should be construed to, create a partnership, agency, joint venture or employment relationship. No Party is authorized to make any representation, contract or commitment on behalf of the other.

17.10 Severability. In the event that any provision of this Agreement shall be unenforceable or invalid under any applicable law or be so held by applicable court decision, such unenforceability or invalidity shall not render this Agreement unenforceable or invalid as a whole, and, in such event, such provisions shall be changed and interpreted so as to best accomplish the objectives of such unenforceable or invalid provision within the limits of applicable law or applicable court decisions.

17.11 Headings. The paragraph headings appearing in this Agreement are inserted only as a matter of convenience and in no way define, limit, construe or describe the scope or extent of such paragraph or in any way affect such paragraph.

17.12 Counterparts. This Agreement may be signed in two or counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. If this Agreement is executed in counterparts, no

signatory hereto shall be bound until all of the Parties named below have duly executed or caused to be duly executed a counterpart of this Agreement. A signature on a copy of this Agreement received by either Party by facsimile or PDF e-mail is binding upon the other Party as an original. The Parties agree that a photocopy of such facsimile or PDF e-mail may also be treated by the Parties as a duplicate original.

17.13 Entire Agreement. This Agreement constitutes the entire agreement between the Parties with respect to its subject matter and supersedes all prior agreements or understandings between the Parties relating to its subject matter.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives.

GEORGETOWN UNIVERSITY:		X4 PHARMACEUTICALS, INC.:	
By:	/s/ Claudia Cherney Stewart	By:	/s/ John Celebi
Name:	Claudia Cherney Stewart, Ph.D.	Name:	John Celebi
Title:	Vice President, Office of Technology Commercialization	Title:	Chief Operating Officer
Date:	12/13/2016	Date:	12/13/2016

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

Exhibit 10.8

BIDMC Agreement No: A9456
BIDMC Case No: 1952

BETH ISRAEL DEACONESS MEDICAL CENTER
EXCLUSIVE LICENSE AGREEMENT

This License Agreement ("Agreement") is made as of the date immediately above the signatures of the Parties below ("Effective Date") between **Beth Israel Deaconess Medical Center**, a not-for-profit Massachusetts corporation, with a principal place of operation at 330 Brookline Avenue, Boston, Massachusetts 02215 ("BIDMC"), and **X4 Pharmaceuticals, Inc.** a corporation, having a principal place of business at 784 Massachusetts Avenue, Suite 140, Cambridge MA 02139 ("Licensee"), each referred to individually as a "Party" and collectively as the "Parties".

RECITALS

BIDMC, as a center for patient care, research and education, owns certain Patent Rights (defined below) through assignment and desires to benefit the public by disseminating the results of its research through the grant of a license of those Patent Rights to Licensee for the commercial development, manufacture, distribution and use of Products and Processes (defined below).

Licensee has the capability to commercially develop, manufacture, distribute and use Products and Processes for public use and benefit and desires to receive a license to such Patent Rights.

For good and valuable consideration, the sufficiency of which the Parties acknowledge, the Parties agree as follows:

1. DEFINITIONS

The following terms have the following meanings:

1.1 "Affiliate" with respect to either Party, means any corporation or other legal entity other than that Party, in whatever country organized, that directly or indirectly controls, is controlled by or is under common control with that Party. For the purposes of this definition, the term "control" means (a) for Licensee, (i) beneficial ownership of at least fifty percent (50%) of the voting securities of a corporation or other business organization with voting securities or (ii) a fifty percent (50%) or greater interest in the net assets or profits of a partnership or other business organization without voting securities; and (b) for BIDMC, the power, direct or indirect, to elect or appoint fifty percent (50%) or more of the directors or trustees, or to cause direction of management and policies, whether through the ownership of voting securities, by contract or otherwise.

1.2 "Claim" means any pending or issued claim of any Patent Right that has not been permanently revoked, nor held unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction that is unappealable or unappealed in the time allowed for appeal.

1.3 "Distributor" means any entity to whom Licensee, a Licensee Affiliate or a Sublicensee has granted, express or implied, the right to Sell and/or distribute any Product or Process on behalf of Licensee, such Licensee Affiliate or such Sublicensee, without granting such entity the right to make, have made, use or have used. A Distributor shall not be considered a Sublicensee under this Agreement.

1.4 "Field" means all fields of use.

1.5 "Patent Costs" means all costs and expenses of any kind, including attorneys' fees, associated with the preparation, filing, prosecution and maintenance of all Patent Rights.

1.6 "Patent Challenge" means a challenge in a legal or administrative proceeding to the validity, patentability or enforceability of any of the Patent Rights or otherwise opposing in a legal or administrative proceeding any of the Patent Rights.

1.7 "Patent Rights" means the United States and international patents, patent applications and provisional applications listed on Appendix A, and the patents resulting from any of the foregoing applications; and any divisions, continuations, and continuations-in-part (but only to the extent the claims are directed to subject matter specifically described in the patent applications listed in Appendix A), including foreign patent applications or patents that are equivalent to the foregoing; and any reissues, reexaminations or extensions of any of the foregoing; and any and all patents and patent applications claiming priority benefit from or to any of the foregoing, and all patents and patent applications from which any of the foregoing claim priority benefit from or to.

1.8 "Process" means any process, method or service the use or performance of which, in whole or in part, is (a) covered by any Claim in the Patent Rights; or (b) which, absent the license granted hereunder, would infringe one or more Claims of the Patent Rights.

1.9 "Product" means

(a) any product (including any apparatus or kit) that in whole or through a component part thereof, the manufacture, use, practice or Sale of which is covered by one or more Claims of the Patent Rights or, in the absence of a license from BIDMC, would infringe one or more Claims of the Patent Rights; or

(b) any product (including any apparatus or kit) that is developed, produced or manufactured with, or used pursuant to, a Process as defined in Section 1.9.

1.10 "Related Information" means any research data, designs, formulae, process information and other information pertaining to any invention claimed in the Patent Rights owned by BIDMC, for which there is no obligation to any third party, and (i) is known as of the Effective Date and disclosed to the BIDMC Technology Ventures Office by Dr. Mier; and (ii) is in addition to the disclosures in the patent application for the Patent Rights. Licensee shall maintain all such Related Information as the Confidential Information of BIDMC.

1.11 "Sale" (and "Sell" and "Sold" as the case may be) shall mean to sell or have sold, to lease or have leased, to import or have imported or otherwise to transfer or have transferred a Product or Process for consideration (in the form of cash or otherwise), and further in the case of a Process to use or perform such Process in exchange for consideration for the benefit of a third party.

1.12 "Sublicensee" means any sublicensee of the rights granted to Licensee pursuant to Section 2.1(a). Sublicensee shall not include Distributors.

1.13 "Term" means the term of this Agreement, which shall commence on the Effective Date and shall remain in effect until the date on which all issued patents and filed patent applications within the Patent Rights have expired or been permanently abandoned, unless this Agreement is terminated earlier as provided herein.

1.14 "Territory" means worldwide.

2. LICENSE

2.1 Grant of License.

(a) Subject to the terms of this Agreement and BIDMC's rights in the Patent Rights, BIDMC hereby grants to Licensee and its Affiliates in the Field in the Territory for the Term, an exclusive, royalty-free, fully paid-up (upon payment of the License Issue Fee pursuant to Section 3.1) license under BIDMC's rights in the Patent Rights to make, have made, use, have used, Sell and have Sold Products and Processes.

(b) Subject to the terms of this Agreement and specifically Section 2.2, BIDMC grants Licensee the right to grant sublicenses under the rights granted in Section 2.1(a) and Section 2.1(c), provided that in each case Licensee shall be responsible for the performance of any obligations of Sublicensees relevant to this Agreement as if such performance were carried out by Licensee itself, which right to grant sublicenses will be exclusive with respect to the rights granted in Section 2.1(a) and will be non-exclusive with respect to the rights granted in Section 2.1(c).

(c) Subject to the terms of this Agreement, BIDMC hereby grants to Licensee and its Affiliates (subject to Section 2.1(e)) in the Field in the Territory for the

Term, a nonexclusive royalty-free, fully paid-up (upon payment of the License Issue Fee pursuant to Section 3.1) right to use Related Information disclosed by BIDMC to Licensee to develop, make, have made, use, have used, Sell and have Sold and otherwise commercialize the Products and Processes.

(d) The licenses granted in Sections 2.1(a) and 2.1(c) above include:

(i) the right to grant to the purchaser, user or consumer of Products the right to use such purchased Products in a method coming within the scope of Patent Rights, and such purchasers, users and consumers will not be considered Sublicensees hereunder; and

(ii) the right to grant a Distributor the right to Sell (but not to make, have made, use or have used) such Products and/or Processes for or on behalf of Licensee, Licensee Affiliates and Sublicensees in a manner consistent with this Agreement.

(e) The foregoing license grants to Licensee Affiliates are subject to each such

Affiliate assuming the same obligations as those of Licensee and becoming subject to the same terms and conditions under this Agreement; and further provided that Licensee shall be responsible for the performance of all of such obligations and for compliance with all of such terms and conditions by Affiliate.

2.2 Sublicenses. Each sublicense granted hereunder shall be consistent with and comply with all terms of this Agreement, and shall incorporate terms and conditions sufficient to enable Licensee to comply with this Agreement. Licensee shall provide to BIDMC a fully signed copy of all sublicense agreements and amendments thereto, including all exhibits, attachments and related documents, within [***] of executing the same, excluding sublicenses granted to third parties that are clinical research organizations, contract manufacturers, contract laboratory organizations, and other similar third parties that support the development and commercialization of Products and/or Processes on a fee-for-service basis as Sublicensees hereunder ("Third Party Contractors"). Licensee will be permitted to redact from such fully signed copies proprietary and other sensitive information to the extent that such redaction does not impact BIDMC's ability to confirm Licensee's compliance with this Agreement. Notwithstanding the foregoing, Licensee will disclose to BIDMC the identity of the Sublicensee (excluding, for avoidance of doubt, Third Party Contractors). Any sublicense which is not in accordance with the forgoing provisions shall be null and void. Any Sublicensee and Distributor agreement under this Agreement shall provide for termination of any sublicense granted hereunder upon termination of this Agreement for any reason. Upon termination of this Agreement for any reason, any Sublicensee and Distributor not then in default under its agreement shall have the right to seek a license from BIDMC. BIDMC agrees to negotiate such licenses in good faith under reasonable terms and conditions consistent with this Agreement.

Upon Licensee's request during the term of this Agreement, BIDMC agrees to provide, on a timely basis, a letter to an existing or potential Sublicensee specifically named by Licensee stating that, in the event of termination of this Agreement, BIDMC will grant a license to Sublicensee under terms and conditions to be no less favorable as a whole than those granted to Sublicensee by Licensee, provided that Sublicensee is not in default of its sublicense agreement with Licensee at the time such license is to be granted by BIDMC and provided that BIDMC shall not assume any obligation of Licensee to Sublicensee under such agreement, except for the license granted. Licensee's right to request and Sublicensee's right to acquire such letter are specifically conditioned on BIDMC's review of the final, executed sublicense agreement between Sublicensee and Licensee and on BIDMC's conclusion, at its reasonable discretion, that such sublicense agreement is reasonable and in the best interests of the commercialization of the Patent Rights.

2.3 Retained Rights; Requirements. Any and all licenses granted hereunder are subject to:

(a) the royalty-free right of BIDMC and BIDMC's Affiliates and of academic, government and not-for-profit institutions to make, use and/or practice the technology or method described and/or claimed in the Patent Rights solely for non-commercial research purposes; and

(b) for Patent Rights supported by federal funding, the rights, conditions and limitations imposed by U.S. law (see 35 U.S.C. § 202 et seq. and regulations pertaining thereto), including without limitation:

(i) the royalty-free non-exclusive license granted to the U.S. government; and

(ii) to the extent required by the National Institutes of Health (as the federal funding agency), the requirement that any Products (if they qualify as "subject inventions" under 35 U.S.C. § 204) used or sold in the United States shall be manufactured substantially in the United States.

If Licensee or any of its Affiliates or Sublicensees wishes to obtain a waiver of the requirement under Section 2.3(b)(ii), BIDMC agrees to reasonably cooperate with Licensee or such Affiliates or Sublicensees in obtaining such waiver, including by directly filing for such waiver if required by applicable law and regulations.

2.4 No Additional Rights. Nothing in this Agreement shall be construed to grant Licensee an express or implied license under any patent, technology or intellectual property right owned solely or jointly by BIDMC, other than the Patent Rights and Related Information expressly licensed hereunder.

3. PAYMENTS

3.1 License Issue Fee. Licensee shall pay BIDMC a non-refundable, non-creditable license issue fee in the sum of twenty thousand dollars ($20,000) ("License Issue Fee") within twenty (20) business days of the Effective Date of this Agreement. For avoidance of doubt, upon payment of the License Issue Fee, the licenses and rights granted to Licensee under Section 2.1 shall be fully paid-up and royalty-free.

3.2 Form of Payment. All payments due under this Agreement shall be drawn on a United States bank and shall be payable in United States dollars. Each payment shall reference this Agreement and identify the obligation under this Agreement that the payment satisfies. Conversion of foreign currency to U.S. dollars shall be made at the conversion rate existing in the United States, as reported in The Wall Street Journal, on the last working day of the applicable Reporting Period. Such payments shall be without deduction of exchange, collection or other charges, and, specifically, without deduction of withholding or similar taxes or other government imposed fees or taxes. Checks for all payments due to BIDMC under this Agreement shall be made payable to BIDMC and addressed as set forth in Section 12.2. Payments via wire transfer should be made as follows:

[***]

3.3 Overdue Payments. The payments due under this Agreement shall, if overdue, bear interest at two percentage Points above the Prime Rate of interest as reported in the Wall Street Journal on the date payment is due until payment thereof, not to exceed the maximum permitted by law. Any such overdue payments when made shall be accompanied by all interest so accrued. Payment and acceptance, in whole or in part, of interest and the overdue payment shall not preclude BIDMC from exercising any other rights it may have as a consequence of the lateness of any payment.

3.4 Consequences of a Patent Challenge. In the event that (i) Licensee, any of its Affiliates, or any Sublicensee brings a Patent Challenge against BIDMC, or (ii) Licensee, any of its Affiliates, or any Sublicensee assists another party in bringing a Patent Challenge against BIDMC (except as required under a court order or subpoena), and (iii) BIDMC does not choose to exercise its rights to terminate this Agreement pursuant to Section 9.4, then if such a Patent Challenge is successful, Licensee will have no right to recoup any monies paid during the period of challenge.

4. PATENT PROSECUTION AND MAINTENANCE

4.1 Prosecution. Provided that Licensee seeks and maintains the strongest and broadest patent claims reasonably practicable and uses patent attorneys acceptable to BIDMC, such acceptance not to be unreasonably withheld, BIDMC appoints Licensee as its exclusive agent to prepare, file, prosecute (including to seek extensions of), maintain and defend (including inter partes and opposition proceedings) all of the Patent Rights

during the Term. Licensee shall copy BIDMC on all patent prosecution documents and give BIDMC reasonable opportunities to advise Licensee on such filing, prosecution, maintenance and defense. BIDMC shall reasonably cooperate with Licensee in the filing, prosecution, maintenance and defense of the Patent Rights. Such cooperation includes promptly executing all documents, or requiring inventors, subcontractors, employees and consultants and agents of BIDMC and its Affiliates to execute all documents, and joining as a party in any proceedings, as reasonable and appropriate so as to enable the filing, prosecution, maintenance and defense of any Patent Right in any country. In the event Licensee desires to abandon the prosecution, maintenance or defense of any patent, patent application, or any Claims within the Patent Rights where such Claims are not included in a continuation, divisional or other patent or patent application, Licensee shall provide BIDMC with [***] prior written notice of such intended abandonment or decline of responsibility and, as to Claims, shall reasonably consider BIDMC's judgment in whether or not to abandon or not defend such Claim, and, as to such patent or patent application, such abandonment or election not to defend shall only be with prior notice to BIDMC on a patent by patent and country by country basis. If BIDMC desires to prosecute, maintain or defend any such Patent Rights proposed to be abandoned by Licensee under this Agreement, the right to prepare, file, prosecute, maintain and defend the relevant Patent Rights shall revert, as between Licensor and Licensee, to BIDMC, at BIDMC's expense, subject to any third party rights. In such event, such BIDMC paid-for rights shall be removed from the definition of Patent Rights under this Agreement, the licenses granted to Licensee and its Affiliates as to such Patent Rights shall terminate, and BIDMC shall have the right to abandon or maintain and license such Patent Rights in its discretion.

4.2 Confidentiality of Prosecution and Maintenance Information. Each Party agrees to treat all information related to prosecution and maintenance of Patent Rights as Confidential Information in accordance with the provisions of Appendix B.

5. REPORTS

5.1 Progress Reports. Within [***] after the end of each calendar year, Licensee shall report in writing to BIDMC on progress during such preceding [***] period in developing and/or commercializing Products and/or Processes, including, without limitation, progress on research and development, status of applications for regulatory approvals, manufacturing, sales, sublicensing and the number of sublicenses (excluding Third Party Contractors) entered into and marketing.

6. THIRD PARTY INFRINGEMENT AND LEGAL ACTIONS

6.1 Licensee Right to Prosecute. Licensee shall have the first right, but not the obligation, to initiate legal proceedings to protect the Patent Rights from infringement, with respect to a Claim of a Patent Right in the Field in the Territory, and prosecute infringers at Licensee's expense. Before commencing such action, Licensee and, as applicable, any Affiliate, shall consult with BIDMC, concerning the advisability of bringing suit, the selection of counsel and the jurisdiction for such action (provided

Licensee must have BIDMC's prior written consent (not to be unreasonably withheld) with respect to selection of jurisdiction for any action in which BIDMC may be joined as a party-plaintiff) and shall use reasonable efforts to accommodate the views of BIDMC regarding the proposed action, especially but without limitation with respect to potential effects on the public interest. Licensee shall be responsible to BIDMC for all costs, expenses and liabilities arising out or and in connection with any such action and shall indemnify and hold BIDMC harmless therefrom, regardless of whether BIDMC is a party-plaintiff, except for the expense of any independent counsel retained by BIDMC in accordance with Section 6.2 below. Licensee shall keep BIDMC informed of the progress of such proceedings and shall make its counsel reasonably available to BIDMC for discussion of such proceedings. BIDMC shall also be entitled to independent counsel in such proceedings but at its own expense, said expense to be offset against any damages received by the Licensee bringing suit in accordance with Section 6.4

6.2 BIDMC Right to Prosecute and/or Join as a Party-Plaintiff.

(a) In the event that Licensee elects not to take action pursuant to this Section 6.1, Licensee shall so notify BIDMC promptly in writing of its intention in good time to enable BIDMC to meet any deadlines by which an action must be taken to establish or preserve any enforcement rights and BIDMC shall have the right to take steps to protect the Patent Rights from infringement, with respect to a Claim of a Patent Right in the Field in the Territory, and prosecute infringers at BIDMC's expense and subject to any third party rights. If BIDMC notifies Licensee that it intends to so prosecute, subject to any third party rights, BIDMC shall use reasonable efforts, within [***] of its notice to Licensee, to (i) cause such infringement to terminate; (ii) reach a settlement with infringers; or (iii) initiate legal proceedings against the infringer. Nothing in this Section 6.2 shall be construed to prevent Licensee from initiating legal proceedings, in accordance with its independent judgement of the merits of an infringement action, as provided in Section 6.1.

(b) If Licensee elects to commence an action as described in Section 6.1 above, BIDMC shall have, in its sole discretion and at its own expense, the option to voluntarily join such action as a party-plaintiff. If required by law for the purposes of Licensee bringing an action against an alleged infringer, BIDMC agrees that it shall allow Licensee to join BIDMC in such action as a party-plaintiff

6.3 Notice of Actions; Settlement. Licensee shall promptly inform BIDMC of any action or suit relating to Patent Rights and shall not enter into any settlement, consent judgment or other voluntary final disposition of any action relating to Patent Rights, including but not limited to appeals, that would adversely affect the validity, patentability or enforceability of the Patent Rights without the prior written consent of BIDMC, which shall not be unreasonably withheld or delayed.

6.4 Recovery. Subject to any third party rights, any award paid by third parties as the result of such proceedings (whether by way of settlement or otherwise) shall first be applied to reimbursement of any legal fees and expenses incurred by both Parties, in proportion to their expenditures, and then the remainder, if any, shall be distributed between the Parties as follows:

(a) Licensee shall receive an amount equal to its lost profits or a reasonable royalty on the infringing sales, or whichever measure of damages the court shall have applied; and

(b) the balance, if any, remaining after Licensee and BIDMC have been compensated under Section 6.4(a) shall be shared equally by the Parties.

7. INDEMNIFICATION AND INSURANCE

7.1 Indemnification.

(a) Licensee shall indemnify, defend and hold harmless BIDMC and its Affiliates and their respective trustees, directors, officers, medical and professional staff, employees, and agents and their respective successors, heirs and assigns (the "Indemnitees"), against any liability, damage, loss or expense (including reasonable attorney's fees and expenses of litigation) incurred by or imposed upon the Indemnitees or any one of them in connection with any claims, suits, actions, demands or judgments commenced or obtained by a third party arising out of any theory of liability, including without limitation, any theory of product liability (including, but not limited to, actions in the form of contract, tort, warranty, or strict liability) concerning any Product or Process made, used or sold pursuant to any right or license granted under this Agreement. BIDMC shall promptly provide written notice to Licensee of any claim to which indemnification applies under this Section 7.1(a).

(b) Licensee agrees, at its own expense, to, defend against and resolve, and will have the right to assume and control the defense and resolution of, any actions or claims brought or filed against any party indemnified hereunder with respect to the subject of indemnity contained herein, whether or not such actions are rightfully brought; provided, however, that any Indemnitee shall have the right to retain its own counsel, at the expense of Licensee, if representation of such Indemnitee by counsel retained by Licensee would be inappropriate because of actual or potential conflicts of interests of such Indemnitee and any other party represented by such counsel. Licensee agrees to keep BIDMC informed of the progress in the defense and disposition of such claim and to consult with BIDMC prior to any proposed settlement. The party indemnified hereunder will reasonably cooperate with Licensee at Licensee's expense and will make available to Licensee relevant information under the control of such indemnified party.

(b) This Section 7.1 shall survive expiration or termination of this Agreement.

7.2 Insurance.

(a) Beginning at such time as any Product or Process licensed under this Agreement is being commercially distributed, sold, leased or otherwise transferred, or performed or used (other than for the purpose of obtaining regulatory approvals), by Licensee, Licensee shall, at its sole cost and expense, procure and maintain commercial general liability insurance in amounts not less than $[***] per incident and $[***] annual aggregate and naming the Indemnitees as additional insureds. Such commercial general liability insurance shall provide (i) product liability coverage and (ii) broad form contractual liability coverage for the indemnification obligations under Section 7.1 of this Agreement. If Licensee or its Affiliates or Sublicensees elects to self-insure all or part of the limits described above (including deductibles or retentions which are in excess of $[***] annual aggregate), such self-insurance program must be reasonably acceptable to the Licensor, provided that if a Sublicensee elects to self-insure and such Sublicensee has a market capitalization of at least [***] dollars ($[***]), then such Sublicensee's self-insurance program shall automatically be deemed reasonably acceptable to Licensor and not subject to Licensor's review. The minimum amounts of insurance coverage required under this Section 7.2 shall not be construed to create a limit of liability with respect to the indemnification obligations under Section 7.1 of this Agreement.

(b) Licensee shall provide BIDMC with written evidence of such insurance upon request of BIDMC. Licensee shall provide BIDMC with written notice at least [***] prior to the cancellation, non-renewal or material change in such insurance; if Licensee does not obtain replacement insurance providing comparable coverage prior to the expiration of such [***] period, BIDMC shall have the right to terminate this Agreement pursuant to Section 9.3 (and subject to the cure right therein).

(c) Licensee shall maintain such commercial general liability insurance beyond the expiration or termination of this Agreement during (i) the period that any such Product or Process, is being commercially distributed, sold, leased or otherwise transferred, or performed or used (other than for the purpose of obtaining regulatory approvals), by Licensee or by a licensee, affiliate or agent of Licensee and (ii) a reasonable period after the period referred to in (c) (i) above which in no event shall be less than [***].

(d) This Section 7.2 shall survive expiration of termination of this Agreement.

7.3 Affiliates and Sublicensees. Licensee shall require all its Affiliates and Sublicensees (other than Third Party Contractors) to comply with the provisions and obligations under this Section 7 as if such entity were the Licensee.

8. REPRESENTATION; DISCLAIMER OF WARRANTIES; LIMITATION OF LIABILITY

8.1 Representation. To the best knowledge of BIDMC's Technology Ventures Office, BIDMC represents that:

(a) No approval, authorization, consent or other order or action of or filing with any court, administrative agency or other governmental authority is required for the execution and delivery by it of this Agreement or the consummation by it of the transactions contemplated hereby;

(b) it has full right and authority to enter into this Agreement and to grant the licenses and other rights to Licensee as herein described;

(c) the execution, delivery and performance of this Agreement does not conflict with any other agreement, contract, instrument or understanding, oral or written, to which BIDMC is a party, or by which it is bound; and

(d) none of BIDMC nor any of its Affiliates has entered into any agreement or otherwise licensed, granted, assigned, transferred, conveyed or otherwise encumbered or disposed of any right, title or interest in or to any of the Patent Rights that would conflict with or impair the scope of any rights or licenses granted hereunder.

8.2 No Warranties. BIDMC HEREBY DISCLAIMS AND MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, CONCERNING THE PATENT RIGHTS AND ANY OF THE RIGHTS GRANTED HEREUNDER, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT, VALIDITY OF PATENT RIGHTS CLAIMS, WHETHER ISSUED OR PENDING, AND THE ABSENCE OF LATENT OR OTHER DEFECTS, WHETHER OR NOT DISCOVERABLE. SPECIFICALLY, AND NOT TO LIMIT THE FOREGOING, BIDMC MAKES NO WARRANTY OR REPRESENTATION (i) REGARDING THE VALIDITY OR SCOPE OF ANY OF THE CLAIM(S), WHETHER ISSUED OR PENDING, OF ANY OF THE PATENT RIGHTS, AND (ii) THAT THE EXPLOITATION OF THE PATENT RIGHTS OR ANY PRODUCT OR PROCESS WILL NOT INFRINGE ANY PATENTS OR OTHER INTELLECTUAL PROPERTY RIGHTS OF BIDMC OR OF ANY THIRD PARTY.

8.3 Limitation of Liability. IN NO EVENT SHALL BIDMC OR ANY OF ITS AFFILIATES OR ANY OF THEIR RESPECTIVE TRUSTEES, DIRECTORS, OFFICERS, MEDICAL AND PROFESSIONAL STAFF, EMPLOYEES AND AGENTS BE LIABLE TO LICENSEE OR ANY OF ITS AFFILIATES, SUBLICENSEES OR DISTRIBUTORS FOR INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND ARISING IN ANY WAY OUT OF THIS AGREEMENT

OR THE LICENSE RIGHTS GRANTED HEREUNDER, HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, INCLUDING WITHOUT LIMITATION ECONOMIC DAMAGES OR INJURY TO PROPERTY OR LOST PROFITS, REGARDLESS OF WHETHER BIDMC SHALL BE ADVISED, SHALL HAVE OTHER REASON TO KNOW, OR IN FACT SHALL KNOW OF THE POSSIBILITY OF THE FOREGOING.

9. TERMINATION

9.1 Termination for Failure to Pay. If Licensee fails to make any payment due hereunder, BIDMC shall have the right to terminate this Agreement upon fifteen (15) business days written notice, unless Licensee makes such payments plus any interest due, as set forth in Section 3.3, within said fifteen (15) day notice period. If payments are not made, BIDMC may immediately terminate this Agreement at the end of said fifteen (15) business day period.

9.2 Termination for Insolvency. BIDMC may terminate this Agreement immediately upon written notice with no further notice obligation or opportunity to cure if Licensee shall become insolvent, shall make an assignment for the benefit of creditors, or shall have a petition in bankruptcy filed for or against it that is not dismissed within sixty (60) days of filing.

9.3 Termination for Non-Financial Default. If Licensee or any of its Affiliates shall materially default in the performance of any of its material obligations under this Agreement (including any such obligations undertaken by Sublicensees) (excluding as provided for in Sections 9.1 and 9.2) and if such material default has not been cured within sixty (60) days after notice by BIDMC in writing of such material default, then at the end of such cure period, BIDMC may, at its option, in its sole discretion, either (i) immediately terminate any licenses granted hereunder with respect to the country or countries in which such material default has occurred, or (ii) terminate the Agreement in its entirety. BIDMC shall have the foregoing termination rights immediately, upon written notice, if any such same material default occurs more than three times, even if cured within such sixty (60) day periods.

9.4 Patent Challenge. During the Term, if a Sublicensee (excluding a Third Party Contractor) brings a Patent Challenge or assists another party in bringing a Patent Challenge (except as required under a court order or subpoena or except as raised as a defense against a claim, action or proceeding asserted by BIDMC or its Affiliates against such Sublicensee), then BIDMC may send a written demand to Licensee to terminate such sublicense. If Licensee fails to so terminate such sublicense within sixty (60) days after BIDMC' s demand, BIDMC may immediately terminate this Agreement and/or any licenses granted hereunder.

9.5 Termination by Licensee. Licensee shall have the right to terminate this Agreement for any reason by giving ninety (90) days advance written notice to BIDMC.

9.6 Effects of Termination of Agreement.

(a) General. Upon termination of this Agreement or any of the licenses hereunder for any reason, final reports in accordance with Section 5.1 shall be submitted to BIDMC and all payments, including without limitation any unreimbursed Patent Costs, accrued or due to BIDMC as of the termination date shall become immediately payable. The termination or expiration of this Agreement or any licenses granted hereunder shall not relieve any Party or its Affiliates of obligations arising before such termination or expiration. For the avoidance of doubt, termination of this Agreement shall not affect the right of Licensee, its Affiliates, Sublicensees and Distributors to continue operating under Licensee's rights as joint owner and co-applicant of the Patent Rights.

(b) Survival. The following provisions shall survive the expiration or termination of this Agreement: Sections 1, 2.2 (last two sentences of the first paragraph), 3, 7, 8, 11 and 9.6 and Appendix B.

10. COMPLIANCE WITH LAW

10.1 Compliance. Licensee shall have the sole responsibility for compliance with all government statutes and regulations that relate to Products and Processes, including, but not limited to, those of the Food and Drug Administration and the Export Administration, and any applicable laws and regulations of any other country in the Territory. Licensee agrees that it shall be solely responsible for obtaining any necessary licenses to export, re¬export, or import Products or Processes covered by Patent Rights and/or Confidential Information and that it will indemnify, defend, and hold BIDMC harmless (in accordance with Section 8.1) for the consequences of any violation by Licensee, its Affiliates, Sublicensees or Distributors of any such laws or regulations.

10.2 Patent Numbers. Licensee shall cause all Products sold in the United States to be marked with all applicable U.S. Patent Numbers, to the full extent required by United States law. Licensee shall similarly cause all Products shipped to or sold in any other country to be marked in such a manner as to conform with the patent laws and practices of such country.

11. ASSIGNMENT

11.1 Assignment. This Agreement is personal to Licensee and no rights or obligations may be assigned by Licensee without the prior written consent of BIDMC, except that Licensee may assign its rights and obligations under this Agreement to an Affiliate or to a successor in connection with the merger, consolidation, or sale of all or substantially all of its assets or equity or that portion of its business to which this Agreement relates ("Assignment"); provided, however, that Licensee shall provide notification to BIDMC within [***] of such Assignment

12. MISCELLANEOUS

12.1 Entire Agreement. This Agreement and the Sponsored Research Agreement (BIDMC Agreement No. A8755) and its Amendment No. 1 (BIDMC Agreement No. A8755) between the Parties, dated January 1, 2015 and February 2, 2016 respectively with continuing obligations, non-disclosure agreement constitutes the entire understanding between the Parties with respect to the subject matter hereof.

12.2 Notices. Any notice, communication or payment required or permitted to be given or made hereunder shall be in writing and, except as otherwise expressly provided in this Agreement, shall be deemed given or made and effective (i) when delivered personally; or (ii) when delivered by telex or telecopy (if not a payment); or (iii) when received if sent by overnight express or mailed by certified, registered or regular mail, postage prepaid, addressed to parties at their address stated below, or to such other address as such party may designate by written notice in accordance with the provisions of this Section 10.2.

BIDMC:
Attn: [***]
Beth Israel Deaconess Medical Center
330 Brookline Avenue, BR2
Boston, MA 02215
Phone: 617 667-9490
Fax: 617-667-4445
Email: [***]

With a copy to:
General Counsel
Legal Department
Beth Israel Deaconess Medical Center
330 Brookline Avenue, Suite 300
Boston, MA 02215

LICENSEE:
Attn: John Celebi
Chief Operating Officer
X4 Pharmaceuticals, Inc.
784 Massachusetts Avenue, Suite 140
Cambridge MA 02139

12.3 Amendment; Waiver. This Agreement may be amended and any of its terms or conditions may be waived only by a written instrument executed by an authorized signatory of the Parties or, in the case of a waiver, by the Party waiving compliance. The failure of either Party at any time or rimes to require performance of any provision hereof shall in no manner affect its rights at a later time to enforce the same. No waiver by either Party of any condition or term shall be deemed as a further or continuing waiver of such condition or term or of any other condition or term.

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

12.4 Binding Effect. This Agreement shall be binding upon and inure to the benefit of and be enforceable by the Parties hereto and their respective permitted successors and assigns.

12.5 Force Majeure. Neither Party shall be responsible for delays resulting from fire, explosion, flood, war, sabotage, strike or riot, or similar causes beyond the reasonable control of such Party, provided that the nonperforming Party uses commercially reasonable efforts to avoid or remove such causes of nonperformance and continues performance under this Agreement with reasonable dispatch whenever such causes are removed.

12.6 Use of Name. Neither Party shall use the name of the other Party or of any trustee, director, officer, staff member, employee, student or agent of the other Party or any adaptation thereof in any advertising, promotional or sales literature, publicity or in any document employed to obtain funds or financing without the prior written approval of the Party or individual whose name is to be used.

12.7 Governing Law. This Agreement shall be governed by and construed and interpreted in accordance with the laws of the Commonwealth of Massachusetts, excluding with respect to conflict of laws, except that questions affecting the construction and effect of any patent shall be determined by the law of the country in which the patent shall have been granted. Each Party agrees to submit to the exclusive jurisdiction of the Superior Court for Suffolk County, Massachusetts, and the United States District Court for the District of Massachusetts with respect to any claim, suit or action in law or equity arising in any way out of this Agreement or the subject matter hereof.

12.8 BIDMC Policies. Licensee acknowledges that BIDMC's employees and medical and professional staff members and the employees and staff members of BIDMC's Affiliates are subject to the applicable policies of BIDMC and such Affiliates, including, without limitation, policies regarding conflicts of interest, intellectual property and other matters. Licensee shall provide BIDMC with any agreement it proposes to enter into with any employee or staff member of BIDMC or any of BIDMC's Affiliates for BIDMC's prior review and shall not enter into any oral or written agreement with such employee or staff member which it knows conflicts with any such policy. BIDMC shall provide Licensee, at Licensee's request, with copies of any such policies applicable to any such employee or staff member.

12.9 Severability. If any provision(s) of this Agreement are or become invalid, are ruled illegal by any court of competent jurisdiction or are deemed unenforceable under then current applicable law from time to time in effect during the term hereof; it is the intention of the parties that the remainder of this agreement shall not be effected thereby. It is further the intention of the parties that in lieu of each such provision which is invalid, illegal or unenforceable, there be substituted or added as part of this Agreement a provision which shall be as similar as possible in economic and business objectives as intended by the parties to such invalid, illegal or enforceable provision, but shall be valid, legal and enforceable.

12.10 Interpretation. The parties hereto are sophisticated, have had the opportunity to consult legal counsel with respect to this transaction and hereby waive any presumptions of any statutory or common law rule relating to the interpretation of contracts against the drafter.

12.11 Headings. All headings are for convenience only and shall not affect the meaning of any provision of this Agreement.

[Remainder of page intentionally left blank]

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives as of the date first written above.

The Effective Date of this License Agreement is December 23, 2016.

X4 PHARMACEUTICALS, INC.	**BETH ISRAEL DEACONESS MEDICAL CENTER**
BY: /s/ John Celebi	BY: /s/ Vikas Sukhatme, M.D., Sc. D.
Name: John Celebi	Name: Vikas Sukhatme, M.D., Sc. D.
TITLE: Chief Operating Officer	TITLE: Chief Academic Officer
DATE: 12/29/2016	DATE: 12/27/2016

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

Appendix A

[***]

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

Appendix B

CONFIDENTIALITY TERMS AND CONDITIONS

1. Definition of Confidential Information. "Confidential Information" shall mean any information, including but not limited to data, techniques, protocols or results, or business, financial, commercial or technical information, disclosed by one Party (each a "Discloser" as applicable) to the other Party (each a "Recipient" as applicable) in connection with the terms of that certain Exclusive License Agreement dated December , 2016 (the "License Agreement") and identified as confidential at the time of disclosure. Capitalized terms used in this Appendix that are not otherwise defined herein have the meanings ascribed in the License Agreement to which this Appendix is attached and made a part thereof.

2. Exclusions. "Confidential Information" under this Agreement shall not include any information that (i) is or becomes publicly available through no wrongful act of Recipient; (ii) was known by Recipient prior to disclosure by Discloser, as evidenced by tangible records; (iii) becomes known to Recipient after disclosure from a third party having an apparent bona fide right to disclose it without any confidentiality obligation; (iv) is independently developed or discovered by Recipient without use of Discloser's Confidential Information, as evidenced by tangible records; or (v) is disclosed to another party by Discloser without restriction on further disclosure. The obligations of confidentiality and non-use set forth in this Agreement shall not apply with respect to any information that Recipient is required to disclose or produce pursuant to applicable law, court order or other valid legal process provided that Recipient promptly notifies Discloser prior to such required disclosure, discloses such information only to the extent so required and cooperates reasonably with Discloser's efforts to contest or limit the scope of such disclosure.

3. Permitted Purpose. Recipient shall have the right to, and agrees that it will, use Discloser's Confidential Information solely for the performance of its obligations and exercise of its rights under the License Agreement (the "Purpose"), except as may be otherwise specified in a separate definitive written agreement negotiated and executed between the parties.

4. Restrictions. For the term of the License Agreement and a period of [***] thereafter (and indefinitely with respect to any individually identifiable health information disclosed by BIDMC to Licensee, if any), each Recipient agrees that: (i) it will not use such Confidential Information for any purpose other than as specified herein; and (ii) it will use reasonable efforts (but no less than the efforts used to protect its own confidential and/or proprietary information of a similar nature) not to disclose such Confidential Information to any other person or entity except as expressly permitted hereunder or the License Agreement. Recipient may, however, disclose Discloser's Confidential Information only on a need-to-know basis to its and its Affiliates employees, staff members and agents ("Receiving Individuals") who are directly participating in the Purpose and who are informed of the confidential nature of such information, provided Recipient shall be responsible for compliance by Receiving Individuals with the terms of this Agreement and any breach thereof Each party further agrees not to use the name of the other party or any of its Affiliates or any of their respective trustees, directors, officers, staff members,

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

employees, students or agents in any advertising, promotional or sales literature, publicity or in any document employed to obtain funds or financing without the prior written approval of the party or individual whose name is to be used, in the case of BIDMC such approval to be given by the Public Affairs Department. This Section 4 shall survive termination or expiration of this Agreement.

5. Right to Disclose. Discloser represents that to the best of its knowledge it has the right to disclose to each Recipient all of Discloser's Confidential Information that will be disclosed hereunder.

6. Ownership. All Confidential Information disclosed pursuant to this Agreement, including without limitation all written and tangible forms thereof, shall be and remain the property of the Discloser. Upon termination of this Agreement, if requested by Discloser, Recipient shall return or destroy at Discloser's discretion all of Discloser's Confidential Information, provided that Recipient shall be entitled to keep one copy of such Confidential Information in a secure location solely for the purpose of determining Recipient's legal obligations hereunder.

7. No License. Nothing in this Agreement shall be construed as granting or conferring, expressly or impliedly, any rights by license or otherwise, under any patent, copyright, or other intellectual property rights owned or controlled by Discloser relating to Confidential Information, except as specifically set forth in the License Agreement.

8. Remedies. Each party acknowledges that any breach of this Agreement by it may cause irreparable harm to the other party and that each party is entitled to seek injunctive relief and any other remedy available at law or in equity.

9. Export Restrictions. The Confidential Information is subject to the export and customs laws and regulations of the United States and any other applicable country and neither party will export, re-export or transship, directly or indirectly, such information to any country without first obtaining proper governmental approval, as necessary. Licensee will not disclose any export controlled information to BIDMC without the express prior written consent of BIDMC Technology Ventures Office. Licensee will indemnify BIDMC for any and all claims, actions, damages or liabilities of any kind related to Company's failure to comply with this section.

10. General. These Confidentiality Terms and Conditions, along with the License Agreement, contain the entire understanding of the parties with respect to the subject matter hereof, and supersede any prior oral or written understandings between the parties relating to confidential treatment of information. Sections 1, 2, 4, 7, 10 and 11 of these Confidentiality Terms and Conditions shall survive any expiration or termination of the License Agreement.

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.