As filed with the Securities and Exchange Commission on February 3, 2020

Registration No. 333-235951

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

AMENDMENT NO. 2
TO
FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

aTyr Pharma, Inc.
(Exact name of Registrant as specified in its charter)

Delaware	**2836**	**20-3435077**
(State or other jurisdiction of incorporation or organization)	**(Primary Standard Industrial Classification Code Number)**	**(I.R.S. Employer Identification Number)**

3545 John Hopkins Court, Suite 250
San Diego, CA 92121
(858) 731-8389
(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

Sanjay S. Shukla, M.D., M.S.
President and Chief Executive Officer
aTyr Pharma, Inc.
3545 John Hopkins Court, Suite 250
San Diego, CA 92121
(858) 731-8389
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Sean M. Clayton **Alexa M. Ekman** **Cooley LLP** **4401 Eastgate Mall** **San Diego, CA 92121** **(858) 550-6000**	**Ivan Blumenthal, Esq.** **Cliff M. Silverman, Esq.** **Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.** **Chrysler Center, 666 3rd Avenue** **New York, NY** **(212) 935-1300**

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

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

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

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

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

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

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
		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 7(a)(2)(B) of the Securities Act. ☒

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

EXPLANATORY NOTE

This Amendment No. 2 (Amendment No. 2) to the Registration Statement on Form S-1 (Registration Statement) is being filed solely for the purpose of filing Exhibits 1.1 and 10.21 as indicated in Part II of this Amendment No. 2. This Amendment No. 2 does not modify any provision of the prospectus that forms a part of the Registration Statement and accordingly, such prospectus has been omitted.

PART II—INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution

The expenses payable by aTyr Pharma, Inc. (the Registrant or the Company) in connection with the issuance and distribution of the securities being registered (other than underwriting discounts and commissions, all of which will be paid by us) are set forth below. Each item listed is estimated, except for the Securities and Exchange Commission (the SEC) registration fee and the Financial Industry Regulatory Authority, Inc. (FINRA) filing fee.

SEC registration fee	$ 2,240
FINRA filing fee	3,087
Legal fees and expenses	200,000
Accounting fees and expenses	120,000
Printing fees and expenses	25,000
Miscellaneous	149,673
Total	$ 500,000

Item 14. Indemnification of Directors and Officers

Section 145 of the Delaware General Corporation Law (DGCL), authorizes a corporation to indemnify its directors and officers against liabilities arising out of actions, suits and proceedings to which they are made or threatened to be made a party by reason of the fact that they have served or are currently serving as a director or officer to a corporation. The indemnity may cover expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the director or officer in connection with any such action, suit or proceeding. Section 145 permits corporations to pay expenses (including attorneys' fees) incurred by directors and officers in advance of the final disposition of such action, suit or proceeding. In addition, Section 145 provides that a corporation has the power to purchase and maintain insurance on behalf of its directors and officers against any liability asserted against them and incurred by them in their capacity as a director or officer, or arising out of their status as such, whether or not the corporation would have the power to indemnify the director or officer against such liability under Section 145.

We have adopted provisions in our restated certificate of incorporation and amended and restated bylaws that limit or eliminate the personal liability of our directors to the fullest extent permitted by the DGCL, as it now exists or may in the future be amended. Consequently, a director will not be personally liable to us or our stockholders for monetary damages or breach of fiduciary duty as a director, except for liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- any unlawful payments related to dividends or unlawful stock purchases, redemptions or other distributions; or
- any transaction from which the director derived an improper personal benefit.

These limitations of liability do not alter director liability under the federal securities laws and do not affect the availability of equitable remedies such as an injunction or rescission.

In addition, our amended and restated bylaws provide that:

- we will indemnify our directors, officers and, in the discretion of our board of directors, certain employees to the fullest extent permitted by the DGCL, as it now exists or may in the future be amended; and
- we will advance reasonable expenses, including attorneys' fees, to our directors and, in the discretion of our board of directors, to our officers and certain employees, in connection with legal proceedings relating to their service for or on behalf of us, subject to limited exceptions.

We have entered into indemnification agreements with each of our directors and certain of our executive officers. These agreements provide that we will indemnify each of our directors, certain of our executive officers and, at times, their affiliates to the fullest extent permitted by Delaware law. We will advance expenses, including attorneys' fees (but excluding judgments, fines and settlement amounts), to each indemnified director, executive officer or affiliate in connection with any proceeding in which indemnification is available and we will indemnify our directors and officers for any action or proceeding arising out of that person's services as a director or officer brought on behalf of the Company or in furtherance of our rights. Additionally, certain of our directors may have certain rights to indemnification, advancement of expenses or insurance provided by their affiliates, which indemnification relates to and might apply to the same proceedings arising out of such director's services as a director referenced herein. Nonetheless, we have agreed in the indemnification agreements that the Company's obligations to those same directors are primary and any obligation of the affiliates of those directors to advance expenses or to provide indemnification for the expenses or liabilities incurred by those directors are secondary. We also maintain a general liability insurance policy which covers certain liabilities of directors and officers of our Company arising out of claims based on acts or omissions in their capacities as directors or officers, including liabilities under the Securities Act of 1933, as amended (Securities Act).

The underwriters are obligated under certain circumstances, under the underwriting agreement to be filed as Exhibit 1.1 to this Registration Statement to indemnify us and our officers and directors against liabilities under the Securities Act.

Item 15. Recent Sales of Unregistered Securities

Since January 1, 2017, the Registrant made sales of the unregistered securities discussed below. The offers, sales and issuances of the securities described below were exempt from registration under the Securities Act by virtue of Section 4(a)(2) of the Securities Act and/or, in the case of conversions, Section 3(a)(9) of the Securities Act.

In November 2016, the Registrant entered into a loan and security agreement, as amended (Loan Agreement) with its lenders to borrow up to $20.0 million issuable in three separate tranches. Pursuant to the terms of the Loan Agreement, the Registrant issued warrants to purchase the Registrant's common stock to its lenders on three occasions in connection with drawing down each of the tranches. In total, the Registrant issued warrants to purchase 12,694 shares of its common stock.

In August 2017, the Registrant completed a private placement of common stock and Class X Convertible Preferred Stock, including warrants to purchase common stock, with a select group of institutional investors (the PIPE Offering). The Registrant issued a total of 419,438 shares of common stock, 2,285,952 shares of Class X Convertible Preferred Stock and warrants to purchase 463,735 shares of common stock which expired on December 31, 2019.

EXHIBIT INDEX

Exhibit Number	Exhibit Title	Incorporated by Reference Form	File No.	Exhibit	Filing Date
1.1	Form of Underwriting Agreement				Filed herewith
3.1	Restated Certificate of Incorporation of the Registrant	S-1/A	333-203272	3.2	May 1, 2015
3.2	Certificate of Amendment to Restated Certificate of Incorporation of the Registrant	8-K	001-37378	3.1	June 28, 2019
3.3	Amended and Restated Bylaws of the Registrant	S-1/A	333-203272	3.4	April 27, 2015
3.4	Certificate of Designation of Preferences, Rights and Limitations of Class X Convertible Preferred Stock	8-K	001-37378	3.1	August 31, 2017
4.1	Specimen Common Stock Certificate	S-1/A	333-203272	4.1	April 27, 2015
4.2	Warrant to Purchase Stock issued to Comerica Bank on March 18, 2011	S-1	333-203272	4.3	April 6, 2015
4.3	Warrant to Purchase Stock issued to Silicon Valley Bank on July 24, 2013	S-1	333-203272	4.4	April 6, 2015
4.4	Warrant to Purchase Stock issued to Silicon Valley Bank on November 18, 2016	10-K	001-37378	4.5	March 16, 2017
4.5	Warrant to Purchase Stock issued to Solar Capital Ltd on November 18, 2016	10-K	001-37378	4.6	March 16, 2017
4.6	Warrant to Purchase Stock issued to Silicon Valley Bank on June 30, 2017	10-Q	001-37378	4.7	August 14, 2017
4.7	Warrant to Purchase Stock issued to Solar Capital Ltd on June 30, 2017	10-Q	001-37378	4.8	August 14, 2017
4.8	Warrant to Purchase Stock issued to Silicon Valley Bank on December 22, 2017	10-K	001-37378	4.8	March 20, 2018
4.9	Warrant to Purchase Stock issued to Solar Capital Ltd on December 22, 2017	10-K	001-37378	4.9	March 20, 2018
5.1	Opinion of Cooley LLP	S-1/A	333-235951	5.1	January 27, 2020
10.1#	2014 Stock Plan and forms of agreements thereunder	S-1/A	333-203272	10.1	April 27, 2015
10.2#	2015 Stock Option and Incentive Plan, as amended	8-K	001-37378	10.1	May 10, 2019
10.3#	Forms of agreement under 2015 Stock Option and Incentive Plan	S-1/A	333-203272	10.2	April 27, 2015
10.4	Lease by and between the Registrant and BMR-John Hopkins Court LLC, dated December 22, 2011	S-1	333-203272	10.9	April 6, 2015
10.5	First Amendment to Lease between the Registrant and BMR-3545-3575 JOHN HOPKINS LP (as successor-in-interest to BMR-John Hopkins Court LLC), dated January 4, 2017	10-K	001-37378	10.8	March 16, 2017
10.6	Form of Indemnification Agreement entered into between the Registrant and its directors	S-1/A	333-203272	10.12	April 27, 2015
10.7	Form of Indemnification Agreement entered into between the Registrant and its officers	S-1/A	333-203272	10.13	April 27, 2015
10.8#	2015 Employee Stock Purchase Plan	S-1/A	333-203272	10.14	April 27, 2015
10.9#	Senior Executive Cash Incentive Bonus Plan	8-K	001-37378	10.1	January 29, 2016

Exhibit Number	Exhibit Title	Incorporated by Reference Form	File No.	Exhibit	Filing Date
10.10#	Executive Severance and Change in Control Policy	10-K	001-37378	10.16	March 30, 2016
10.11#	Registrant's Non-Qualified Stock Option Agreement for Non-Plan Inducement Grant	10-Q	001-37378	10.1	November 14, 2016
10.12†	Loan and Security Agreement by and between the Registrant and Silicon Valley Bank and Solar Capital Ltd, dated November 18, 2016	10-K	001-37378	10.17	March 16, 2017
10.13	Second Amendment to Lease between the Registrant and BMR-3545-3575 John Hopkins LP (as successor-in-interest to BMR-John Hopkins Court, LLC), dated April 27, 2017	10-Q	001-37378	10.1	May 11, 2017
10.14	First Amendment to Loan and Security Agreement between the Registrant and Silicon Valley Bank and Solar Capital Ltd. dated June 30, 2017	10-Q	001-37378	10.1	August 14, 2017
10.15#	Employment Agreement, dated November 1, 2017, by and between the Company and Sanjay S. Shukla, M.D., M.S.	10-Q	001-37378	10.4	November 14, 2017
10.16	Second Amendment to Loan and Security Agreement between the Registrant and Silicon Valley Bank and Solar Capital Ltd. dated October 10, 2017	10-K	001-37378	10.21	March 20, 2018
10.17	Third Amendment to Loan and Security Agreement between the Registrant and Silicon Valley Bank and Solar Capital Ltd. dated December 22, 2017	10-K	001-37378	10.23	March 20, 2018
10.18	Employment Offer Letter by and between the Registrant and Jill M. Broadfoot, dated July 16, 2018	8-K	001-37378	10.1	August 1, 2018
10.19	Third Amendment to Lease between Registrant and BMR-3545-3575 John Hopkins LP (as successor-in interest to BMR-John Hopkins Court, LLC), dated July 30, 2018	10-Q	001-37378	10.1	November 14, 2018
10.20#	Employment Offer Letter by and between Registrant and Ms. Nancy Krueger, Esq., dated October 7, 2014	10-Q	001-37378	10.2	May 14, 2019
10.21†	Collaboration and License Agreement by and between Registrant and Kyorin Pharmaceutical Co., Ltd. agreement, dated January 6, 2020				Filed herewith
10.22	Common Stock Sales Agreement, between the Registrant and H.C. Wainwright & Co., LLC, dated May 21, 2019	8-K	001-37378	10.1	May, 22, 2019
10.23	Amendment No. 1 to Common Stock Sales Agreement, dated June 18, 2019, between the Registrant and H.C. Wainwright & Co., LLC	S-3/A	333-231658	1.3	June 18, 2019
21.1	Subsidiaries of the Registrant	S-1	333-203272	21.1	April 6, 2015
23.1	Consent of Independent Registered Public Accounting Firm	S-1/A	333-235951	23.1	January 27, 2020
23.2	Consent of Cooley LLP (included in Exhibit 5.1 hereto)	S-1/A	333-235951	23.2	January 27, 2020
24.1	Powers of Attorney	S-1	333-235951	24.1	January 17, 2020

# Indicates a management contract or compensatory plan, contract or arrangement.
† Portions of this exhibit have been omitted in accordance with Item 601(b)(10) of Regulation S-K.

Item 17. Undertakings

(a) The undersigned Registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

(b) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant under the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer, or controlling person of the Registrant in the successful defense of any action, suit, or proceeding) is asserted by such director, officer, or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

(c) The undersigned Registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance on Rule 430A and contained in a form of prospectus filed by the Registrant under Rule 424(b)(1) or (4) or 497(h) under the Securities Act will be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act each post-effective amendment that contains a form of prospectus will be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time will be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Diego, State of California, on February 3, 2020.

ATYR PHARMA, INC.

By: /s/ Sanjay S. Shukla, M.D., M.S.
Sanjay S. Shukla, M.D., M.S.
President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Sanjay S. Shukla, M.D., M.S. Sanjay S. Shukla, M.D., M.S.	President, Chief Executive Officer and Director (Principal Executive Officer)	February 3, 2020
/s/ Jill M. Broadfoot Jill M. Broadfoot	Chief Financial Officer (Principal Financial and Accounting Officer)	February 3, 2020
/s/ * John K. Clarke	Chairman of the Board and Director	February 3, 2020
/s/ * James C. Blair, Ph.D.	Director	February 3, 2020
/s/ * Timothy P. Coughlin	Director	February 3, 2020
/s/ * Jane A. Gross, Ph.D.	Director	February 3, 2020
/s/ * Jeffrey S. Hatfield	Director	February 3, 2020
/s/ * Svetlana Lucas, Ph.D.	Director	February 3, 2020
/s/ * Paul Schimmel, Ph.D.	Director	February 3, 2020

* By: /s/ Sanjay S. Shukla, M.D., M.S.
Sanjay S. Shukla, M.D., M.S.
Attorney-in-fact

Exhibit 1.1

[●] Shares of Common Stock

ATYR PHARMA, INC.

UNDERWRITING AGREEMENT

_____, 2020

Oppenheimer & Co. Inc.
as Representative of the several
Underwriters named in Schedule I hereto

c/o Oppenheimer & Co. Inc.
85 Broad Street
New York, New York 10004

Ladies and Gentlemen:

aTyr Pharma, Inc., a Delaware corporation (the "Company"), proposes, subject to the terms and conditions stated herein, to issue and sell to Oppenheimer & Co. Inc., as representative (the "Representative") of the several underwriters named in Schedule I hereto (each, an "Underwriter" and collectively, the "Underwriters"), an aggregate of [●] authorized but unissued shares (the "Firm Shares") of common stock, par value $0.001 per share, of the Company (the "Common Stock"). In addition, the Company proposes to grant to the Underwriters an option to purchase up to an additional [●] shares (the "Option Shares") of Common Stock from the Company for the purpose of covering over-allotments in connection with the sale of the Firm Shares. The Firm Shares and the Option Shares are collectively called the "Shares."

The Company and the Underwriters hereby confirm their agreement as follows:

1. Registration Statement and Prospectus. The Company has prepared and filed with the Securities and Exchange Commission (the "Commission") a registration statement on Form S-1 (File No. 333-235951), including the related preliminary prospectus or prospectuses, covering the registration of the sale of the Shares under the Securities Act of 1933, as amended (the "Securities Act") and the rules and regulations of the Commission thereunder (the "Rules and Regulations"). Promptly after execution and delivery of this Agreement, the Company will prepare and file a prospectus in accordance with the provisions of Rule 430A ("Rule 430A") of the Rules and Regulations and Rule 424(b) ("Rule 424(b)") of the Rules and Regulations. The information included in such prospectus that was omitted from such registration statement at the time it became effective but that is deemed to be part of such registration statement at the time it became effective pursuant to Rule 430A(b) is herein called the "Rule 430A Information." Such registration statement, including the amendments thereto, the exhibits thereto and any schedules thereto, at the time it became effective, and including the Rule 430A Information, is herein called the "Registration Statement." Any registration statement filed pursuant to Rule 462(b) of the Rules and Regulations is herein called the "Rule 462(b) Registration Statement" and, after such filing, the term "Registration Statement" shall include the Rule 462(b) Registration Statement. Each prospectus used prior to the effectiveness of the Registration Statement (such time, the "Effective Time"), and each prospectus that omitted the Rule 430A Information that was used after such

effectiveness and prior to the execution and delivery of this Agreement is herein called a "preliminary prospectus." The prospectus, in the form first furnished to the Underwriters for use in connection with the offering of the Shares, is herein called the "Prospectus." For purposes of this Agreement, all references to the Registration Statement, any preliminary prospectus, the Prospectus or any amendment or supplement to any of the foregoing shall be deemed to include the copy filed with the Commission pursuant to its Electronic Data Gathering, Analysis, and Retrieval system or any successor system.

All references in this Agreement to financial statements and schedules and other information which is "described," "contained," "included" or "stated" in the Registration Statement or the Prospectus (or other references of like import) shall be deemed to mean and include all such financial statements, pro forma financial information and schedules and other information which is deemed by the Rules and Regulations to be a part of or included in the Registration Statement or the Prospectus, as the case may be; and all references in this Agreement to amendments or supplements to the Registration Statement or the Prospectus shall be deemed to mean and include the subsequent filing of any document under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), that is otherwise deemed by the Rules and Regulations to be a part thereof.

2. Representations and Warranties of the Company Regarding the Offering.

(a) The Company represents and warrants to, and agrees with, the Representative, as of the date hereof and as of the Closing Date (as defined below), as follows:

(i) Compliance with Registration Requirements. The Registration Statement has been declared effective by the Commission under the Securities Act. The Company has complied to the Commission's satisfaction with all requests of the Commission for additional or supplemental information related to the Registration Statement or the Prospectus.

(ii) No Material Misstatements or Omissions. At the Effective Time, at the date hereof and, at the Closing Date, the Registration Statement and any post-effective amendment, at the time of filing thereof, conformed in all material respects with the requirements of the Securities Act and the Rules and Regulations and did not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. The Time of Sale Disclosure Package (as defined below), as of [●] (Eastern time) on the date hereof (the "Applicable Time"), and on the Closing Date, if any, and the Prospectus, as amended or supplemented, as of its date, at the time of filing pursuant to Rule 424(b) under the Securities Act and at the Closing Date, and any individual Written Testing-the-Waters Communication (as defined below), when considered together with the Time of Sale Disclosure Package, did not, does not and will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading. The representations and warranties set forth in the two immediately preceding sentences shall not apply to statements in or omissions from the Registration Statement, the Time of Sale Disclosure Package, or any Prospectus in reliance upon, and in conformity with, the written information furnished by any Underwriter, which the Company acknowledges is limited to the Underwriters' Information (as defined below). No order preventing or suspending the effectiveness or use of the

Registration Statement or any Prospectus is in effect and no proceedings for such purpose have been instituted or are pending, or, to the knowledge of the Company, are contemplated or threatened by the Commission.

(iii) Marketing Materials. The Company has not distributed any prospectus or other offering material in connection with the offering and sale of the Shares other than the Time of Sale Disclosure Package and the roadshow or investor presentations delivered to and approved by the Representative for use in connection with the marketing of the offering of the Shares (the "Marketing Materials").

(iv) Emerging Growth Company. The Company is an "emerging growth company," as defined in Section 2(a) of the Securities Act (an "Emerging Growth Company").

(v) Testing-the-Waters Communications. The Company (i) has not alone engaged in any Testing-the-Waters Communication (as defined below), other than Testing-the-Waters Communications with the consent of the Representative, and (ii) has not authorized anyone other than the Underwriters to engage in Testing-the-Waters Communications on the Company's behalf. The Company has not distributed any Testing-the-Waters Communication that is a written communication within the meaning of Rule 405 under the Securities Act ("Written Testing-the-Waters Communications"). "Testing-the-Waters Communication" means any oral or written communication by the Company or by any person authorized to act on its behalf, with potential investors undertaken in reliance on Section 5(d) of the Securities Act. Each Written Testing-the-Waters Communication, did not, as of the Applicable Time, and at all times through the completion of the public offer and sale of the Shares will not, include any information that conflicted or conflicts with the information contained in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus.

(vi) Accurate Disclosure. (A) The Company has provided a copy to the Underwriters of each Issuer Free Writing Prospectus (as defined below) used in the sale of the Shares, if any. The Company has filed all Issuer Free Writing Prospectuses required to be so filed with the Commission, and no order preventing or suspending the effectiveness or use of any Issuer Free Writing Prospectus is in effect and no proceedings for such purpose have been instituted or are pending, or, to the knowledge of the Company, are contemplated or threatened by the Commission. When taken together with the rest of the Time of Sale Disclosure Package or the Prospectus, no Issuer Free Writing Prospectus, as of the Closing Date, does or will include (1) any untrue statement of a material fact or omission to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading, or (2) information that conflicted with the information contained in the Registration Statement or the Prospectus. The representations and warranties set forth in the immediately preceding sentence shall not apply to statements in or omissions from the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus in reliance upon, and in conformity with, the Underwriters' Information. As used in this paragraph and elsewhere in this Agreement:

A. "Time of Sale Disclosure Package" means the Prospectus most recently filed with the Commission before the time of this Agreement, each Issuer

Free Writing Prospectus, and the description of the transaction provided by the Underwriters included on Schedule II hereto.

B. "Issuer Free Writing Prospectus" means any "issuer free writing prospectus," as defined in Rule 433 under the Securities Act, relating to the Shares that (A) is required to be filed with the Commission by the Company, or (B) is exempt from filing pursuant to Rule 433(d)(5)(i) or (d)(8) under the Securities Act, in each case in the form filed or required to be filed with the Commission or, if not required to be filed, in the form retained in the Company's records pursuant to Rule 433(g) under the Securities Act.

(B) At the time of filing of the Registration Statement and on the date hereof, the Company was not and is not an "ineligible issuer," as defined in Rule 405 under the Securities Act or an "excluded issuer" as defined in Rule 164 under the Securities Act.

(C) Each Issuer Free Writing Prospectus listed on Schedule III hereto satisfied, as of its issue date and at all subsequent times through the Prospectus Delivery Period (as defined below), all other conditions as may be applicable to its use as set forth in Rules 164 and 433 under the Securities Act, including any legend, record-keeping or other requirements.

(vii) Financial Statements. The consolidated historical financial statements of the Company and its consolidated subsidiary, together with the related notes and schedules, included in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, comply in all material respects with the applicable requirements of the Securities Act and the Exchange Act, and the Rules and Regulations of the Commission thereunder, and fairly present, in all material respects, the financial condition of the Company and its consolidated subsidiary as of the dates indicated and the results of operations and cash flows for the periods therein specified. Such financial statements have been prepared in accordance with generally accepted accounting principles as applied in the United States ("GAAP") applied on a consistent basis throughout the periods involved, except as may be expressly stated in the related notes thereto. No other financial statements, pro forma financial information or schedules are required under the Securities Act, the Exchange Act, or the Rules and Regulations to be included in the Registration Statement, the Time of Sale Disclosure Package or the Prospectus.

(viii) XBRL. The interactive data in eXtensible Business Reporting Language included in the Registration Statement fairly presents the information called for in all material respects and has been prepared in accordance with the Commission's rules and guidelines applicable thereto.

(ix) Independent Accountants. Ernst & Young LLP, which has expressed its opinion with respect to the financial statements included as part of the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, is an independent public accounting firm with respect to the Company within the meaning of the Securities Act and the Rules and Regulations.

(x) [Reserved]

(xi) Forward-Looking Statements. The Company had a reasonable basis for, and has made in good faith, each "forward-looking statement" (within the meaning of

Section 27A of the Securities Act or Section 21E of the Exchange Act) included in the Registration Statement, the Time of Sale Disclosure Package, the Prospectus or the Marketing Materials.

(xii) Statistical and Marketing-Related Data. Nothing has come to the attention of the Company that has caused the Company to believe that the statistical or market-related data included in the Registration Statement, the Time of Sale Disclosure Package or the Prospectus, or included in the Marketing Materials, are not based on or derived from sources that the Company reasonably believes to be reliable and accurate in all material respects. The Company has obtained the written consent of its customers for the use of any applicable case study data included in the Registration Statement, Time of Sale Disclosure Package or the Prospectus, to the extent required, other than such consents the failure of which to obtain would not be reasonably likely to result in a Material Adverse Effect.

(xiii) Trading Market. The Common Stock is registered pursuant to Section 12(b) of the Exchange Act and is approved for listing on The Nasdaq Capital Market ("Nasdaq"). As of the Closing Date, the Shares will have been duly authorized for listing on Nasdaq.

(xiv) Absence of Manipulation. The Company has not taken and will not take, directly or indirectly, any action that is designed to or that has constituted or that would reasonably be expected to cause or result in the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Shares.

(xv) Investment Company Act. The Company is not and, after giving effect to the offering and sale of the Shares and the application of the net proceeds thereof, will not be an "investment company," as such term is defined in the Investment Company Act of 1940, as amended.

(xvi) Lock-Up Agreements. Schedule IV hereto contains a complete and accurate list of the Company's officers and directors that the Company has caused to deliver to the Representative an executed Lock-Up Agreement (collectively, the "Lock-Up Parties"), in the form attached hereto as Schedule III (the "Lock-Up Agreement"), prior to the execution of this Agreement.

(xvii) Disclosure of Agreements. The agreements and documents described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus conform in all material respects to the descriptions thereof contained therein and there are no agreements or other documents required by the Securities Act and the Rules and Regulations to be described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus or to be filed with the Commission as exhibits to the Registration Statement, that have not been so described or filed. Each agreement or other instrument (however characterized or described) to which the Company or any of its subsidiaries is a party or by which it is or may be bound or affected and that is referred to in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus has been duly authorized and validly executed by the Company or its subsidiaries and is in full force and effect in all material respects and is enforceable against the Company or its subsidiaries and, to the Company's knowledge, the other parties thereto, in accordance with its terms, except (A) as such enforceability may be limited by bankruptcy,

insolvency, reorganization or similar laws affecting creditors' rights generally, (B) as enforceability of any indemnification or contribution provision may be limited under the federal and state securities laws, and (C) that the remedy of specific performance and injunctive and other forms of equitable relief may be subject to the equitable defenses and to the discretion of the court before which any proceeding therefor may be brought. None of such agreements or instruments has been assigned by the Company or its subsidiaries, and neither the Company, its subsidiaries nor, to the Company's knowledge, any other party is in default thereunder and, to the Company's knowledge, no event has occurred that, with the lapse of time or the giving of notice, or both, would constitute a default thereunder. Performance by the Company or its subsidiaries of the material provisions of such agreements or instruments has not, and to the Company's knowledge, will not result in a violation of any existing applicable law, rule, regulation, judgment, order or decree of any governmental authority, agency or court, domestic or foreign, having jurisdiction over the Company or its subsidiaries or any of its assets or businesses, including, without limitation, those relating to Environmental Laws (as defined below).

(b) Any certificate by any officer of the Company and delivered to the Representative or to the Representative's counsel shall be deemed a representation and warranty by the Company to the Underwriters as to the matters covered thereby.

3. Representations and Warranties of the Company Regarding the Company.

(a) The Company represents and warrants to and agrees with, the Representative, as of the date hereof and as of the Closing Date, as follows:

(i) Good Standing. The Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware and has corporate power and authority to own, lease and operate its properties and to conduct its business as described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus and to enter into and perform its obligations under this Agreement. Each subsidiary of the Company has been duly organized and is validly existing as a corporation in good standing under the laws of the jurisdiction of its organization and has the requisite power and authority to own, lease and operate its properties and to conduct its business as described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus. Each of the Company and the subsidiaries is duly qualified as a foreign corporation or foreign partnership to transact business and is in good standing in each jurisdiction in which such qualification is required, whether by reason of the ownership or leasing of property or the conduct of business, except for such jurisdictions where the failure to so qualify or to be in good standing would not, individually or in the aggregate, reasonably be expected to result in a material adverse effect upon the business, properties, operations, financial position, results of operations or prospects of the Company and its subsidiaries, taken as a whole, or in its ability to perform its obligations under this Agreement ("Material Adverse Effect"). Except as described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, all of the issued and outstanding capital stock or other equity interests of the subsidiaries have been duly authorized and validly issued, are fully paid and nonassessable and are owned by the Company free and clear of any security interest, mortgage, pledge, lien, encumbrance or adverse claim. The Company does not own or control, directly or indirectly, any corporation, association or other entity other than the subsidiaries listed in Exhibit

21.1 to the Registration Statement other than those subsidiaries not required to be listed on Exhibit 21.1 by Item 601 of Regulation S-K under the Exchange Act.

(ii) Authorization. The Company has the power and authority to enter into this Agreement and to authorize, issue and sell the Shares as contemplated by this Agreement. This Agreement has been duly authorized, executed and delivered by the Company, and when executed and delivered by the Company, will constitute the valid, legal and binding obligations of the Company, enforceable against the Company in accordance with their respective terms, except as rights to indemnity hereunder may be limited by federal or state securities laws and except as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting the rights of creditors generally and subject to general principles of equity.

(iii) Non-Contravention of Existing Instruments; No Further Authorizations or Approvals Required. Neither the Company nor any of its subsidiaries is in breach or violation of its charter or by-laws (or any equivalent organizational or governing documents) or is in default (or, with the giving of notice or lapse of time, would be in default) ("Default") under any indenture, mortgage, loan or credit agreement, note, contract, franchise, lease or other instrument to which the Company or any of its subsidiaries is a party or by which it or any of them may be bound, or to which any of the property or assets of the Company or any of its subsidiaries is subject (each, an "Existing Instrument"), except for such Defaults as would not, individually or in the aggregate, result in a Material Adverse Effect. The Company's execution, delivery and performance of this Agreement and consummation of the transactions contemplated hereby and by the Registration Statement, the Time of Sale Disclosure Package and the Prospectus (A) have been duly authorized by all necessary corporate action and will not result in any violation of the provisions of the charter or by-laws of the Company or any subsidiary, (B) will not conflict with or constitute a breach of, or Default under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Company or any of its subsidiaries pursuant to, or require the consent of any other party to, any Existing Instrument, except for such conflicts, breaches, Defaults, liens, charges or encumbrances as would not, individually or in the aggregate, result in a Material Adverse Effect and (C) will not result in any violation of any law, administrative regulation or administrative or court decree applicable to the Company or any subsidiary; except for, with respect to subsections (B) and (C) of this Section 3(a) such violations as would not, individually or in the aggregate, result in a Material Adverse Effect.

(iv) Consents. No consents, approvals, orders, authorizations or filings are required on the part of the Company in connection with the execution, delivery or performance of this Agreement, and issue and sale of the Shares, except (A) the registration under the Securities Act of the Shares, which has been effected, (B) the necessary filings and approvals from Nasdaq to list the Shares, (C) such consents, approvals, authorizations, registrations or qualifications as may be required under state or foreign securities or Blue Sky laws and the rules of the Financial Industry Regulatory Authority, Inc. ("FINRA") in connection with the purchase of the Shares and distribution of the Shares by the several Underwriters, (D) such consents and approvals as have been obtained and are in full force and effect, and (E) such consents, approvals, orders, authorizations and filings the failure of which to make or obtain is not reasonably likely to result in a Material Adverse Effect.

(v) SEC Reports. The Company is subject to and in compliance in all material respects with the reporting requirements of Section 13 or Section 15(d) of the Exchange Act, and has timely filed all reports required to be filed pursuant to Sections 13(a), 13(e), 14 and 15(d) of the Exchange Act (the "SEC Reports") during the preceding twelve (12) months.

(vi) Capitalization. The Company has an authorized capitalization as set forth in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus. All of the issued and outstanding shares of capital stock of the Company are duly authorized and validly issued, fully paid and nonassessable, have been issued in compliance in all material respects with all applicable securities laws and conform in all material respects to the description thereof in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus. Except for the issuances of options or restricted stock units in the ordinary course of business, since the respective dates as of which information is provided in the Registration Statement, the Time of Sale Disclosure Package or the Prospectus, the Company has not entered into or granted any convertible or exchangeable securities, options, warrants, agreements, contracts or other rights in existence to purchase or acquire from the Company any shares of the capital stock of the Company. The Shares, when issued and paid for as provided herein, will be duly authorized and validly issued, fully paid and nonassessable, will be issued in compliance with all applicable securities laws, and will be free of preemptive, registration or similar rights, other than rights which have been waived in writing or otherwise satisfied, and will conform in all material respects to the description of the capital stock of the Company contained in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus.

(vii) No Registration Rights. Except as described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, there are no contracts, agreements or understandings between the Company and any person granting such person the right (other than rights which have been waived in writing or otherwise satisfied) to require the Company to file a registration statement under the Securities Act with respect to any equity or debt securities of the Company owned or to be owned by such person or to require the Company to include such securities with the Shares registered pursuant to the Registration Statement or with any securities being registered pursuant to any other registration statement filed by the Company under the Securities Act.

(viii) No Preemptive Rights. Except as otherwise stated in the Registration Statement, in the Time of Sale Disclosure Package and in the Prospectus, there are no preemptive rights or other rights to subscribe for or to purchase, or any restriction upon the voting or transfer of, any shares of Common Stock pursuant to the Company's charter, by-laws or any agreement or other instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound.

(ix) Stock Options. The exercise price of each option issued under the Company's stock option or other employee benefit plans has been no less than the fair market value of a share of Common Stock as determined on the date of grant of such option. All grants of options were validly issued and properly approved by the board of directors of the Company (or a duly authorized committee thereof) in material compliance with all applicable laws and regulations and recorded in the Company's financial statements in accordance with GAAP and, to

the Company's knowledge, no such grants involved "back dating," "forward dating" or similar practice with respect to the effective date of grant.

(x) Taxes. Except as would not reasonably be expected to result in a Material Adverse Effect, each of the Company and its subsidiaries has (A) filed all foreign, federal, state and local tax returns (as hereinafter defined) required to be filed with taxing authorities prior to the date hereof or has duly obtained extensions of time for the filing thereof and (B) paid all taxes (as hereinafter defined) shown as due and payable on such returns that were filed and has paid all taxes imposed on or assessed against the Company or such respective subsidiary. The provisions for taxes payable, if any, shown on the financial statements included in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus are sufficient for all accrued and unpaid taxes, whether or not disputed, and for all periods to and including the dates of such consolidated financial statements. To the knowledge of the Company, no issues have been raised (and are currently pending) by any taxing authority in connection with any of the returns or taxes asserted as due from the Company or its subsidiaries, and no waivers of statutes of limitation with respect to the returns or collection of taxes have been given by or requested from the Company or its subsidiaries. The term "taxes" mean all federal, state, local, foreign, and other net income, gross income, gross receipts, sales, use, ad valorem, transfer, franchise, profits, license, lease, service, service use, withholding, payroll, employment, excise, severance, stamp, occupation, premium, property, windfall profits, customs, duties or other taxes, fees, assessments, or charges of any kind whatever, together with any interest and any penalties, additions to tax, or additional amounts with respect thereto. The term "returns" means all returns, declarations, reports, statements, and other documents required to be filed in respect to taxes.

(xi) No Material Adverse Change. Since the respective dates as of which information is given in the Registration Statement, the Time of Sale Disclosure Package or the Prospectus, (A) there has been no material adverse change, or any development that could reasonably be expected to result in a Material Adverse Effect, in the condition, financial or otherwise, or in the earnings, business, operations or prospects, whether or not arising from transactions in the ordinary course of business, of the Company and its subsidiaries, considered as one entity; (B) the Company and its subsidiaries, considered as one entity, have not incurred any material liability or obligation, indirect, direct or contingent, not in the ordinary course of business nor entered into any material transaction or agreement not in the ordinary course of business; (C) there has been no dividend or distribution of any kind declared, paid or made by the Company or, except for regular quarterly dividends publicly announced by the Company or dividends paid to the Company or other subsidiaries, by any of its subsidiaries on any class of capital stock or repurchase or redemption by the Company or any of its subsidiaries of any class of capital stock; (D) there has not been any material change in the Company's long-term or short-term debt; and (E) there has not been the occurrence of any Material Adverse Effect.

(xii) [Reserved]

(xiii) No Material Actions or Proceedings. Except as disclosed in the Registration Statement, the Time of Sale Disclosure Package or the Prospectus, there are no legal or governmental actions, suits or proceedings pending or, to the Company's knowledge, threatened (A) against or affecting the Company or any of its subsidiaries, (B) which has as the subject thereof any officer or director of, or property owned or leased by, the Company or any

of its subsidiaries or (C) relating to environmental or discrimination matters, where in any such case (1) there is a reasonable possibility that such action, suit or proceeding might be determined adversely to the Company or such subsidiary and (2) any such action, suit or proceeding, if so determined adversely, would result in a Material Adverse Effect or adversely affect the Company's ability to consummate the transactions contemplated by this Agreement. No material labor dispute with the employees of the Company or any of its subsidiaries exists or, to the Company's knowledge, is threatened or imminent.

(xiv) Permits. The Company and each of its subsidiaries holds, and is in compliance with, all franchises, grants, authorizations, licenses, permits, easements, consents, certificates and orders ("Permits") of any governmental or self-regulatory agency, authority or body (including, without limitation, those administered by the Food and Drug Administration of the U.S. Department of Health and Human Services (the "FDA") or by any foreign, federal, state or local governmental or regulatory authority performing functions similar to those performed by the FDA) required for the conduct of its business, and all such Permits are in full force and effect, in each case except where the failure to hold, or comply with, any of them is not reasonably likely to result in a Material Adverse Effect. The Company has not received notification of any material revocation, modification, suspension, termination or invalidation (or proceedings related thereto) of any such Permit. All such Permits are free and clear of any material restriction or condition that are in addition to, or materially different, from those normally applicable to similar licenses, certificates, authorizations and permits. The Company has not received notification of any material revocation, modification, suspension, termination or invalidation (or proceedings related thereto) of any such Permit.

(xv) Compliance with Applicable Laws. Except as described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, the Company and the subsidiaries: (A) are and at all times have been in material compliance with all statutes, rules and regulations applicable to the ownership, testing, development, manufacture, packaging, processing, use, distribution, marketing, labeling, promotion, sale, offer for sale, storage, import, export or disposal of any product under development, manufactured or distributed by the Company or the subsidiaries ("Applicable Laws"), (B) have not received any Form 483 from the FDA, notice of adverse finding, warning letter, or other written correspondence or notice from the FDA, European Medicines Agency ("EMA"), or any other federal, state, local or foreign governmental or regulatory authority alleging or asserting material noncompliance with any Applicable Laws or with any licenses, certificates, approvals, clearances, authorizations, permits and supplements or amendments thereto required by any such Applicable Laws ("Authorizations"), which would, individually or in the aggregate, result in a Material Adverse Effect; (C) possess all material Authorizations and such Authorizations are valid and in full force and effect and neither the Company nor the subsidiaries is in material violation of any term of any such Authorizations; (D) have not received written notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from the FDA, the EMA, or any other federal, state, local or foreign governmental or regulatory authority or third party alleging that any Company product, operation or activity is in material violation of any Applicable Laws or Authorizations and have no knowledge that the FDA, the EMA, or any other federal, state, local or foreign governmental or regulatory authority or third party is considering any such claim, litigation, arbitration, action, suit, investigation or proceeding against the Company; (E) have not received written notice that the FDA, the EMA, or any other federal,

state, local or foreign governmental or regulatory authority has taken, is taking or intends to take action to limit, suspend, materially modify or revoke any material Authorizations and have no knowledge that the FDA, the EMA, or any other federal, state, local or foreign governmental or regulatory authority is considering such action; and (F) have filed, obtained, maintained or submitted all reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Applicable Laws or Authorizations except where the failure to file such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments would not result in a Material Adverse Effect, and that all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were materially complete and correct on the date filed (or were corrected or supplemented by a subsequent submission).

(xvi) [Reserved]

(xvii) Clinical Studies. Except as disclosed in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, all animal and other preclinical studies and clinical trials conducted by the Company or on behalf of the Company were, and, if still pending are, to the Company's knowledge, being conducted in all material respects in compliance with all Applicable Laws and in accordance with experimental protocols, procedures and controls generally used by qualified experts in the preclinical study and clinical trials of new drugs and biologics as applied to comparable products to those being developed by the Company; the descriptions of the results of such preclinical studies and clinical trials contained in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus are accurate in all material respects, and, except as set forth in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, the Company has no knowledge of any other scientific studies, including but not limited to any clinical trials or preclinical studies, the results of which reasonably call into question the clinical trial or preclinical study results described or referred to in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus when viewed in the context in which such results are described; and the Company has not received any written notices or correspondence from any domestic or foreign governmental agency requiring the termination or suspension of any preclinical studies or clinical trials conducted by or on behalf of the Company that are described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus or the results of which are referred to in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus.

(xviii) Good Title. The Company and each of its subsidiaries have good and marketable title to all property (whether real or personal) described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus as being owned by them that are material to the business of the Company, in each case free and clear of all liens, claims, security interests, other encumbrances or defects, except those that are disclosed in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus and those that are not reasonably likely to result in a Material Adverse Effect. The real property, improvements, equipment and personal property held under lease by the Company and its subsidiaries that are material to the business of the Company and its subsidiaries, is held by them, to their knowledge, under valid, subsisting and enforceable leases with only such exceptions described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus or are not

material and do not materially interfere with the use made or proposed to be made of such real property, improvements, equipment or personal property by the Company and its subsidiaries.

(xix) Intellectual Property. For convenience, any or all of patents, patent applications, licenses, inventions, copyrights, know how (including trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures), trademarks, service marks, trade names and/or other intellectual property may be referred to herein as "Intellectual Property". To the Company's knowledge, except as disclosed in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, the Company and its subsidiaries own or possess the valid right to use all (A) valid and enforceable patents, patent applications, trademarks, trademark registrations, service marks, service mark registrations, Internet domain name registrations, copyrights, copyright registrations, licenses and trade secret rights ("Intellectual Property Rights"), (B) inventions, software, works of authorships, trademarks, service marks, trade names, databases, formulae, know how, Internet domain names and other intellectual property (including trade secrets and other unpatented and/or unpatentable proprietary confidential information, systems, or procedures) (collectively, "Intellectual Property Assets") necessary to conduct their respective businesses as currently conducted, except to the extent that the failure to own, possess, license or have other rights to use such Intellectual Property Rights or Intellectual Property Assets would not, individually or in the aggregate, reasonably be expected to result in a Material Adverse Effect; and (C) to the knowledge of the Company, no third party has any ownership right in or to any Intellectual Property that is owned by the Company, other than any co-owner of any patent who is listed on the records of the U.S. Patent and Trademark Office (the "USPTO") and any co-owner of any patent application who is named in such patent application, and, to the Company's knowledge, no third party has any ownership right in or to any Intellectual Property in any field of use that is exclusively licensed to the Company, other than any licensor to the Company of such Intellectual Property. The Company and its subsidiaries have not received any opinion from their legal counsel concluding that any activities of their respective businesses infringe, misappropriate, or otherwise violate, valid and enforceable Intellectual Property Rights of any other person, and have not received written notice of any challenge, which is to their knowledge still pending, by any other person to the rights of the Company and its subsidiaries with respect to any Intellectual Property Rights or Intellectual Property Assets owned by or licensed to the Company or its subsidiaries. To the knowledge of the Company, the Company and its subsidiaries' respective businesses as now conducted do not constitute infringement of, misappropriation of, or other violation of, any valid and enforceable Intellectual Property Rights of any other person. All licenses for the use of the Intellectual Property Rights described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus to which the Company is a party are, to the Company's knowledge, valid, binding upon, and enforceable by or against the parties thereto in accordance with their terms. To the knowledge of the Company, the Company has complied in all material respects with, and is not in material breach nor has received any written notice of any asserted or threatened claim of breach of, any license agreement pursuant to which Intellectual Property Rights have been licensed to or by the Company (the "Intellectual Property Licensed Agreements"), and the Company has no knowledge of any material breach by any other person to any Intellectual Property Licensed Agreement. Except as described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, no claim has been made in writing against the Company alleging the infringement by the Company of any patent, trademark, service mark, trade name, copyright, trade secret, license in or other intellectual property right or franchise right of

any person. The Company has taken reasonable steps to protect, maintain and safeguard its Intellectual Property Rights, including the execution of appropriate nondisclosure and confidentiality agreements. To the knowledge of the Company, the consummation of the transactions contemplated by this Agreement will not result in the loss or impairment of or payment of any additional amounts with respect to, nor require the consent of any other person in respect of, the Company's right to own, use, or hold for use any of the Intellectual Property Rights as owned, used or held by the Company for use in the conduct of the business as currently conducted.

(xx) Patents and Patent Applications. To the Company's knowledge, all patents and patent applications owned by or licensed to the Company or under which the Company has rights have been duly and properly filed and maintained; to the knowledge of the Company, the parties prosecuting such applications have complied with their duty of candor and disclosure to the USPTO in connection with such applications.

(xxi) Employment Matters. There is (A) no unfair labor practice complaint pending against the Company or any of its subsidiaries nor, to the Company's knowledge, threatened, before the National Labor Relations Board, any state or local labor relation board or any foreign labor relations board, and no grievance or arbitration proceeding arising out of or under any collective bargaining agreement is so pending against the Company or any of its subsidiaries, or, to the Company's knowledge, threatened against it or any of its subsidiaries and (B) no material labor disturbance by the employees of the Company or any of its subsidiaries exists or, to the Company's knowledge, is imminent, and the Company is not aware of any existing or imminent material labor disturbance by the employees of any of its, or its subsidiaries', principal suppliers, manufacturers, customers or contractors that could reasonably be expected, singularly or in the aggregate, to have a Material Adverse Effect. The Company is not aware that any key employee or significant group of employees of the Company or any subsidiary plans to terminate employment with the Company or any such subsidiary.

(xxii) ERISA Compliance. No "prohibited transaction" (as defined in Section 406 of the Employee Retirement Income Security Act of 1974, as amended, including the regulations and published interpretations thereunder ("ERISA"), or Section 4975 of the Internal Revenue Code of 1986, as amended from time to time (the "Code")) or "accumulated funding deficiency" (as defined in Section 302 of ERISA) or any of the events set forth in Section 4043(b) of ERISA (other than events with respect to which the thirty (30)-day notice requirement under Section 4043 of ERISA has been waived) has occurred or could reasonably be expected to occur with respect to any "employee benefit plan" (as defined under ERISA) established or maintained by the Company or any of its subsidiaries which would reasonably be expected to, singularly or in the aggregate, have a Material Adverse Effect. Each "employee benefit plan" established or maintained by the Company or any of its subsidiaries is in compliance in all material respects with applicable law, including ERISA and the Code. Neither the Company nor any of its subsidiaries has incurred or reasonably expects to incur any material liability under (A) Title IV of ERISA with respect to the termination of, or withdrawal from, any "employee benefit plan" or (B) Sections 412, 4971, 4975 or 4980B of the Code. Each "employee benefit plan" established or maintained by the Company or its subsidiaries that is intended to be qualified under Section 401(a) of the Code is so qualified, and, to the Company's knowledge, nothing has occurred, whether by action or by failure to act, which could, singularly or in the aggregate, cause the loss of such qualification.

(xxiii) Environmental Matters. Except as otherwise described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, and except as would not, individually or in the aggregate, result in a Material Adverse Effect (A) neither the Company nor any of its subsidiaries is in violation of any federal, state, local or foreign law or regulation relating to pollution or protection of human health or the environment (including, without limitation, ambient air, surface water, groundwater, land surface or subsurface strata) or wildlife, including without limitation, laws and regulations relating to emissions, discharges, releases or threatened releases of chemicals, pollutants, contaminants, wastes, toxic substances, hazardous substances, petroleum and petroleum products (collectively, "Materials of Environmental Concern"), or otherwise relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Materials of Environmental Concern (collectively, "Environmental Laws"), which violation includes, but is not limited to, noncompliance with any permits or other governmental authorizations required for the operation of the business of the Company or its subsidiaries under applicable Environmental Laws, or noncompliance with the terms and conditions thereof, nor has the Company or any of its subsidiaries received any written communication, whether from a governmental authority, citizens group, employee or otherwise, that alleges that the Company or any of its subsidiaries is in violation of any Environmental Law; (B) there is no claim, action or cause of action filed with a court or governmental authority, no investigation with respect to which the Company has received written notice, and no written notice by any person or entity alleging potential liability for investigatory costs, cleanup costs, governmental responses costs, natural resources damages, property damages, personal injuries, attorneys' fees or penalties arising out of, based on or resulting from the presence, or release into the environment, of any Materials of Environmental Concern at any location owned, leased or operated by the Company or any of its subsidiaries, now or in the past (collectively, "Environmental Claims"), pending or, to the Company's knowledge, threatened against the Company or any of its subsidiaries or any person or entity whose liability for any Environmental Claim the Company or any of its subsidiaries has retained or assumed either contractually or by operation of law; and (C) to the Company's knowledge, there are no past or present actions, activities, circumstances, conditions, events or incidents, including, without limitation, the release, emission, discharge, presence or disposal of any Materials of Environmental Concern, that reasonably would result in a violation of any Environmental Law or form the basis of a potential Environmental Claim against the Company or any of its subsidiaries or against any person or entity whose liability for any Environmental Claim the Company or any of its subsidiaries has retained or assumed either contractually or by operation of law.

(xxiv) SOX Compliance. The Company has taken all necessary actions to ensure that, at the Effective Time of the Registration Statement, it will be in compliance in all material respects with all provisions of the Sarbanes-Oxley Act of 2002 and all rules and regulations promulgated thereunder or implementing provisions thereof (collectively, the "Sarbanes-Oxley Act") that are then in effect and with which the Company is required to be in compliance with as of the Effective Time of the Registration Statement (taking into account all exemptions and phase-in periods provided under the Jumpstart Our Business Startups Act of 2012 and otherwise under applicable law).

(xxv) Accounting Controls. Except as disclosed in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, the Company maintains internal control over financial reporting (as defined under Rule 13-a15 and 15d-15 under the Rules

and Regulations of the Commission under the Exchange Act and a system of internal accounting controls designed to provide reasonable assurances that (A) transactions are executed in accordance with management's general or specific authorization; (B) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain accountability for assets; (C) access to assets is permitted only in accordance with management's general or specific authorization; and (D) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences, in each case, to the extent applicable to an Emerging Growth Company and a "smaller reporting company" as defined in Section 12b-2 of the Exchange Act. Except as described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, since the end of the Company's most recent audited fiscal year, there has been (X) no material weakness in the Company's internal control over financial reporting (whether or not remediated) and (Y) no change in the Company's internal control over financial reporting that has materially adversely affected, or is reasonably likely to materially adversely affect, the Company's internal control over financial reporting**.**

(xxvi) Money Laundering Laws. The operations of the Company and its subsidiaries are and have been conducted at all times in compliance in all material respects with applicable financial recordkeeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all jurisdictions, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any Governmental Entity (collectively, the "Money Laundering Laws"); and no action, suit or proceeding by or before any Governmental Entity involving the Company or any of its subsidiaries with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened. "Governmental Entity" shall be defined as any arbitrator, court, governmental body, regulatory body, administrative agency or other authority, body or agency (whether foreign or domestic) having jurisdiction over the Company or any of its subsidiaries or any of their respective properties, assets or operations.

(xxvii) Foreign Corrupt Practices Act. Neither the Company nor any of its subsidiaries, nor any director or officer of the Company or any of its subsidiaries, nor, to the knowledge of the Company, any employee, representative, agent, affiliate of the Company or any of its subsidiaries, or any other person acting on behalf of the Company or any of its subsidiaries, is aware of or has taken any action, directly or indirectly, that would result in a violation by such persons of the Foreign Corrupt Practices Act of 1977, as amended, and the rules and regulations thereunder (the "FCPA"), including, without limitation, making use of the mails or any means or instrumentality of interstate commerce corruptly in furtherance of an offer, payment, promise to pay or authorization of the payment of any money, or other property, gift, promise to give, or authorization of the giving of anything of value to any "foreign official" (as such term is defined in the FCPA) or any foreign political party or official thereof or any candidate for foreign political office, in contravention of the FCPA and the Company and, to the knowledge of the Company, its affiliates have conducted their businesses in compliance with the FCPA and have instituted and maintained policies and procedures designed to ensure and promote continued compliance therewith.

(xxviii) OFAC. Neither the Company nor any of its subsidiaries or any director or officer of the Company or any of its subsidiaries, nor, to the knowledge of the Company,

any employee, representative, agent or affiliate of the Company or any of its subsidiaries or any other person acting on behalf of the Company or any of its subsidiaries is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department ("OFAC"); and the Company will not directly or indirectly use the proceeds of the offering of the Shares contemplated hereby, or lend, contribute or otherwise make available such proceeds to any person or entity, for the purpose of financing the activities of any person currently subject to any U.S. sanctions administered by OFAC.

(xxix) Liquidity. There are no transactions, arrangements or other relationships between and/or among the Company, any of its affiliates (as such term is defined in Rule 405 of the Rules and Regulations) and any unconsolidated entity, including, but not limited to, any structured finance, special purpose or limited purpose entity that would reasonably be expected to materially affect the Company's liquidity or the availability of or requirements for its capital resources required to be described in the Time of Sale Disclosure Package and the Prospectus which have not been described as required.

(xxx) Audit Committee. The board of directors of the Company has appointed an audit committee whose composition satisfies the requirements of Rule 5605 of the Nasdaq Stock Market and the Board of Directors and/or the audit committee has adopted a charter that satisfies the requirements of Rule 5605 of the Nasdaq Stock Market. The audit committee has reviewed the adequacy of its charter within the past twelve months.

(xxxi) Related Party Transactions. There are no outstanding loans, advances (except normal advances for business expenses in the ordinary course of business) or guarantees of indebtedness by the Company to or for the benefit of any of the officers or directors of the Company or any of their respective family members, except as disclosed in the Registration Statement or the Time of Sale Disclosure Package and the Prospectus. All material transactions by the Company with office holders or control persons of the Company have been duly approved by the board of directors of the Company, or duly appointed committees or officers thereof, if and to the extent required under U.S. law.

(xxxii) Insurance. The Company and each of its subsidiaries carries or is entitled to the benefits of insurance, with financially sound and reputable insurers, in such amounts and covering such risks as are commercially reasonable and customary and generally maintained by companies of established repute engaged in the same or similar business, and all such insurance is in full force and effect. The Company has no reason to believe that it and its subsidiaries will not be able (A) to renew its existing insurance coverage as and when such policies expire or (B) to obtain comparable coverage from similar institutions as may be necessary or appropriate to conduct its business as now conducted and at a cost that would not result in a Material Adverse Effect. The Company has not been denied any insurance coverage which it has sought or for which it has applied.

(xxxiii) Continued Business. No supplier, customer, distributor or sales agent of the Company or any subsidiary has notified the Company or any subsidiary that it intends to discontinue or decrease the rate of business done with the Company or any subsidiary, except where such discontinuation or decrease has not resulted in and could not reasonably be expected to result in a Material Adverse Effect.

(xxxiv) [Reserved]

(xxxv) Transactions Affecting Disclosure to FINRA. None of the Company, nor any of its officers, directors or, to the best knowledge of the Company, any beneficial owner of five percent or greater of the Common Stock, is affiliated or associated with any broker-dealer that is a member of FINRA, except as otherwise disclosed to the Representative in writing.

(xxxvi) No Financial Advisor. Other than the Underwriters, no person has the right to act as an underwriter or as a financial advisor to the Company in connection with the transactions contemplated hereby.

(xxxvii) [Reserved]

(xxxviii) [Reserved]

(xxxix) No Prior Offering Integration. The Company has not, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause this offering of the Shares to be integrated with prior offerings by the Company for purposes of any applicable shareholder approval provisions of any trading market on which any of the securities of the Company are listed or designated.

(xl) No Off-Balance Sheet Arrangements. Except as set forth in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, there are no material off-balance sheet arrangements (as defined in Item 303 of Regulation S-K) that have or are reasonably likely to have a material current or future effect on the Company's financial condition, revenues or expenses, changes in financial condition, results of operations, liquidity, capital expenditures or capital resources.

(xli) Certain Statements. The statements set forth in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus under the caption "Description of Securities," insofar as they purport to constitute a summary of (A) the terms of the Company's outstanding securities, (B) the terms of the Shares, and (C) the terms of the documents referred to therein, are accurate and fair in all material respects.

4. Purchase, Sale and Delivery of Shares.

(a) On the basis of the representations, warranties and agreements herein contained, but subject to the terms and conditions herein set forth, the Company agrees to issue and sell to each of the Underwriters, and each of the Underwriters agrees, severally and not jointly, to purchase from the Company, at a purchase price of $[●] per share (the "Initial Price"), the number of Firm Shares set forth opposite the name of such Underwriter under the column "Number of Firm Shares to be Purchased from the Company" on Schedule I to this Agreement.

(b) The Company hereby grants to the several Underwriters an option to purchase, severally and not jointly, all or any part of the Option Shares at the Initial Price. The number of Option Shares to be purchased by each Underwriter shall be the same percentage (as the same may be adjusted by the Representative to eliminate fractions) of the total number of

Option Shares to be purchased by the Underwriters as such Underwriter is purchasing of the Firm Shares. Such option may be exercised only to cover over-allotments in the sales of the Firm Shares by the Underwriters and may be exercised in whole or in part at any time on or before 12:00 Noon, New York City time, on the business day before the Firm Shares Closing Date (as defined below), and from time to time thereafter within thirty (30) days after the date of this Agreement, in each case upon written, facsimile or telegraphic notice, or verbal or telephonic notice confirmed by written, facsimile or telegraphic notice, by the Representative to the Company no later than 12:00 Noon, New York City time, on the business day before the Firm Shares Closing Date or no later than 12:00 Noon, New York City time, at least two (2) business days before the Option Shares Closing Date (as defined below), as the case may be, setting forth the number of Option Shares to be purchased and the time and date (if other than the Firm Shares Closing Date) of such purchase.

(c) Payment of the purchase price for, and delivery of the Firm Shares shall be made at the offices of Oppenheimer & Co. Inc., 85 Broad Street, New York, New York 10004, at 10:00 a.m., New York City time, on February [●], 2020, or at such time on such other date, not later than ten (10) business days after the date of this Agreement, as shall be agreed upon by the Company and the Representative (such time and date of delivery and payment are called the "Firm Shares Closing Date"). In addition, in the event that any or all of the Option Shares are purchased by the Underwriters, payment of the purchase price, and delivery of the Option Shares shall be made at the above-mentioned offices, or at such other place as shall be agreed upon by the Representative and the Company, on each date of delivery as specified in the notice from the Representative to the Company (such time and date of delivery and payment are called the "Option Shares Closing Date"). The Firm Shares Closing Date and any Option Shares Closing Date are called, individually, a "Closing Date" and, together, the "Closing Dates."

(d) Payment shall be made to the Company by wire transfer of immediately available funds or by certified or official bank check or checks payable in New York Clearing House (same day) funds drawn to the order of the Company against delivery of the Firm Shares or the Option Shares, as applicable, to the account of the Representative for the respective accounts of the Underwriters of certificates for the Shares to be purchased by them.

(e) The Firm Shares and Option Shares, as applicable, shall be registered in such names and shall be in such denominations as the Representative shall request at least two (2) full business days before the Firm Shares Closing Date or, in the case of Option Shares, on the day of notice of exercise of the option as described in Section 1(b), and shall be delivered by or on behalf of the Company to the Representative through the facilities of the Depository Trust Company for the respective accounts of the Underwriters.

5. Covenants.

(a) The Company covenants and agrees with the Representative as follows:

(i) The Company shall prepare the Prospectus in a form approved by the Underwriters and file such Prospectus pursuant to Rule 424(b) under the Securities Act not later than the Commission's close of business on the second (2nd) business day following the execution and delivery of this Agreement, or, if applicable, such earlier time as may be required by the Rules and Regulations of the Commission.

(ii) During the period beginning on the date hereof and ending on the earlier of (A) such date as determined by the Representative that the Prospectus is no longer required by law to be delivered in connection with sales by an underwriter or dealer or (B) the completion of the distribution of the Shares by the Underwriters (the "Prospectus Delivery Period"), prior to amending or supplementing the Registration Statement, including any Rule 462 Registration Statement, the Time of Sale Disclosure Package or the Prospectus, the Company shall furnish to the Representative for review and comment a copy of each such proposed amendment or supplement, and the Company shall not file any such proposed amendment or supplement to which the Representative reasonably objects.

(iii) From the date of this Agreement until the end of the Prospectus Delivery Period, the Company shall promptly advise the Representative in writing (A) of the receipt of any comments of, or requests for additional or supplemental information from, the Commission, (B) of the time and date of any filing of any post-effective amendment to the Registration Statement or any amendment or supplement to the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus, (C) of the time and date that any post-effective amendment to the Registration Statement becomes effective and (D) of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or of any order preventing or suspending its use or the use of the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus, or of any proceedings to remove, suspend or terminate from listing or quotation the Common Stock from any securities exchange upon which it is listed for trading or included or designated for quotation, or of the threatening or initiation of any proceedings for any of such purposes. If the Commission shall enter any such stop order at any time during the Prospectus Delivery Period, the Company will use its reasonable efforts to obtain the lifting of such order at the earliest possible moment. Additionally, the Company agrees during the Prospectus Delivery Period that it shall comply with the provisions of Rules 424(b), 430A and 430B, as applicable, under the Securities Act and will use its reasonable efforts to confirm that any filings made by the Company under Rule 424(b) or Rule 433 were received in a timely manner by the Commission (without reliance on Rule 424(b)(8) or 164(b) of the Securities Act).

(iv) (A) During the Prospectus Delivery Period, the Company will comply with all requirements imposed upon it by the Securities Act, as now and hereafter amended, and by the Rules and Regulations, as from time to time in force, and by the Exchange Act, as now and hereafter amended, so far as necessary to permit the continuance of sales of or dealings in the Shares as contemplated by the provisions hereof, the Time of Sale Disclosure Package, the Registration Statement and the Prospectus. If during the Prospectus Delivery Period any event occurs as the result of which would cause the Prospectus (or if the Prospectus is not yet available to prospective purchasers, the Time of Sale Disclosure Package) to include an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which such statement was made, not misleading, or if during such period it is necessary or appropriate in the opinion of the Company or its counsel or the Underwriters or their counsel to amend the Registration Statement or supplement the Prospectus (or if the Prospectus is not yet available to prospective purchasers, the Time of Sale Disclosure Package) to comply with the Securities Act, the Company will promptly notify the Underwriters, allow the Underwriters the opportunity to provide reasonable comments on such amendment, Prospectus or document, and will amend the Registration Statement or supplement the Prospectus

(or if the Prospectus is not yet available to prospective purchasers, the Time of Sale Disclosure Package) or file such document (at the expense of the Company) so as to correct such statement or omission or effect such compliance.

(B) During the Prospectus Delivery Period, if at any time following the issuance of an Issuer Free Writing Prospectus there occurred or occurs an event or development the result of which is that such Issuer Free Writing Prospectus conflicted or would conflict with the information contained in the Registration Statement or any Prospectus or included or would include, when taken together with the Time of Sale Disclosure Package, an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances prevailing at that subsequent time, not misleading, the Company has promptly notified or promptly will notify the Underwriters and has promptly amended or will promptly amend or supplement, at its own expense, such Issuer Free Writing Prospectus to eliminate or correct such conflict, untrue statement or omission.

(v) The Company shall take or cause to be taken all necessary action to qualify the Shares for sale under the securities laws of such jurisdictions as the Underwriters reasonably designate and to continue such qualifications in effect so long as required for the distribution of the Shares, except that the Company shall not be required in connection therewith to qualify as a foreign corporation or as a dealer in securities in any jurisdiction in which it is not so qualified, to execute a general consent to service of process in any state or to subject itself to taxation in respect of doing business in any jurisdiction in which it is not otherwise subject.

(vi) The Company shall deliver to the Underwriters and counsel for the Underwriters copies, without charge, of the Registration Statement, the Prospectus, any Issuer Free Writing Prospectus, and all amendments and supplements to such documents, and signed copies of all consents and certificates of experts, in each case as soon as available and in such quantities as the Underwriters may from time to time reasonably request.

(vii) The Company will make generally available to its security holders as soon as practicable, an earnings statement that shall satisfy the provisions of Section 11(a) of the Securities Act and Rule 158 of the Rules and Regulations.

(viii) The Company shall use commercially reasonable efforts to maintain the listing of the shares of Common Stock on Nasdaq or a comparable exchange for at least one year from the Firm Shares Closing Date.

(ix) For a period of one year from the Firm Shares Closing Date, the Company shall use its commercially reasonable efforts to maintain the registration of the Shares under the Exchange Act unless the Company is acquired or goes private.

(x) The Company, whether or not the transactions contemplated hereunder are consummated or this Agreement is terminated, will pay or cause to be paid (A) all expenses incurred in connection with the delivery to the Underwriters of the Shares (including transfer taxes allocated to the respective transferees, all fees and expenses of the registrar and transfer agent of the Shares (if other than the Company)), (B) all expenses and fees (including, without limitation, fees and expenses of the Company’s counsel) in connection with the

preparation, printing, filing, delivery, and shipping of the Registration Statement (including the financial statements therein and all amendments, schedules, and exhibits thereto), the Shares, the Time of Sale Disclosure Package, any Prospectus, any Issuer Free Writing Prospectus and any amendment thereof or supplement thereto, (C) all reasonable filing fees and reasonable fees and disbursements of the Representative's counsel incurred in connection with the qualification of the Shares for offering and sale by the Underwriters or by dealers under the securities or blue sky laws of the states and other jurisdictions that the Underwriters shall designate, (D) the fees and expenses of any transfer agent or registrar, (E) the reasonable filing fees and reasonable fees and disbursements of Representative's counsel incident to any required review and approval by FINRA, of the terms of the sale of the Shares, (F) all fees and expenses relating to the listing of the Shares on Nasdaq, (G) the fees and expenses of the Company's accountants, (H) the costs and expenses of any Testing-the-Waters Communications, (I) the costs and expenses of the Company relating to investor presentations on any "road show" undertaken in connection with the marketing of the Shares, including, without limitation, expenses associated with the production of road show slides and graphics, fees and expenses of any consultants (not including the Underwriters and their representatives) engaged in connection with the road show presentations, and travel and lodging expenses of the representatives and officers of the Company and any such consultants (not including the Underwriters and their representatives), and (J) all other costs and expenses incident to the performance of its obligations hereunder that are not otherwise specifically provided for herein. The Company will reimburse the Representative for its reasonable and documented out-of-pocket expenses incurred in connection with the offer and sale of the Shares contemplated hereby, including the fees and disbursements of its counsel, in an aggregate amount (including amounts pursuant to clauses (C) and (E) above) not to exceed $100,000 without the Company's prior approval (such approval not to be unreasonably withheld, conditioned or delayed).

(xi) The Company intends to apply the net proceeds from the sale of the Shares to be sold by it hereunder for the purposes set forth in the Time of Sale Disclosure Package and in the Prospectus.

(xii) The Company has not taken and will not take, directly or indirectly, during the Prospectus Delivery Period, any action designed to or which might reasonably be expected to cause or result in, or that has constituted, the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Shares.

(xiii) The Company represents and agrees that, unless it obtains the prior written consent of the Representative, and the Representative represents and agrees that, unless it obtains the prior written consent of the Company, it has not made and will not make any offer relating to the Shares that would constitute an Issuer Free Writing Prospectus; provided that the prior written consent of the parties hereto shall be deemed to have been given in respect of the free writing prospectuses included in Schedule II. Any such free writing prospectus set forth on Schedule II and consented to by the Company and the Representative is hereinafter referred to as a "Permitted Free Writing Prospectus." The Company represents that it has treated, or agrees that it will treat, each Permitted Free Writing Prospectus as an "issuer free writing prospectus," as defined in Rule 433, and has complied or will comply with the requirements of Rule 433 applicable to any Permitted Free Writing Prospectus, including timely Commission filing where required, legending and record-keeping.

(xiv) The Company hereby agrees that, without the prior written consent of the Representative, it will not, during the period ending 90 days after the date hereof ("Lock-Up Period"), (A) sell, offer to sell, contract or agree to sell, hypothecate, pledge, grant any option to purchase or otherwise dispose of or agree to dispose of, directly or indirectly, or file (or participate in the filing of) a registration statement with the Commission in respect of, or establish or increase a put equivalent position or liquidate or decrease a call equivalent position within the meaning of Section 16 of the Exchange Act with respect to, any Common Stock or any other securities of the Company that are substantially similar to Common Stock, or any securities convertible into or exchangeable or exercisable for, or any warrants or other rights to purchase, the foregoing, (B) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of Common Stock or any other securities of the Company that are substantially similar to Common Stock, or any securities convertible into or exchangeable or exercisable for, or any warrants or other rights to purchase, the foregoing, whether any such transaction is to be settled by delivery of Common Stock or such other securities, in cash or otherwise or (C) publicly announce an intention to effect any transaction specified in clause (A) or (B). The restrictions contained in the preceding sentence shall not apply to (W) the Shares to be sold hereunder, (X) the issuance of Common Stock upon the (i) exercise of options or warrants, (ii) settlement of restricted stock units, and (iii) conversion of the Company's Class X convertible preferred stock, in each case, outstanding as of the Effective Time or as described in the Registration Statement (excluding exhibits thereto), the Time of Sale Disclosure Package or the Prospectus, (Y) the issuance of Common Stock, or any securities convertible into or exercisable or exchangeable for shares of Common Stock, pursuant to any stock option plan, incentive plan, employee stock purchase plan, stock bonus plan, stock ownership plan, dividend reinvestment plan or other plan or arrangement of the Company described in the Registration Statement (excluding exhibits thereto), Time of Sale Disclosure Package and the Prospectus ("Company Plans"), or (Z) the filing of registration statements on Form S-8 with respect to any Company Plans as in effect from time to time. Notwithstanding anything to the contrary contained in this paragraph, the Company shall be permitted to keep in effect the Common Stock Sales Agreement, dated as of May 21, 2019, as amended on June 18, 2019, by and between the Company and H.C. Wainwright & Co., LLC; *provided*, *however*, that the Company shall not be permitted to sell any securities thereunder during the Lock-Up Period.

(xv) Prior to the Firm Shares Closing Date, the Company will issue no press release or other communications directly or indirectly and hold no press conference with respect to the Company, the condition, financial or otherwise, or the earnings, business affairs or business prospects of any of them, or the offering of the Shares without the prior written consent of the Representative unless in the judgment of the Company and its counsel, and after notification to the Representative, such press release or communication is required by law.

(xvi) The Company hereby agrees to maintain, at its expense, a registrar and transfer agent for the Shares.

(xvii) The Company will promptly notify the Representative if the Company ceases to be an Emerging Growth Company at any time prior to the later of (A) the end of the Prospectus Delivery Period and (B) the expiration of the Lock-Up Period described above.

6. Conditions of the Underwriters' Obligations. The obligations of each Underwriter hereunder to purchase the Shares are subject to the accuracy, as of the date hereof and at the Closing Date (as if made at the Closing Date), of and compliance with all representations, warranties and agreements of the Company contained herein, the performance by the Company of its obligations hereunder and the following additional conditions:

(a) If filing of the Prospectus, or any amendment or supplement thereto, or any Issuer Free Writing Prospectus, is required under the Securities Act or the Rules and Regulations, the Company shall have filed the Prospectus (or such amendment or supplement) or such Issuer Free Writing Prospectus with the Commission in the manner and within the time period so required (without reliance on Rule 424(b)(8) or 164(b) under the Securities Act); the Registration Statement shall remain effective; no stop order suspending the effectiveness of the Registration Statement or any part thereof, any Rule 462 Registration Statement, or any amendment thereof, nor suspending or preventing the use of the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus shall have been issued; no proceedings for the issuance of such an order shall have been initiated or threatened by the Commission; any request of the Commission or the Representative for additional information (to be included in the Registration Statement, the Time of Sale Disclosure Package, the Prospectus, any Issuer Free Writing Prospectus or otherwise) shall have been complied with to the Underwriters' satisfaction.

(b) The Shares shall be qualified and approved for listing on Nasdaq.

(c) On or prior to the Firm Shares Closing Date, FINRA shall have raised no objection to the fairness and reasonableness of the underwriting terms and arrangements.

(d) The Representative shall not have reasonably determined, and advised the Company, that the Registration Statement, the Time of Sale Disclosure Package or the Prospectus, or any amendment thereof or supplement thereto, or any Issuer Free Writing Prospectus, contains an untrue statement of fact which, in the Representative's reasonable opinion, is material, or omits to state a fact which, in the Representative's reasonable opinion, is material and is required to be stated therein or necessary to make the statements therein not misleading

(e) Between the date hereof and the Closing Date (A) no downgrading shall have occurred in the rating accorded any of the Company's securities by any "nationally recognized statistical organization," as that term is defined by the Commission for purposes of Rule 436(g)(2) under the Securities Act, and (B) no such organization shall have publicly announced that it has under surveillance or review, with possible negative implications, its rating of any of the Company's securities.

(f) On the applicable Closing Date, there shall have been furnished to the Representative the opinion and negative assurance letter of Cooley LLP, corporate counsel for the Company, dated as of the applicable Closing Date and addressed to the Representative, in form and substance reasonably satisfactory to the Representative.

(g) On the applicable Closing Date, there shall have been furnished to the Representative an opinion and negative assurance letter from Cooley LLP, the Company's

intellectual property counsel, dated as of the applicable Closing Date and addressed to the Representative, in form and substance reasonably satisfactory to the Representative.

(h) On the Closing Date, there shall been furnished to the Representative a negative assurance letter from Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., counsel to the Underwriters, dated as of the Closing Date and addressed to the Representative, in form and substance reasonably satisfactory to the Representative.

(i) The Representative shall have received a letter of Ernst & Young LLP, on the date hereof and on the applicable Closing Date addressed to the Representative, confirming that they are independent public accountants within the meaning of the Securities Act and are in compliance with the applicable requirements relating to the qualifications of accountants under Rule 2-01 of Regulation S-X of the Commission, and confirming, as of the date of each such letter (or, with respect to matters involving changes or developments since the respective dates as of which specified financial information is given in the Time of Sale Disclosure Package, as of a date not prior to the date hereof or more than five days prior to the date of such letter), the conclusions and findings of said firm, of the type ordinarily included in accountants' "comfort letters" to underwriters, with respect to the financial information, in form and substance reasonably satisfactory to the Representative.

(j) On the applicable Closing Date, there shall have been furnished to the Representative a certificate, dated the Closing Date and addressed to the Representative, signed by the chief executive officer and the chief financial officer of the Company, in their capacity as officers of the Company, to the effect that:

(i) The representations and warranties of the Company in this Agreement that are qualified by materiality or by reference to any Material Adverse Effect are true and correct in all respects, and all other representations and warranties of the Company in this Agreement are true and correct, in all material respects, as if made at and as of the Closing Date, and the Company has complied with all the agreements and satisfied all the conditions on its part to be performed or satisfied at or prior to the Closing Date;

(ii) No stop order or other order (A) suspending the effectiveness of the Registration Statement or any part thereof or any amendment thereof, (B) suspending the qualification of the Shares for offering or sale, or (C) suspending or preventing the use of the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus, has been issued, and no proceeding for that purpose has been instituted or, to their knowledge, is contemplated by the Commission or any state or regulatory body; and

(iii) There has been no occurrence of any event resulting or reasonably likely to result in a Material Adverse Effect during the period from and after the date of this Agreement and prior to the Closing Date.

(k) On or before the date hereof, the Representative shall have received duly executed Lock-Up Agreements, in the form attached hereto as Schedule III, between the Representative and each of the Lock-Up Parties set forth on Schedule IV hereto.

(l) The Common Stock shall be registered under the Exchange Act and shall be listed on Nasdaq, and the Company shall not have taken any action designed to terminate, or likely to have the effect of terminating, the registration of the Common Stock under the Exchange Act or delisting or suspending from trading the Common Stock from Nasdaq, nor shall the Company have received any information suggesting that the Commission is contemplated terminating such registration or listing.

(m) The Company shall have furnished to the Representative and its counsel such additional documents, certificates and evidence as the Representative or its counsel may have reasonably requested.

(n) On the Closing Date, the Shares shall have been delivered via the Depository Trust Company system to the accounts of the Underwriters.

If any condition specified in this Section 6 shall not have been fulfilled when and as required to be fulfilled, this Agreement may be terminated by the Representative by notice to the Company at any time at or prior to the Closing Date and such termination shall be without liability of any party to any other party, except that Section 5(a)(x), Section 7 and Section 8 shall survive any such termination and remain in full force and effect.

7. Indemnification and Contribution.

(a) The Company agrees to indemnify, defend and hold harmless the Underwriters, their affiliates, directors and officers and employees, and each person, if any, who controls an Underwriter within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, from and against any losses, claims, damages or liabilities to which the Underwriters or such person may become subject, under the Securities Act or otherwise (including in settlement of any litigation if such settlement is effected with the written consent of the Company), insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon (i) an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, including the information deemed to be a part of the Registration Statement at the time of effectiveness and at any subsequent time pursuant to Rules 430A and 430B of the Rules and Regulations, or arise out of or are based upon the omission from the Registration Statement, or alleged omission to state therein, a material fact required to be stated therein or necessary to make the statements therein not misleading, (ii) an untrue statement or alleged untrue statement of a material fact contained in the Time of Sale Disclosure Package, the Prospectus, or any amendment or supplement thereto (including any documents filed under the Exchange Act and deemed to be incorporated by reference into the Registration Statement or the Prospectus), or any Issuer Free Writing Prospectus or the Marketing Materials, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, (iii) in whole or in part, any inaccuracy in the representations and warranties of the Company contained herein, or (iv) in whole or in part, any failure of the Company to perform its obligations hereunder or under law, and will reimburse the Underwriters for any legal or other expenses reasonably incurred by it in connection with evaluating, investigating or defending against such loss, claim, damage, liability or action (or any legal or other expense reasonably incurred in connection with the evaluation, investigation or

defense thereof); *provided*, *however*, that the Company shall not be liable in any such case to the extent that any such loss, claim, damage, liability or action arises out of or is based upon an untrue statement or alleged untrue statement or omission or alleged omission made in the Registration Statement, the Time of Sale Disclosure Package, the Prospectus, or any amendment or supplement thereto or any Issuer Free Writing Prospectus, in reliance upon and in conformity with written information furnished to the Company by the Underwriters specifically for use in the preparation thereof, which written information is described in Section 7(f).

(b) The Underwriters will indemnify, defend and hold harmless the Company, its affiliates, directors, officers and employees, and each person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, from and against any losses, claims, damages or liabilities to which the Company may become subject, under the Securities Act or otherwise (including in settlement of any litigation, if such settlement is effected with the written consent of such Underwriter), insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, the Time of Sale Disclosure Package, the Prospectus, or any amendment or supplement thereto, any Issuer Free Writing Prospectus or any "issuer information" filed or required to be filed pursuant to Rule 433(d) under the Act, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, in each case to the extent, but only to the extent, that such untrue statement or alleged untrue statement or omission or alleged omission was made in the Registration Statement, the Time of Sale Disclosure Package, the Prospectus, or any amendment or supplement thereto or any Issuer Free Writing Prospectus or any "issuer information" filed or required to be filed pursuant to Rule 433(d) under the Act in reliance upon and in conformity with written information furnished to the Company by the Representative by or behalf of any Underwriters specifically for use in the preparation thereof, and will reimburse the Company for any legal or other expenses reasonably incurred by the Company in connection with defending against any such loss, claim, damage, liability or action.

(c) Promptly after receipt by an indemnified party under subsection (a) or (b) above of notice of the commencement of any action, such indemnified party shall, if a claim in respect thereof is to be made against the indemnifying party under such subsection, notify the indemnifying party in writing of the commencement thereof; but the failure to notify the indemnifying party shall not relieve the indemnifying party from any liability that it may have to any indemnified party except to the extent such indemnifying party has been materially prejudiced by such failure. In case any such action shall be brought against any indemnified party, it shall notify the indemnifying party of the commencement thereof, and the indemnifying party shall be entitled to participate in, and, to the extent that it shall wish, jointly with any other indemnifying party similarly notified, to assume the defense thereof, with counsel reasonably satisfactory to such indemnified party, and after notice from the indemnifying party to such indemnified party of the indemnifying party's election so to assume the defense thereof, the indemnifying party shall not be liable to such indemnified party under such subsection for any legal or other expenses subsequently incurred by such indemnified party in connection with the defense thereof; *provided*, *however*, that if (i) the indemnified party has reasonably concluded (based on advice of counsel) that there may be legal defenses available to it or other indemnified parties that are different from or in addition to those available to the indemnifying party, (ii) a conflict or potential conflict exists

(based on advice of counsel to the indemnified party) between the indemnified party and the indemnifying party (in which case the indemnifying party will not have the right to direct the defense of such action on behalf of the indemnified party), or (iii) the indemnifying party has not in fact employed counsel reasonably satisfactory to the indemnified party to assume the defense of such action within a reasonable time after receiving notice of the commencement of the action, the indemnified party shall have the right to employ a single counsel to represent it in any claim in respect of which indemnity may be sought under subsection (a) or (b) of this Section 7, in which event the reasonable fees and expenses of such separate counsel shall be borne by the indemnifying party or parties and reimbursed to the indemnified party as incurred.

The indemnifying party under this Section 7 shall not be liable for any settlement of any proceeding effected without its written consent, but if settled with such consent or if there be a final judgment for the plaintiff, the indemnifying party agrees to indemnify the indemnified party against any loss, claim, damage, liability or expense by reason of such settlement or judgment. No indemnifying party shall, without the prior written consent of the indemnified party, effect any settlement, compromise or consent to the entry of judgment in any pending or threatened action, suit or proceeding in respect of which any indemnified party is a party or could be named and indemnity was or would be sought hereunder by such indemnified party, unless such settlement, compromise or consent (a) includes an unconditional release of such indemnified party from all liability for claims that are the subject matter of such action, suit or proceeding and (b) does not include a statement as to or an admission of fault, culpability or a failure to act by or on behalf of any indemnified party.

(d) If the indemnification provided for in this Section 7 is unavailable or insufficient to hold harmless an indemnified party under subsection (a) or (b) above, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of the losses, claims, damages or liabilities referred to in subsection (a) or (b) above, (i) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Underwriters on the other from the offering and sale of the Shares or (ii) if the allocation provided by clause (i) above is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) above but also the relative fault of the Company on the one hand and the Underwriters on the other in connection with the statements or omissions that resulted in such losses, claims, damages or liabilities, as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Underwriters on the other shall be deemed to be in the same proportion as the total net proceeds from the offering (before deducting expenses) received by the Company bear to the total underwriting discounts and commissions received by the Underwriters, in each case as set forth in the table on the cover page of the Prospectus. The relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company or the Underwriters and the parties' relevant intent, knowledge, access to information and opportunity to correct or prevent such untrue statement or omission. The Company and the Underwriters agree that it would not be just and equitable if contributions pursuant to this subsection (d) were to be determined by pro rata allocation or by any other method of allocation that does not take account of the equitable considerations referred to in the first sentence of this subsection (d). The amount paid by an indemnified party as a result of the losses, claims, damages or liabilities referred to in the first sentence of this subsection (d) shall be deemed to include any

legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending against any action or claim that is the subject of this subsection (d). Notwithstanding the provisions of this subsection (d), the Underwriters shall not be required to contribute any amount in excess of the amount of the Underwriters' discounts commissions set forth in the table on the cover of the Prospectus. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation.

(e) The obligations of the Company under this Section 7 shall be in addition to any liability that the Company may otherwise have and the benefits of such obligations shall extend, upon the same terms and conditions, to each person, if any, who controls the Underwriters within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act; and the obligations of the Underwriters under this Section 7 shall be in addition to any liability that the Underwriters may otherwise have and the benefits of such obligations shall extend, upon the same terms and conditions, to the Company, and officers, directors and each person who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act.

(f) For purposes of this Agreement, the Underwriters confirm, and the Company acknowledges, that there is no information concerning the Underwriters furnished in writing to the Company by the Underwriters specifically for preparation of or inclusion in the Registration Statement, the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus, other than the statements set forth in the statements set forth in the "Underwriting" section of the Prospectus and Time of Sale Disclosure Package, only insofar as such statements relate to the amount of selling concession and re-allowance or to over-allotment and related activities that may be undertaken by the Underwriters, and the information contained in the [___] paragraphs under the caption "Underwriting" in each of the preliminary prospectus and Prospectus (collectively, the "Underwriters' Information").

8. Substitution of Underwriters. If any Underwriter shall default in its obligation to purchase on any Closing Date the Shares agreed to be purchased hereunder on such Closing Date, the Representative shall have the right, within 36 hours thereafter, to make arrangements for one or more of the non-defaulting Underwriters, or any other underwriters, to purchase such Shares on the terms contained herein. If, however, the Representative shall not have completed such arrangements within such 36-hour period, then the Company shall be entitled to a further period of 36 hours within which to procure another party or other parties satisfactory to the Underwriters to purchase such Shares on such terms. If, after giving effect to any arrangements for the purchase of the Shares of a defaulting Underwriter or Underwriters by the Representative and the Company as provided above, the aggregate number of Shares which remains unpurchased on such Closing Date does not exceed one-eleventh of the aggregate number of all the Shares that all the Underwriters are obligated to purchase on such date, then the Company shall have the right to require each non-defaulting Underwriter to purchase the number of Shares which such Underwriter agreed to purchase hereunder at such date and, in addition, to require each non-defaulting Underwriter to purchase its pro rata share (based on the number of Shares which such Underwriter agreed to purchase hereunder) of the Shares of such defaulting Underwriter or Underwriters for which such arrangements have not been made; but nothing herein shall relieve a defaulting Underwriter from liability for its default. In any such case, either the Representative or the

Company shall have the right to postpone the applicable Closing Date for a period of not more than seven days in order to effect any necessary changes and arrangements (including any necessary amendments or supplements to the Registration Statement or Prospectus or any other documents), and the Company agrees to file promptly any amendments to the Registration Statement or the Prospectus which in the opinion of the Company and the Underwriters and their counsel may thereby be made necessary. If, after giving effect to any arrangements for the purchase of the Shares of a defaulting Underwriter or Underwriters by the Representative and the Company as provided above, the aggregate number of such Shares which remains unpurchased exceeds 10% of the aggregate number of all the Shares to be purchased at such date, then this Agreement, or, with respect to a Closing Date which occurs after the Firm Shares Closing Date, the obligations of the Underwriters to purchase, and of the Company, as the case may be, to sell, the Option Shares to be purchased and sold on such date, shall terminate, without liability on the part of any non-defaulting Underwriter to the Company, and without liability on the part of the Company, except that the provisions of Sections 5(a)(x) and 7 shall at all times be effective and shall survive such termination. The provisions of this Section 8 shall not in any way affect the liability of any defaulting Underwriter to the Company or the nondefaulting Underwriters arising out of such default. The term "Underwriter" as used in this Agreement shall include any person substituted under this Section 8 with like effect as if such person had originally been a party to this Agreement with respect to such Shares. If this Agreement is terminated by the Representative pursuant to this Section 8 hereof, the Company will have no obligation to reimburse any defaulting Underwriter.

9. Representations and Agreements to Survive Delivery. All representations, warranties, and agreements of the Company herein or in certificates delivered pursuant hereto, including, but not limited to, the agreements of the Underwriters and the Company contained in Section 5(a)(x) and Section 7 hereof, shall remain operative and in full force and effect regardless of any investigation made by or on behalf of the Underwriters or any controlling person thereof, or the Company or any of its officers, directors, or controlling persons, and shall survive delivery of, and payment for, the Shares to and by the Underwriters hereunder.

10. Termination of this Agreement.

(a) The Representative shall have the right to terminate this Agreement by giving notice to the Company as hereinafter specified at any time at or prior to the Closing Date, if in the discretion of the Representative, (i) (A) trading in the Common Stock shall have been suspended by the Commission or Nasdaq or (B) trading in securities generally on Nasdaq, the NYSE or NYSE American shall have been suspended, minimum or maximum prices for trading shall have been fixed, or maximum ranges for prices for securities shall have been required, on Nasdaq, the NYSE or NYSE American, by such exchange or by order of the Commission or any other governmental authority having jurisdiction, (ii) a banking moratorium shall have been declared by federal or state authorities, or (iii) there shall have occurred any attack on, outbreak or escalation of hostilities or act of terrorism involving the United States, any declaration by the United States of a national emergency or war, any substantial change or development involving a prospective substantial change in United States or international political, financial or economic conditions or any other calamity or crisis, the effect of which on financial markets is such as to make it, in the sole judgment of the Representative, impractical or inadvisable to proceed with the offering or delivery of the Shares as contemplated by the Registration Statement, the Time of Sale Disclosure Package, or the Prospectus. Any such termination shall be without liability of any party

to any other party except that the provisions of Section 5(a)(x) and Section 7 hereof shall at all times be effective and shall survive such termination.

(b) If the Representative elects to terminate this Agreement as provided in this Section, the Company shall be notified promptly by the Representative by telephone, confirmed by letter.

11. ***Notices***. Except as otherwise provided herein, all communications hereunder shall be in writing and, if to Representative, shall be mailed, delivered or telecopied to Oppenheimer & Co. Inc., 85 Broad Street, New York, NY 10004, Attention: Managing Director, with a copy to Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., 666 Third Avenue, New York, NY 10017, telecopy number: (212) 983-3115, Attention: Ivan K. Blumenthal; and if to the Company, shall be mailed, delivered or telecopied to it at 3545 John Hopkins Court, Suite 250, San Diego, CA 92121, telecopy number: (858) 731-8394, Attention: Sanjay S. Shukla, M.D., M.S., President and Chief Executive Officer, with a copy to Cooley LLP, 4401 Eastgate Mall, San Diego, CA 92121, telecopy number: (858) 550-6420, Attention: Sean M. Clayton; or in each case to such other address as the person to be notified may have requested in writing. Any party to this Agreement may change such address for notices by sending to the parties to this Agreement written notice of a new address for such purpose.

12. ***Persons Entitled to Benefit of Agreement***. This Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective successors and assigns and the controlling persons, officers and directors referred to in Section 7. Nothing in this Agreement is intended or shall be construed to give to any other person, firm or corporation any legal or equitable remedy or claim under or in respect of this Agreement or any provision herein contained. The term "successors and assigns" as herein used shall not include any purchaser, as such purchaser, of any of the Shares from the Underwriter.

13. ***Absence of Fiduciary Relationship***. The Company acknowledges and agrees that: (a) the Underwriters have been retained solely to act as underwriter in connection with the sale of the Shares and that no fiduciary, advisory or agency relationship between the Company and the Underwriters has been created in respect of any of the transactions contemplated by this Agreement, irrespective of whether the Underwriters have advised or are advising the Company on other matters; (b) the price and other terms of the Shares set forth in this Agreement were established by the Company following discussions and arms-length negotiations with the Underwriters and the Company is capable of evaluating and understanding and understands and accepts the terms, risks and conditions of the transactions contemplated by this Agreement; (c) it has been advised that the Underwriters and their affiliates are engaged in a broad range of transactions that may involve interests that differ from those of the Company and that the Underwriters have no obligation to disclose such interest and transactions to the Company by virtue of any fiduciary, advisory or agency relationship; and (d) it has been advised that the Underwriters are acting, in respect of the transactions contemplated by this Agreement, solely for the benefit of the Underwriters, and not on behalf of the Company.

14. ***Entire Agreement***. Other than Section 7 of that certain Engagement Letter entered into by and between the Company and the Representative, which shall remain in effect for a period of six (6) months from the Firm Shares Closing Date, this Agreement represents the entire

agreement of the parties and supersedes all prior or contemporaneous written or oral agreements between them concerning the offer and sale of the Shares.

15. ***Amendments and Waivers***. No supplement, modification or waiver of this Agreement shall be binding unless executed in writing by the party to be bound thereby. The failure of a party to exercise any right or remedy shall not be deemed or constitute a waiver of such right or remedy in the future. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provision hereof (regardless of whether similar), nor shall any such waiver be deemed or constitute a continuing waiver unless otherwise expressly provided.

16. ***Partial Unenforceability***. The invalidity or unenforceability of any section, paragraph, clause or provision of this Agreement shall not affect the validity or enforceability of any other section, paragraph, clause or provision.

17. ***Governing Law***. This Agreement shall be governed by and construed in accordance with the laws of the State of New York.

18. ***Submission to Jurisdiction***. The Company irrevocably (a) submits to the jurisdiction of any court of the State of New York for the purpose of any suit, action, or other proceeding arising out of this Agreement, or any of the agreements or transactions contemplated by this Agreement, the Registration Statement and the Prospectus (each a "Proceeding"), (b) agrees that all claims in respect of any Proceeding may be heard and determined in any such court, (c) waives, to the fullest extent permitted by law, any immunity from jurisdiction of any such court or from any legal process therein, (d) agrees not to commence any Proceeding other than in such courts, and (e) waives, to the fullest extent permitted by law, any claim that such Proceeding is brought in an inconvenient forum. THE COMPANY (ON BEHALF OF ITSELF AND, TO THE FULLEST EXTENT PERMITTED BY LAW, ON BEHALF OF ITS RESPECTIVE EQUITY HOLDERS AND CREDITORS) HEREBY WAIVES ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY CLAIM BASED UPON, ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT AND THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT, THE REGISTRATION STATEMENT, AND THE PROSPECTUS.

19. ***Counterparts***. This Agreement may be executed and delivered (including by facsimile transmission and electronic mail attaching a portable document file (.pdf)) in one or more counterparts and, if executed in more than one counterpart, the executed counterparts shall each be deemed to be an original and all such counterparts shall together constitute one and the same instrument.

Please sign and return to the Company the enclosed duplicates of this Agreement whereupon this Agreement will become a binding agreement between the Company and the Representative in accordance with its terms.

Very truly yours,

ATYR PHARMA, INC.

By:
Name:
Title:

Confirmed as of the date first above-mentioned by
the Representative.

OPPENHEIMER & CO. INC.
as the Representative of the several
Underwriters listed on Schedule I

By:
Name:
Title:

SCHEDULE I

	Number of Firm Shares to be Purchased from the Company
Oppenheimer & Co. Inc.	
Roth Capital Partners, LLC	
Total	

SCHEDULE II

Free Writing Prospectus

SCHEDULE III

Form of Lock-Up Agreement

FORM OF LOCK-UP AGREEMENT

_____, 2020

Oppenheimer & Co. Inc.
as Representative of the Several Underwriters
c/o Oppenheimer & Co. Inc.
85 Broad Street
New York, New York 10004

Re: Public Offering of aTyr Pharma, Inc.

Ladies and Gentlemen:

The undersigned, a holder of common stock, par value $0.001 per share ("**Common Stock**"), or rights to acquire Common Stock, of aTyr Pharma, Inc. (the "**Company**"), understands that Oppenheimer & Co. Inc. (the "**Representative**"), as Representative of the several Underwriters, proposes to enter into an Underwriting Agreement (the "**Underwriting Agreement**") with the Company, providing for the public offering (the "**Offering**") by the several underwriters named in Schedule I to the Underwriting Agreement (the "**Underwriters**"), of Common Stock (the "**Securities**") pursuant to a registration statement on Form S-1.

In consideration of the Underwriters' agreement to enter into the Underwriting Agreement and to proceed with the Offering, and for other good and valuable consideration, receipt of which is hereby acknowledged, the undersigned hereby agrees for the benefit of the Company, you and the other Underwriters that, without the prior written consent of the Representative on behalf of the Underwriters, the undersigned will not, from the date hereof through the period ending 90 days (the "**Lock-Up Period**") following the date of the Underwriting Agreement, directly or indirectly, unless otherwise provided herein, (1) offer, pledge, assign, publicly announce the intention to sell, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, any Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock owned either of record or beneficially (as defined in the Securities Exchange Act of 1934, as amended (the "**Exchange Act**")) by the undersigned on the date hereof or hereafter acquired (the "**Lock-Up Securities**") or (2) enter into any swap, hedge or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the Lock-Up Securities, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of Common Stock or such other securities, in cash or otherwise, or publicly announce an intention to do any of the foregoing. In addition, the undersigned agrees that, without the prior written consent of the Representative, it will not, during the Lock-Up Period, make any demand for or exercise any right with respect to, the registration of any Common Stock or any security convertible into or exercisable or exchangeable for Common Stock. The foregoing shall not apply to (a) the Lock-Up Securities to be transferred as a bona fide gift or gifts (provided that any donee thereof agrees in

writing to be bound by the terms hereof), (b) the transfer of the Lock-Up Securities (1) to any immediate family member (provided that any such recipient agrees in writing to be bound by the terms hereof) or to any trust for the direct or indirect benefit of the undersigned or the immediate family of the undersigned, (2) if the undersigned is a corporation, partnership, limited liability company, trust or other business entity (A) to another corporation, partnership, limited liability company, trust or other business entity that is a direct or indirect affiliate (as defined in Rule 405 promulgated under the Securities Act of 1933, as amended) of the undersigned or (B) to limited partners, limited liability company members or stockholders of the undersigned (provided that any such transfer in this clause (2) shall not involve a disposition for value), (3) if the undersigned is a trust, to the beneficiary of such trust, (4) by testate succession or intestate succession, (5) pursuant to any contract, instruction or plan that satisfies all of the requirements of Rule 10b5-1 under the Exchange Act established prior to the date of this letter agreement (the "**Letter Agreement**"), (6) to a nominee or custodian of a person or entity to whom a disposition or transfer would be permissible under clauses (1)-(5) above, or (7) by operation of law or by an order of a court or regulatory agency, such as pursuant to a qualified domestic order or in connection with a divorce settlement; *provided*, in the case of clauses (1)-(6), that the transferee agrees in writing with the Representative and the Company to be bound by the terms of this Letter Agreement, (c) the exercise or settlement of options, warrants or other rights to acquire shares of Common Stock of the Company, or any security convertible into or exercisable for shares of Common Stock of the Company in accordance with their terms (including the vesting or settlement of restricted stock units), (d) the transfer of Lock-Up Securities with the prior written consent of the Representative on behalf of the Underwriters, (e) the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of Common Stock, *provided* that such plan does not provide for the transfer of Common Stock during the Lock-Up Period and no public announcement or filing under the Exchange Act regarding the establishment of such plan is required or voluntarily made by or on behalf of the undersigned or the Company during the Lock-Up Period.

Notwithstanding the foregoing, and subject to the conditions in this paragraph, the undersigned may also transfer the Lock-Up Securities without the prior written consent of the Representative if any such transfers are made by the undersigned: (i) to satisfy tax withholding or cashless exercise obligations of the undersigned in connection with the vesting, settlement or exercise of equity awards outstanding as of the date of the preliminary prospectus for the Offering by the undersigned pursuant to the Company's equity compensation plans and arrangements; (ii) pursuant to the sale of, or an offer to purchase, all or substantially all of the outstanding Common Stock, whether pursuant to a merger, tender offer or otherwise; or (iii) in connection with the repurchase of Lock-Up Securities by the Company pursuant to any contractual arrangement in effect on the date of this Letter Agreement that provides for the repurchase of such securities, or in connection with the termination of the undersigned's services to the Company; *provided*, *however*, that in the case of any transfer described in clause (i) of this paragraph, it shall be a condition to the transfer that if the undersigned is required to file a report under Section 16(a), the undersigned shall include a statement in such report to the effect that such transfer is being made for tax withholding or cashless exercise obligations; and *provided further* that in the case of any conversion or sale described in clause (ii) of this paragraph, in the event that such transaction is abandoned, the Lock-Up Securities shall remain subject to the restrictions hereunder. Furthermore, the undersigned may transfer shares of Common Stock purchased by the undersigned in the Offering or in the open market following the Offering if and only if (i) such transfers are not

required to be reported in any public report or filing with the Securities and Exchange Commission, or otherwise and (ii) the undersigned does not otherwise voluntarily effect any public filing or report regarding such transfers (other than a filing under Section 13 of the Exchange Act that is required to be filed during the Lock-Up Period).

In furtherance of the foregoing, the Company, and any duly appointed transfer agent for the registration or transfer of the Lock-Up Securities described herein, are hereby authorized to decline to make any transfer of securities if such transfer would constitute a violation or breach of this Letter Agreement.

The undersigned hereby represents and warrants that the undersigned has full power and authority to enter into this Letter Agreement. All authority herein conferred or agreed to be conferred and any obligations of the undersigned shall be binding upon the successors, assigns, heirs or personal representatives of the undersigned.

The undersigned understands that, if (i) the Underwriting Agreement does not become effective within ninety (90) days of the date of this Letter Agreement, (ii) if the Underwriting Agreement (other than the provisions thereof which survive termination) shall terminate or be terminated prior to payment for and delivery of the Securities to be sold thereunder, or (iii) the Company advises the Representative in writing prior to the execution of the Underwriting Agreement that it has determined not to proceed with the Offering, the undersigned shall be released from all obligations under this Letter Agreement.

The undersigned, whether or not participating in the Offering, understands that the Underwriters are entering into the Underwriting Agreement and proceeding with the Offering in reliance upon this Letter Agreement.

[Signature page follows.]

This Letter Agreement shall be governed by and construed in accordance with the laws of the State of New York, without regard to the conflict of laws principles thereof (other than New York General Obligations Law § 5-1401).

Very truly yours,

By: _____
Name:
Title:

SCHEDULE IV

List of Lock-Up Parties

1. Sanjay Shukla, M.D., M.S.
2. Jill Broadfoot
3. Nancy Denyes
4. Jim Blair, Ph.D.
5. John Clarke
6. Tim Coughlin
7. Jane Gross, Ph.D.
8. Jeffrey Hatfield
9. Svetlana Lucas, Ph.D.
10. Paul Schimmel, Ph.D.

Exhibit 10.21

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE ATYR PHARMA, INC. HAS DETERMINED THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD LIKELY CAUSE COMPETITIVE HARM TO ATYR PHARMA, INC. IF PUBLICLY DISCLOSED.

COLLABORATION AND LICENSE AGREEMENT

This COLLABORATION AND LICENSE AGREEMENT (this "**Agreement**"), dated as of January 6, 2020 (the "**Effective Date**"), is entered into by and between aTyr Pharma, Inc., a Delaware corporation ("**aTyr**"), and KYORIN Pharmaceutical Co., Ltd., a corporation organized under the laws of Japan ("**Kyorin**"). aTyr and Kyorin are referred to in this Agreement individually as a "**Party**" and collectively as the "**Parties**".

RECITALS:

WHEREAS, aTyr is a biotherapeutics company engaged in the discovery and development of innovative medicines based on novel immunological pathways, including ATYR1923, a selective modulator of Neuropilin-2 in development to treat interstitial lung diseases ("**ILD**");

WHEREAS, Kyorin and its Affiliates, as defined herein, possess expertise in developing, marketing and selling pharmaceutical products; and

WHEREAS, aTyr and Kyorin desire to collaborate to Develop and Commercialize the Licensed Products in the Field (as such capitalized terms are defined herein), as more fully described in this Agreement.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants herein contained, the Parties hereby agree as follows:

1. DEFINITIONS

Unless specifically set forth to the contrary herein, the following terms, whether used in the singular or plural, will have the respective meanings set forth below:

1.1. "**Accounting Standards**" means GAAP, as generally and consistently applied throughout the Party's organization. Each Party will promptly notify the other in the event that it changes the Accounting Standards pursuant to which its records are maintained; *provided*, *however*, that each Party may only use internationally recognized accounting principles (*e.g.* IFRS, GAAP, etc.).

1.2. "**Acquirer**" means, collectively, the Third Party referenced in the definition of Change of Control (Section 1.27) and such Third Party's Affiliates, other than the applicable Party in the definition of Change of Control and such Party's Affiliates, determined as of immediately prior to the closing of such Change of Control.

1.3. "**Additional Development Activities**" has the meaning set forth in Section 3.4.1.

1.4. "**Additional Development Proposal**" has the meaning set forth in Section 3.4.1.

1.5. "**Additional Indication**" means an ILD Indication other than the Lead Indication.

1.6. "**Affiliate**" means, with respect to a Person, any other Person that controls, is controlled by, or is under common control with such Person. For purposes of this Agreement, a Person will be deemed to control another Person if it owns or controls, directly or indirectly, more than fifty percent (50%) of the equity securities of such other Person entitled to vote in the election of directors (or, in the case that such

other Person is not a corporation, for the election of the corresponding managing authority), or otherwise has the power to direct the management and policies of such other Person. The Parties acknowledge that in the case of certain entities organized under the laws of certain countries outside the United States, the maximum percentage ownership permitted by Law for a foreign investor may be less than fifty percent (50%), and that in such case such lower percentage will be substituted in the preceding sentence, *provided* that such foreign investor has the power to direct the management and policies of such entity. For clarity, a Person may be or become an Affiliate of another Person and may cease to be an Affiliate of such Person, in each case, during the Term.

1.7. "**Alliance Manager**" has the meaning set forth in Section 2.1.

1.8. "**Annual Net Sales**" mean Net Sales recorded in a given Calendar Year.

1.9. "**ATYR1923**" means the molecule described on a schedule to the Letter Agreement.

1.10. "**aTyr Affiliate**" means Pangu Biopharma Ltd. or any other Affiliate of aTyr that is controlled by aTyr (within the meaning of controlled set forth in Section 1.6).

1.11. "**aTyr Development Plan**" has the meaning set forth in Section 3.2.3.

1.12. "**aTyr Indemnitees**" has the meaning set forth in Section 11.1.

1.13. "**aTyr Licensed Know-How**" means any and all Know-How Controlled by aTyr or aTyr Affiliates (solely or jointly with a Third Party) (a) in existence as of the Effective Date, or (b) arising during the Term, that, in each case of clauses (a) and (b), is necessary for the Development or Commercialization of any Licensed Products in the Field in the Kyorin Territory, excluding aTyr's interest in the New Joint IP.

1.14. "**aTyr Licensed Patents**" means (a) the Patents listed on a schedule to the Letter Agreement and (b) any and all Patents Controlled by aTyr or aTyr Affiliates (solely or jointly with a Third Party) arising during the Term that are necessary for or Cover the Development or Commercialization of any Licensed Products in the Field in the Kyorin Territory, excluding aTyr's interest in the Joint Patents.

1.15. "**aTyr Licensed Technology**" means, collectively, the aTyr Licensed Know-How and the aTyr Licensed Patents.

1.16. "**aTyr Territory**" means, with respect to any Licensed Product, all countries of the world, except for Japan.

1.17. "**aTyr Trademarks**" has the meaning set forth in Section 12.10.2.

1.18. "**Bankrupt Party**" has the meaning set forth in Section 7.3.

1.19. "**Bankruptcy Code**" has the meaning set forth in Section 13.4.

1.20. "**Best Knowledge**" means the actual knowledge, after reasonable investigation, of any of the executive officers of aTyr or aTyr Affiliates, which will be listed on a schedule to the Letter Agreement.

1.21. "**Biosimilar Product**" means, with respect to a Licensed Product in the Field in the Kyorin Territory, a product introduced in the Kyorin Territory by a Person other than Kyorin or its Related Parties that (a) has obtained Regulatory Approval by a Regulatory Authority pursuant to a process that relies on

pivotal safety or efficacy data from such Regulatory Authority's previous grant of Regulatory Approval for such Licensed Product; or (b) otherwise meets the criteria for constituting a "biosimilar" or "interchangeable" product pursuant to the relevant notifications from the Japanese Ministry of Health, Labour and Welfare or any successors thereto.

1.22. "**BLA**" means a Biologics License Application (as defined in 21 C.F.R. 600 et. seq.) or substantially similar application or submission filed with a Regulatory Authority in the Kyorin Territory to obtain Regulatory Approval to market a product in the Kyorin Territory, and any amendments or supplements thereto.

1.23. "**Brief**" has the meaning set forth in Section 14.3.4.3(b).

1.24. "**Business Day**" means a day other than a Saturday, Sunday or a bank or other public holiday in California, United States or in Tokyo, Japan.

1.25. "**Calendar Quarter**" means the respective periods of three (3) consecutive calendar months ending on March 31, June 30, September 30 and December 31 of each Calendar Year.

1.26. "**Calendar Year**" means each successive period of twelve (12) months commencing on January 1 and ending on December 31.

1.27. "**Change of Control**" means, with respect to a Party, (a) a merger or consolidation of such Party with a Third Party that results in the voting securities of such Party outstanding immediately prior thereto, or any securities into which such voting securities have been converted or exchanged, ceasing to represent at least fifty percent (50%) of the combined voting power of the surviving entity or the parent of the surviving entity immediately after such merger or consolidation, (b) a transaction or series of related transactions in which a Third Party, together with its Affiliates, becomes the direct or indirect beneficial owner of fifty percent (50%) or more of the combined voting power of the outstanding securities of such Party, or (c) the sale or other transfer to a Third Party of all or substantially all of such Party's and its controlled Affiliates' assets. Notwithstanding the foregoing, any transaction or series of transactions effected for the primary purpose of financing the operations of the applicable Party or changing the form or jurisdiction of organization of such Party will not be deemed a "Change of Control" for purposes of this Agreement.

1.28. "**Clinical Study**" means a Phase 1 Study, Phase 2 Study, Phase 3 Study, Post-Marketing Study, Supplemental Study or other study (including a non-interventional study) in humans to obtain information regarding the product, including information relating to the safety, tolerability, pharmacological activity, pharmacokinetics, dose ranging or efficacy of the product.

1.29. "**Clinical Supply Agreement**" has the meaning set forth in Section 6.2.

1.30. "**CMC**" means Chemistry, Manufacturing and Controls, which includes (a) Manufacturing process development records for products, (b) all chemistry, Manufacturing and control procedures necessary for Manufacture of products, and (c) sourcing and testing of all raw materials and components used in the Manufacture of products.

1.31. "**CMC Activities**" has the meaning set forth in Section 3.5.

1.32. "**CMC Work Plan**" means the work plan detailing the CMC Activities to be undertaken by aTyr as approved by the JSC as set forth in Section 3.5, as amended with approval by the JSC.

1.33. "**Collaboration**" means the activities of the Parties for the Development and Commercialization of Licensed Products in the Field in the Kyorin Territory and in the aTyr Territory, as described in this Agreement.

1.34. "**Commencement**" means, with respect to a Clinical Study, the first dosing of the first subject in such Clinical Study.

1.35. "**Commercialization**" **or** "**Commercialize**" means any and all activities directed to marketing, promoting, distributing, importing, exporting, using, offering to sell or selling a product, and activities directed to obtaining Pricing Approvals, as applicable.

1.36. "**Commercialization Plan**" has the meaning set forth in Section 4.2.

1.37. "**Commercially Reasonable Efforts**" means, with respect to the performance of specified obligations herein by aTyr or Kyorin with respect to the Development or Commercialization of any Licensed Product, that level and quality of efforts and resources commonly dedicated in the branded products pharmaceutical industry by a company to the performance of such obligations in the context of Developing or Commercializing a product of similar commercial potential at a similar stage in its lifecycle to the Licensed Product, in each case taking into account issues of safety and efficacy, product profile, the proprietary position, the then-current competitive environment for such product and the likely timing of such product's entry into the market, in each case as measured by the facts and circumstances at the time such efforts are due; *provided*, *however*, that Commercially Reasonable Efforts will not include consideration of (i) any pharmaceutical product, other than a Licensed Product, that Kyorin is then researching, Developing, Manufacturing or Commercializing, alone or with one or more collaborators, or (ii) the payments required to be made by Kyorin to aTyr pursuant to this Agreement.

1.38. "**Commercial Supply Agreement**" has the meaning set forth in Section 6.2.

1.39. "**Competing Product**" means any pharmaceutical or medicinal preparation that [***].

1.40. "**Competitive Infringement**" means, for a Licensed Product on a country-by-country basis, where the making, using, selling, offering for sale, or importing, by any Third Party (other than any Sublicensee or authorized purchaser or other transferee of such Licensed Product by either Party), of any pharmaceutical product in a Party's Territory is Covered by a Valid Claim of (a) an aTyr Licensed Patent, a Joint Patent or a Kyorin Controlled Patent (in the case of the Kyorin Territory) or (b) a Patent Controlled by aTyr, a Joint Patent or a Kyorin Controlled Patent (in the case of the aTyr Territory). For clarity, filing of a Biosimilar Application (or substantially similar application or submission filed with a Regulatory Authority in the Kyorin Territory) with respect to a Licensed Product as the reference product by any such Third Party will be deemed to be Competitive Infringement.

1.41. "**Competitive (aTyr) Infringement**" means Competitive Infringement with respect to any Licensed Product in the aTyr Territory.

1.42. "**Competitive (Kyorin) Infringement**" means Competitive Infringement with respect to any Licensed Product in the Kyorin Territory.

1.43. "**Completion**" means, with respect to a Clinical Study, the last visit of the last subject in such Clinical Study.

1.44. "**Confidential Information**" means any and all confidential or proprietary information and data and all other scientific, pre-clinical, clinical, regulatory, manufacturing, marketing, financial and

commercial information or data, whether communicated in writing or orally or by any other method, which is or has been provided by one Party to the other Party in connection with this Agreement.

1.45. "**Control**" means, with respect to any Patents or Know-How, the possession (whether by ownership, license or sublicense, other than by a license, sublicense or other right granted (but not assignment) pursuant to this Agreement) by a Party of the ability to assign or grant to the other Party the licenses, sublicenses or rights to access and use such Patents or Know-How as provided for in this Agreement, without (a) violating the terms of any agreement or other arrangement with any Third Party in existence as of the time such Party would be required hereunder to grant such license, sublicense, or rights of access and use, and (b) paying any consideration to any Third Party, except for that which a Party in-licenses and under which the other Party elects to take a sublicense pursuant to Section 7.2.1 or 7.2.2, as applicable, which will be considered under the Control of such Party. Notwithstanding anything in this Agreement to the contrary, a Party will be deemed not to Control any Patents or Know-How that are owned or in-licensed by an Acquirer except with respect to any such Patents or Know-How arising from or used in active participation by employees or consultants of the Acquirer in the Collaboration after such Change of Control.

1.46. "**Cost of Goods**" means, with respect to the supply price for the Licensed Product: (i) if the Licensed Product is Manufactured by aTyr, the following amounts: (a) the costs of [***] in the Manufacture of the Licensed Product; (b) [***] of the production facilities utilized in the production of the Licensed Product; (c) the costs of [***]; (d) [***] costs, other than any included in the clause (b) above; (e) [***] costs and [***] costs calculated in conformity with Accounting Standards; and (f) the costs of [***], in each of case (b) through (f) to the extent allocable to the production of the Licensed Product, (ii) if the Licensed Product is Manufactured by one or more Third Parties, [***] for the Manufacture of the Licensed Product supplied by aTyr to Kyorin or its Related Parties, and (iii) in either case (clause (i) or (ii)) the Cost of Goods will be equal to the amount calculated as set forth in clause (i) or clause (ii), as applicable (the "**Calculated Amount**"), multiplied by (x) [***] if the Calculated Amount is equal to or greater than [***], or (y) [***] if the Calculated Amount is less than [***].

1.47. "**Cover**", "**Covering**" or "**Covered**" with respect to a Licensed Product under this Agreement or a product of a Third Party, means that, but for a license granted to a Person under a claim included in a Patent, the manufacture, use, sale, offer for sale or importation of such Licensed Product or such product, as applicable, in the Field in the relevant Territory by such Person would infringe such claim, where the reference to "claim" in this definition includes the claims of any pending patent application as if issued.

1.48. "**Develop**" and "**Development**" means any and all activities related to the pre-clinical development or non-clinical or pre-clinical studies, clinical drug development activities conducted before or after obtaining Regulatory Approval that are reasonably related to or leading to the development, preparation, or submission of data and information to a Regulatory Authority for the purpose of obtaining, supporting or expanding Regulatory Approval, including all activities related to pharmacokinetic profiling, design and conduct of Clinical Studies (including Post-Marketing Studies), regulatory affairs, statistical analysis, report writing, and regulatory filing creation and submission (including the services of outside advisors and consultants in connection therewith). Activities that are within the definition of both the term "Development" and the term "Manufacture" (and their respective cognates) are hereby deemed to be included within "Manufacture" and excluded from "Development."

1.49. "**Development Costs**" means, with respect to a Licensed Product, those costs and expenses incurred in connection with the performance of any Development activities for such Licensed Product, including costs for full-time scientific or technical persons, fees charged by Third Party service providers, and other Out-of-Pocket Costs, costs and expenses incurred in connection with the performance of any

Clinical Study for such Licensed Product, and costs related to [***] plus [***] attributable to the performance of such Development activities (including [***], but in all cases excluding [***]).

1.50. "**Disputes**" has the meaning set forth in Section 14.3.1.

1.51. "**Distributor**" means a Third Party that (i) purchases any Licensed Product in finished form from or at the direction of Kyorin or any of its Affiliates or Sublicensees, (ii) has the right solely to resell such Licensed Product in the Kyorin Territory, (iii) has no right to Commercialize or Develop any Licensed Product (other than the limited right to resell Licensed Product as set forth in the preceding clause (ii)), and (iv) receives no compensation or other consideration with respect to any Licensed Product other than the sales price paid by the purchaser.

1.52. "**Dollars**" or "**$**" means the legal tender of the United States of America.

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

1.54. "**Executive Officer**" means, for each Party, its Chief Executive Officer or another senior executive designee with responsibilities and seniority comparable thereto, ***provided*** that any of the foregoing individuals may designate the Chief Financial Officer as his/her designee for financial related matters. In the event that the position of any of the Executive Officers identified in this Section 1.54 no longer exists due to a Change of Control, corporate reorganization, corporate restructuring or the like that results in the elimination of the identified position, the applicable Executive Officer will be replaced with another executive officer with responsibilities and seniority comparable to the eliminated Executive Officer.

1.55. "**Expedited Arbitration**" has the meaning set forth in Section 14.3.4.1.

1.56. "**Expedited Dispute**" has the meaning set forth in Section 14.3.4.1.

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

1.58. "**FD&C Act**" means the United States Federal Food, Drug and Cosmetic Act, as amended.

1.59. "**Field**" means the treatment of the Lead Indication in humans or any Additional Indication approved by the JSC in humans.

1.60. "**First Commercial Sale**" means, on a Licensed Product-by-Licensed Product basis, the first commercial sale in an arms' length transaction of a Licensed Product to a Third Party by Kyorin or any of its Related Parties in the Kyorin Territory following receipt of applicable Regulatory Approval of such Licensed Product in the Kyorin Territory.

1.61. "**First-in-Patient Study**" means the first Clinical Study of a Licensed Product in a target patient population or indication (*e.g.*, a Phase 2 Study).

1.62. "**FTC**" means the U.S. Federal Trade Commission or any successor agency thereto.

1.63. "**GAAP**" means generally accepted accounting principles as practiced in the United States or in Japan, as consistently applied.

1.64. "**Global Development Plan**" has the meaning set forth in Section 3.2.1.

1.65. "**Governmental Authority**" means any applicable government authority, court, tribunal, arbitrator, agency, department, legislative body, commission or other instrumentality of (a) any government of any country or territory, (b) any nation, state, province, county, city or other political subdivision thereof or (c) any supranational body.

1.66. "**Healthy Volunteer Study**" means the first Clinical Study of a Licensed Product in a healthy volunteer (*e.g.*, Phase 1 Study).

1.67. "**ICC**" has the meaning set forth in Section 14.3.3.

1.68. "**IFRS**" means International Financial Reporting Standards, as consistently applied.

1.69. "**ILD**" has the meaning set forth in the Recitals.

1.70. "**ILD Indication**" means any of the following separate and distinct diseases, disorders and illnesses: (a) connective tissue disease-associated ILD (including but not limited to systemic sclerosis-associated ILD; rheumatoid arthritis-associated ILD or polymyositis / dermatomyositis-associated ILD), (b) chronic hypersensitivity pneumonitis (CHP) or extrinsic allergic alveolitis (including but not limited to summer type hypersensitivity pneumonitis; bird fancier's lung or farmer's lung), (c) pulmonary sarcoidosis, (d) idiopathic pulmonary fibrosis, or (e) any other form of lung disease that may be classified as a disease or disease state of the lung interstitium. For purposes of this Section 1.70, an ILD Indication may comprise [***].

1.71. "**IND**" means an Investigational New Drug Application, as defined in the FD&C Act, together with any rules and regulations promulgated thereunder, or similar application or submission that is required to be filed with any Regulatory Authority anywhere in the world before beginning clinical testing of an investigational drug or biological product in human subjects.

1.72. "**IND Safety Reporting**" has the meaning set forth in Section 1.129.

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

1.74. "**Indemnifying Party**" has the meaning set forth in Section 11.3.

1.75. "**Joint Patents**" has the meaning set forth in Section 12.5.3.1.

1.76. "**Joint Steering Committee**" or "**JSC**" has the meaning set forth in Section 2.2.1.

1.77. "**JRA Exception**" has the meaning set forth in Section 12.1.2.

1.78. "**Know-How**" means all commercial, technical, scientific and other know-how and information, trade secrets, knowledge, technology, methods, processes, practices, formulae, instructions, skills, techniques, procedures, experiences, ideas, technical assistance, designs, drawings, assembly procedures, computer programs, specifications, data and results (including biological, chemical, pharmacological, toxicological, pharmaceutical, physical and analytical, preclinical, clinical, safety, manufacturing and quality control data and know-how, including regulatory data, study designs and protocols), and Materials, in all cases, whether or not confidential, proprietary or patentable, in written, electronic or any other form now known or hereafter developed.

1.79. "**Kyorin Background Patents**" has the meaning set forth in Section 12.5.1.1.

1.80. "**Kyorin Background Technology**" means any and all Patents and Know-How Controlled by Kyorin or its Affiliates (solely or jointly with a Third Party) (a) in existence as of the Effective Date, or (b) arising during the Term but independently from this Agreement, that, in each case of clause (a) and (b), are necessary for or Cover the Development or Commercialization of any Licensed Products in the Field, and, for clarity, excluding the New Kyorin IP and Kyorin's interest in the New Joint IP.

1.81. "**Kyorin Controlled Patents**" has the meaning set forth in Section 12.5.1.1.

1.82. "**Kyorin Development Plan**" has the meaning set forth in Section 3.2.2.

1.83. "**Kyorin Indemnitees**" has the meaning set forth in Section 11.2.

1.84. "**Kyorin Territory**" means Japan.

1.85. "**Kyorin Trademarks**" has the meaning set forth in Section 12.10.2.

1.86. "**Laws**" means all applicable laws, statutes, rules, regulations, orders, judgments, injunctions, ordinances or other pronouncements having the binding effect of law of any Governmental Authority, including if either Party is or becomes subject to a legal obligation to a Regulatory Authority or other Governmental Authority (such as a corporate integrity agreement or settlement agreement with a Governmental Authority).

1.87. "**Lead Indication**" means the ILD Indication identified in the approved Development Plan as the Lead Indication, which will initially be pulmonary sarcoidosis.

1.88. "**Letter Agreement**" means the letter agreement dated as of the Effective Date providing for delivery of schedules by aTyr to Kyorin.

1.89. "**Licensed Product**" means any pharmaceutical preparation containing as an active ingredient ATYR1923 in any form, including intravenous, infusion, subcutaneous injection (self-injection) or other form. For clarity, Licensed Product will include a pharmaceutical preparation containing ATYR1923 in combination with one or more other active ingredients.

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

1.91. "**Manufacturing**" or "**Manufacture**" means all activities related to the manufacture of Licensed Products, including, but not limited to, manufacturing supplies for Development or Commercialization, packaging, process development, in-process and finished product testing, release of product or any component or ingredient thereof, quality assurance and quality control activities related to manufacturing and release of product, ongoing stability tests, storage, shipment, and regulatory activities related to any of the foregoing.

1.92. "**Materials**" means all tangible compositions of matter, devices, articles of manufacture, assays, biological, chemical or physical materials and other similar materials.

1.93. "**Multi-Regional Clinical Trials Principles**" means the principle that the Clinical Study of the Licensed Products, including such activities as clinical trial planning and design, will be conducted so as to harmonize with the Clinical Study of the Licensed Products in the Kyorin Territory and the aTyr Territory in accordance with ICH Harmonized Guideline – General Principles for Planning and Design of Multi-Regional Clinical Trials – (Final version adopted on 16 November 2017).

1.94. "**Net Sales**" means the actual price invoiced by Kyorin or its Related Parties for the sale of Licensed Product to a Third Party in an arm's length transaction, less:

(i) [***];

(ii) [***],

(iii) [***],

(iv) [***], and

(v) [***],

in each case (i) through (v), to the extent actually incurred or allowed with respect to the sale of Licensed Product and identified on the invoice or documented separately. Net Sales will not include sales of Licensed Product between or among Kyorin and its Related Parties if such Licensed Product is intended for subsequent sale to a Third Party that is not a Related Party (but Net Sales will include such subsequent sale by Kyorin or its Related Parties).

Subject to the foregoing where Licensed Product is:

(a) [***];

(b) [***]; or

(c) [***],

then the amount allocated to Net Sales of such Licensed Product will be deemed to be [***].

[***] (as applicable) will determine the deemed Net Sales amount in good faith, based on then current information regarding [***]. If [***] has a valid, supportable concern or dispute regarding [***] determination of such deemed Net Sales amount, the Parties will meet to discuss in good faith the manner in which the deemed Net Sales amount was determined, taking into consideration [***] and, in the absence of agreement as to such deemed Net Sales amount, the issue will be referred to an independent valuer acceptable to both Parties.

1.95. "**Neuropilin Receptor**" means Neuropilin-2A or Neuropilin-2B, each a transmembrane receptor.

1.96. "**New-Controlling Party**" has the meaning set forth in Section 12.6.4.1.

1.97. "**New aTyr IP**" has the meaning set forth in Section 12.2.1.

1.98. "**New Joint IP**" has the meaning set forth in Section 12.2.3.

1.99. "**New Kyorin IP**" has the meaning set forth in Section 12.2.2.

1.100. "**New Kyorin Patents**" has the meaning set forth in Section 12.5.1.1.

1.101. "**NHI Price Listing**" means the approval of a Licensed Product for a given ILD Indication for inclusion on the National Health Insurance list in the Kyorin Territory.

1.102. "**Non-Bankrupt Party**" has the meaning set forth in Section 7.3.

1.103. "**On-going aTyr Clinical Study**" means the Clinical Study of a Licensed Product being conducted in the aTyr Territory on the Effective Date, the official title of which is "A Randomized, Double-Blind, Placebo-Controlled Multiple Ascending Dose Study of Intravenous ATYR1923 in Patients With Pulmonary Sarcoidosis" (https://clinicaltrials.gov/show/NCT03824392).

1.104. "**Out-of-Pocket Costs**" means, with respect to certain activities hereunder, direct expenses paid or payable by either Party or its Affiliates to Third Parties and specifically identifiable and incurred to conduct such activities for a Licensed Product, including payments to contract personnel (including contractors, consultants and subcontractors).

1.105. "**Patent**" means all patents and patent applications and all substitutions, divisions, continuations, continuations-in-part, any patent issued with respect to any such patent applications, any reissue, reexamination, utility models or designs, renewal or extension (including any supplementary protection certificate) of any such patent, and any confirmation patent or registration patent or patent of addition based on any such patent, and all counterparts thereof in any country.

1.106. "**Patent(s) Costs**" means the Out-of-Pocket Costs paid to outside legal counsel and other Third Parties (including to any licensor pursuant to any in-license), and filing and maintenance expenses, and internal costs and expenses, incurred in Prosecuting and Maintaining Patents and enforcing and defending them.

1.107. "**Person**" means any natural person, corporation, unincorporated organization, partnership, association, sole proprietorship, joint stock company, joint venture, limited liability company, trust or government, or Governmental Authority, or any other similar entity.

1.108. "**Phase 1 Study**" means a clinical study of an investigational product in subjects with the primary objective of characterizing its safety, tolerability, and pharmacokinetics and identifying a recommended dose range and regimen for future studies as described in 21 C.F.R. 312.21(a), or a comparable clinical study prescribed by the relevant Regulatory Authority in a country other than the United States.

1.109. "**Phase 2 Study**" means a clinical study having as its primary objective characterizing its activity in a specific disease state, including identifying a suitable dose and dosing regimen, as well as generating more detailed safety, tolerability, and pharmacokinetics information as described in 21 C.F.R. 312.21(b), or a comparable clinical study prescribed by the relevant Regulatory Authority in a country other than the United States including a human clinical trial that is also designed to satisfy the requirements of 21 C.F.R. 312.21(a) or corresponding foreign regulations and is subsequently optimized or expanded to satisfy the requirements of 21 C.F.R. 312.21(b) (or corresponding foreign regulations) or otherwise to enable a Phase 3 Study (*e.g.*, a phase 1/2 trial).

1.110. "**Phase 3 Study**" means a clinical study of an investigational product in patients that incorporates accepted endpoints for confirmation of statistical significance of efficacy with the aim to obtain Regulatory Approval in any country as described in 21 C.F.R. 312.21(c), or a comparable clinical study prescribed by the relevant Regulatory Authority in a country other than the United States.

1.111. "**Post-Marketing Study**" means a non-human or human clinical study of a product initiated after receipt of Regulatory Approval for such product in a country or territory, that is required by the Regulatory Authority in such country or territory to maintain the Regulatory Approval for such product in such country or territory, but excluding any Supplemental Study.

1.112. "**Pricing Approval**" means such governmental approval, agreement, determination or decision establishing prices for a product that can be charged or reimbursed in regulatory jurisdictions where the applicable Governmental Authorities approve or determine the price or reimbursement of pharmaceutical products.

1.113. "**Pricing Matters**" means all issues and decisions regarding (a) price, price terms and other contract terms with respect to product sales, including discounts, rebates, other price concessions and service fees to payors and purchasers and (b) reimbursement programs applicable to a product.

1.114. "**Proceeding**" means an action, suit or other proceeding before a governmental tribunal.

1.115. "**Promotional Materials**" has the meaning set forth in Section 4.4.

1.116. "**Prosecution and Maintenance**" means, with regard to a particular Patent, the preparation, filing, prosecution and maintenance of such Patent, as well as re-examinations, reissues and the like with respect to that Patent, together with the conduct of interferences, the defense of oppositions and other similar proceedings with respect to that Patent.

1.117. "**Registrational Clinical Study**" means any Clinical Study that is intended (as of the time the study is initiated) to generate the results and data sufficient to file for Regulatory Approval (*e.g.*, a Phase 3 Study).

1.118. "**Regulatory Approval**" means all approvals by Regulatory Authorities necessary for the Manufacture and Commercialization of a product for one or more indications in a country or regulatory jurisdiction, which may include satisfaction of all applicable regulatory and notification requirements, but not including any Pricing Approvals.

1.119. "**Regulatory Authority**" means any Governmental Authority involved in granting approvals for the Development, Manufacturing or Commercialization or Pricing Approval of pharmaceutical products, including the FDA, the European Medicines Agency, the European Commission, the Japanese Ministry of Health, Labour and Welfare and the Pharmaceuticals and Medical Devices Agency (or successor agency) in Japan.

1.120. "**Regulatory Milestone Event**" has the meaning set forth in Section 8.2.1.

1.121. "**Regulatory Milestone Payment**" has the meaning set forth in Section 8.2.1.

1.122. "**Regulatory Exclusivity**" means any exclusive marketing rights or data exclusivity rights with respect to a Licensed Product other than Patents conferred by any Regulatory Authority in the Kyorin Territory.

1.123. "**Regulatory Filing**" means any submission to a Regulatory Authority, including all applications, registrations, licenses, authorizations and approvals (including Regulatory Approvals), together with any related correspondence and documentation 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 and all clinical studies and tests, relating to a product and all data contained in any of the foregoing, including all INDs, BLAs, regulatory drug lists, advertising and promotion documents, clinical data, adverse event files and complaint files, and include any submission to a regulatory advisory board, marketing authorization application, and any supplement or amendment thereto.

1.124. "**Regulatory Materials**" means any regulatory notification, communication, correspondence, Regulatory Approvals and other filings made to, received from or otherwise conducted with a Regulatory Authority related to Developing, Manufacturing, obtaining marketing authorization, marketing, selling or otherwise Commercializing a pharmaceutical product in a particular country or jurisdiction.

1.125. "**Related Party(ies)**" means, with respect to a Party, such Party's Affiliates, permitted Sublicensees and any other Third Party that is involved in the Development and Commercialization of any Licensed Product, other than any Distributor.

1.126. "**Reversion License**" has the meaning set forth in Section 13.5.3.2.

1.127. "**Reversion Product**" has the meaning set forth in Section 13.5.3.1.

1.128. "**Royalty Term**" has the meaning set forth in Section 8.5.1.

1.129. "**Safety Concern**" means, with respect to any Licensed Product, (a) any safety concern required to be reported under 21 C.F.R. § 312.32 (or any successor or analogous Law outside of the United States) ("**IND Safety Reporting**") if an IND with respect to such Licensed Product was open at the time of the observation (or that would be so reportable if an IND was open at such time), or (b) a toxicity or drug safety issue or a Serious Adverse Event reasonably related to or observed in connection with Development or Commercialization activities with respect to a Licensed Product.

1.130. **"Sales Milestone Event"** has the meaning set forth in Section 8.3.1.

1.131. **"Sales Milestone Payment"** has the meaning set forth in Section 8.3.1.

1.132. "**SDEA**" has the meaning set forth in Section 5.5.

1.133. "**Serious Adverse Event**" means an adverse drug experience or circumstance that results in any of the following outcomes (a) death, (b) life-threatening condition, (c) inpatient hospitalization or a significant prolongation of existing hospitalization, (d) persistent or significant disability or incapacity or substantial disruption of the ability to conduct normal life functions, (e) a congenital anomaly/birth defect, or (f) significant intervention required to prevent permanent impairment or damage. Notwithstanding the foregoing, if the term "Serious Adverse Event" is defined in any Clinical Study protocol for a Licensed Product, the events described therein are deemed to be included in this definition (in addition to clauses (a) – (f) and not in limitation or replacement thereof) for all purposes under this Agreement.

1.134. "**Sublicensee**" means a Third Party to which a Party or its Affiliate has granted or grants rights, as permitted under this Agreement, to Develop or Commercialize any Licensed Products, or any further sublicensee of such rights (regardless of the number of tiers, layers or levels of sublicenses of such rights).

1.135. "**Supplemental Study**" means any clinical study (other than any Post-Marketing Study) for an additional indication or other label expansion for a Licensed Product beyond what is contemplated in the then-current Development Plan or the Global Development Plan, as applicable, or any health economic and outcomes research studies, in each case, as and to the extent approved by the JSC.

1.136. "**Supply Agreements**" has the meaning set forth in Section 6.2.

1.137. "**Technology Transfer Plan**" has the meaning set forth in Section 3.7.1.3(a).

1.138. "**Term**" has the meaning set forth in Section 13.1.

1.139. "**Territory**" means (a) with respect to aTyr, the aTyr Territory and (b) with respect to Kyorin, the Kyorin Territory.

1.140. "**Third Party**" means any Person other than Kyorin, aTyr or their respective Affiliates.

1.141. "**Third Party Action**" has the meaning set forth in Section 12.6.3.

1.142. "**Trademark**" means any trademark, trade name, service mark, service name, brand, domain name, trade dress, logo, slogan or other indicia of origin or ownership, including the goodwill and activities associated with each of the foregoing.

1.143. "**United States**" or "**U.S.**" means the United States and its territories, possessions and commonwealths.

1.144. "**Valid Claim**" means a claim of a Patent that (a) has not been rejected, revoked or held to be invalid or unenforceable by a court or other authority of competent jurisdiction, from which decision no appeal can be further taken, or (b) has not been finally abandoned, disclaimed or admitted to be invalid or unenforceable through reissue or disclaimer. In order to be a Valid Claim, any claim being prosecuted in a pending patent application must [***].

1.145. "**Withdrawing Party**" has the meaning set forth in Section 12.6.4.1.

1.146. "**Yearly Funding Plan**" means the yearly plan comprising aTyr's and aTyr Affiliates' [***] for the respective Calendar Year.

2. GOVERNANCE

2.1. **Alliance Manager**. Promptly following the Effective Date, each Party will designate an individual to facilitate communication and coordination of the Parties' activities under this Agreement relating to Licensed Products (each, an "**Alliance Manager**"). Each Alliance Manager may also serve as a representative of its respective Party on one or more committees.

2.2. **Joint Steering Committee**.

2.2.1. *Formation; Composition; Dissolution.* Within thirty (30) days after the Effective Date, the Parties will establish a committee (the "**Joint Steering Committee**" or "**JSC**") to provide strategic oversight of the Collaboration as set forth in this Section 2. Each Party will initially appoint three (3) representatives to the JSC, with each representative having knowledge and expertise in the Development and Commercialization of molecules and products similar to the Licensed Products, and having sufficient seniority within the applicable Party to provide meaningful input and make decisions arising within the scope of the JSC's responsibility. The JSC may change its size from time to time by mutual consent of the Parties, *provided* that the JSC will consist at all times of an equal number of representatives of each of aTyr and Kyorin. Each Party may replace its JSC representatives at any time upon written notice to the other Party. The JSC may invite non-members to participate in the discussions and meetings of the JSC, *provided* that such participants have no voting authority at the JSC and are bound under written obligations of confidentiality and non-use no less protective of the Parties' Confidential Information than those set forth in this Agreement. The JSC will be chaired on a Calendar Year basis by a chairperson alternately designated by aTyr or Kyorin. The initial chairperson of the JSC for the period commencing on the Effective Date and ending on December 31, 2020 will be an aTyr designated chairperson, who will then be replaced by a

Kyorin designated chairperson on January 1, 2021, and so forth. The JSC chairperson's responsibilities will include conducting meetings, including, when feasible, ensuring that objectives for each meeting are set and achieved. The JSC will exist for so long as there is at least one Licensed Product being Developed or Commercialized under this Agreement.

2.2.2. *Specific Responsibilities of the JSC*. The JSC will have the following responsibilities:

2.2.2.1. approving all Kyorin Development Plans for each Licensed Product and any amendments (including the proposed addition of any Clinical Study (including any Supplemental Study) to any existing Development Plan) or updates to any Kyorin Development Plans, including any Additional Development Activities by Kyorin;

2.2.2.2. reviewing and providing input on the Global Development Plan, including any Additional Development Activities by aTyr, alone or with Kyorin; *provided* that, certain aspects of the Global Development Plan may be redacted to omit information that is not relevant to Development and Commercialization within the Field in the Kyorin Territory;

2.2.2.3. approving the original CMC Work Plan as set forth in Section 3.5 and approving any amendments to the CMC Work Plan;

2.2.2.4. approving the [***] in the Kyorin Territory;

2.2.2.5. creating, implementing and reviewing the overall strategy regarding Regulatory Approval of Licensed Products in the Kyorin Territory, including content of label or other prescribing information;

2.2.2.6. without limiting Section 2.2.2.5, reviewing and providing input on any material Regulatory Filings to Regulatory Authorities for Regulatory Approval of Licensed Products in the Kyorin Territory;

2.2.2.7. without limiting Section 2.2.2.5, providing a forum to facilitate the flow of information between the Parties with respect to the Development and Regulatory Approval of the Licensed Products in the Kyorin Territory and the aTyr Territory;

2.2.2.8. approving any proposed Post-Marketing Studies for any Licensed Product in the Kyorin Territory;

2.2.2.9. approving the [***] in the Kyorin Territory and approving any proposed material changes thereto;

2.2.2.10. approving [***] in the Kyorin Territory and approving any proposed material changes thereto;

2.2.2.11. approving the Commercialization Plan for each Licensed Product, including, in each case, any amendments thereto;

2.2.2.12. without limiting Section 9.2.1, exchanging the information on publication plans;

2.2.2.13. reviewing the Manufacturing and supply matters relating to the Licensed Products;

2.2.2.14. providing a forum for a Party to raise for discussion any issue of whether the Development or Commercialization of the Licensed Products by the other Party in the other Party's Territory would adversely affect the Development or Commercialization of the Licensed Products by or on behalf of such Party in its own Territory;

2.2.2.15. discussing strategies for abating a Competitive Infringement of any Licensed Product within either Party's respective Territory as contemplated by Section 12.6.1;

2.2.2.16. reviewing and providing input regarding Trademarks in the Kyorin Territory as contemplated by Section 12.10; and

2.2.2.17. establishing such additional joint subcommittees as it deems necessary to oversee activities relating to the Licensed Products within the scope of the JSC's oversight responsibilities.

2.2.3. *Meetings*. The JSC will meet at least twice per Calendar Year, unless the Parties mutually agree in writing to a different frequency. The JSC may meet in person, by videoconference, or by teleconference, ***provided*** that at least one (1) meeting of the JSC per Calendar Year will be in person. In-person JSC meetings will be held at locations in the United States and in Japan alternately selected by aTyr and by Kyorin, or at any other location mutually agreed by the members of the JSC. Meetings of the JSC will be effective only if at least one (1) representative of each Party is present or participating in such meeting. Each Party will bear the expense of its respective JSC members' participation in JSC meetings. No later than five (5) Business Days prior to any meeting of the JSC (or such shorter time period as the Parties may agree), the Alliance Managers together will prepare and circulate an agenda for such meeting; ***provided***, ***however***, that either Party will be free to propose additional topics to be included on such agenda, either prior to or in the course of such meeting, and any Party which will be presenting to the JSC at any meeting as part of such agenda will prepare and provide detailed materials to the JSC representatives to support discussion. Either Party may also call a special meeting of the JSC (by videoconference, teleconference or in person) by providing at least ten (10) Business Days prior written notice to the other Party if such Party reasonably believes that a significant matter must be addressed prior to the next scheduled meeting, in which event such Party will work with the Alliance Managers to provide the members of the JSC no later than three (3) Business Days prior to the special meeting with an agenda for the meeting and materials reasonably adequate to enable an informed decision. The JSC chairperson will be responsible for preparing reasonably detailed written minutes of JSC meetings that reflect all decisions made and action items identified at such meetings. The JSC chairperson will send meeting minutes to each member of the JSC for review and approval within twenty (20) Business Days after each JSC meeting. Minutes will be deemed approved unless one or more members of the JSC object to the accuracy of such minutes within ten (10) Business Days of receipt. Any material changes proposed to any meeting minutes by either Party's members of the JSC will be promptly circulated by the JSC chairperson to each member of the JSC for review and approval within ten (10) Business Days of receipt, with such process repeating until the meeting minutes are approval by all JSC members. Minutes will be officially endorsed by the JSC at the next JSC meeting, and will be signed by the Alliance Managers.

2.2.4. *Decision-Making*. The representatives from each Party will have, collectively, one (1) vote on behalf of that Party. If the JSC cannot reach unanimous agreement on an issue that comes before the JSC within [***] Business Days of the meeting where such issue was raised and over which the JSC has oversight, the Parties will refer such issue for resolution in accordance with Section 2.3.

2.3. Resolution of JSC Disputes.

2.3.1. *Referral to Executive Officers and Executive Management*. The JSC may refer any matter as to which the JSC cannot reach a consensus decision to the Executive Officers for resolution. If the JSC does so, the JSC will submit in writing the respective positions of the Parties to their respective Executive Officers. Such Executive Officers will use good faith efforts, in compliance with this Section 2.3.1, to resolve promptly such matter, which good faith efforts will include at least one meeting between such Executive Officers within ten (10) Business Days after the JSC's submission of such matter to them. If the Executive Officers are unable to reach unanimous agreement on any such matter within fifteen (15) days of the matter being presented to them, then:

(a) if (i) such matter relates to (A) the inclusion of [***] or (B) [***], (ii) the dispute relates to an issue raised by aTyr that the proposed action under clause (A) or (B), as applicable, would [***], and (iii) the dispute does not [***], in which case, aTyr will have final decision-making authority over such matter; or

(b) if such matter relates to the [***] of the Licensed Products in the Kyorin Territory, Kyorin will have final decision-making authority over such matter, unless the dispute relates to an issue raised by aTyr that the [***] of the Licensed Products in the Kyorin Territory would [***] of the Licensed Products in the aTyr Territory, in which case, such matter will be submitted for resolution in accordance with clause (c) below. Notwithstanding the foregoing, if the dispute relates to a [***], Kyorin will have final decision-making authority over such matter; and

(c) if such matter relates to any issue that does not fall within those specified in either clause (a) or clause (b), the Parties will submit their respective positions on such matter to be resolved by Expedited Arbitration and the arbitrator will select one Party's position based on the available data.

Notwithstanding anything in this Section 2.3 to the contrary, no exercise of a Party's decision-making authority on any matters may, without the other Party's prior written consent, (i) result in a material increase in the other Party's or its Related Parties' obligations, costs or expenses under this Agreement or any Development Plan or Commercialization Plan, (ii) unilaterally modify, amend or waive its own compliance with the terms of this Agreement, or (iii) otherwise conflict with this Agreement.

2.3.2. *Good Faith*. In conducting themselves on the JSC (or any subcommittee established by it), and in exercising their rights under this Section 2.3, all representatives of both Parties will consider diligently, reasonably and in good faith all input received from the other Party, and will use reasonable efforts to reach unanimous agreement on all matters before them. In exercising any decision-making authority granted to it under this Section 2.3, each Party will act based on its good faith judgment and in accordance with the requirements of this Agreement, including taking into consideration its obligations to use Commercially Reasonable Efforts with respect to Development or Commercialization activities. Further, if the Development or Commercialization of the Licensed Products by or on behalf of the Parties in their respective Territories would adversely affect the Development or Commercialization of the Licensed Products in the other Party's Territory, the Parties will discuss in good faith how to resolve such situation.

2.4. General Committee Authority. The JSC (and any subcommittee established by it) has solely the powers expressly assigned to it in this Section 2. Neither the JSC nor any subcommittee established by it will have any power to amend, modify, or waive the terms of this Agreement or compliance with the terms of this Agreement.

2.5. **Discontinuation of Participation on the JSC**. aTyr's membership in the JSC (or any subcommittee established by it) will be at its sole discretion, as a matter of right and not obligation, for the sole purpose of participation in governance, decision-making, and information exchange with respect to activities within the jurisdiction of the JSC. aTyr will have the right to withdraw, at any time, from membership on the JSC (or any subcommittee) upon thirty (30) days' prior written notice to Kyorin, which notice will be effective upon the expiration of such thirty (30) day period. Following the issuance of such notice: (a) aTyr's membership in the JSC (or any subcommittee) will be terminated; and (b) each Party will have the obligation to continue to provide and the right to continue to receive the information it would otherwise be required to provide and entitled to receive under this Agreement and to participate directly with the other Party in discussions, reviews and approvals currently allocated to the JSC pursuant to this Section 2. If, at any time following issuance of such a notice, aTyr wishes to resume participation in the JSC, aTyr will notify Kyorin in writing and, thereafter, aTyr's representatives to the JSC (or any subcommittee) will be entitled to attend any subsequent meeting of the JSC (or any subcommittee) and to participate in the activities of, and decision-making by, the JSC (or any subcommittee) as provided in this Section 2 as if such notice had not been issued by aTyr pursuant to this Section 2.5. If the JSC is disbanded, then any data and information of the nature intended to be shared within the JSC will be provided by each Party directly to the other Party.

3. DEVELOPMENT

3.1. **Responsibility; Conduct of Development and Costs**.

3.1.1. *Kyorin Development Responsibility*. Subject to the responsibilities of the JSC and the other terms of this Agreement, Kyorin will be responsible for conducting or having conducted, in accordance with the Kyorin Development Plan and the Global Development Plan, the Development of the Licensed Products in the Field solely for purposes of obtaining and maintaining Regulatory Approval of Licensed Products in the Kyorin Territory and for Commercialization of such Licensed Products in the Kyorin Territory. Kyorin will bear one hundred percent (100%) of the Development Costs incurred by Kyorin in connection with the foregoing Development activities. If aTyr and Kyorin agree in writing that aTyr will perform any specific activities that are solely to support Development required to obtain or maintain Regulatory Approval of Licensed Products in the Kyorin Territory or for Commercialization of such Licensed Products in the Kyorin Territory and incur any Development Costs for such Development activities, Kyorin will reimburse amounts incurred by aTyr under this Section 3.1.1 in accordance with the process set forth in Section 8.6. For clarity, Kyorin will have no obligation to bear any cost for the Development of the Licensed Products in the aTyr Territory for purposes of obtaining and maintaining Regulatory Approval of such Licensed Products in the aTyr Territory.

3.1.2. *aTyr Development Responsibility*. aTyr will use Commercially Reasonable Efforts to conduct the On-going aTyr Clinical Study, including any regulatory activities related thereto. aTyr will provide Kyorin with the summary reports on the results of such Clinical Study [***] after the completion thereof. Subject to the responsibilities of the JSC and the other terms of this Agreement, aTyr will be responsible for conducting or having conducted, in accordance with the Global Development Plan, the Development of the Licensed Products in the Field. Subject to the first sentence of this Section 3.1.2 and other obligations of aTyr to Kyorin with respect to Development of Licensed Products in the aTyr Territory set forth in this Agreement, aTyr retains the exclusive right, and has the sole discretion and control over, the Development of the Licensed Products anywhere in the aTyr Territory. aTyr will bear one hundred percent (100%) of the Development Costs incurred by aTyr in connection with the foregoing Development activities, excluding amounts that are reimbursed by Kyorin under Section 3.1.1. If aTyr and Kyorin agree in writing that Kyorin will perform any specific activities that are solely to support Development required to obtain or maintain Regulatory Approval of Licensed Products in the aTyr Territory or for Commercialization of such Licensed Products in the aTyr Territory and incur any Development Costs for

such Development activities, aTyr will reimburse amounts incurred by Kyorin under this Section 3.1.2 in accordance with the process set forth in Section 8.6. For clarity, except as otherwise provided in this Section 3.1.2, aTyr will have no obligation to bear any cost for the Development of the Licensed Products in the Kyorin Territory for purposes of obtaining and maintaining Regulatory Approval of such Licensed Products in the Kyorin Territory.

3.2. Global Development Plan; Development Plans.

3.2.1. Global Development Plan. Development of the Licensed Products in the Field will be conducted pursuant to a worldwide strategic plan (as may be amended or updated, the "**Global Development Plan**"). aTyr will prepare the initial Global Development Plan based on the aTyr Development Plan and the initial Kyorin Development Plan, and will provide such initial Global Development Plan to Kyorin within [***] days after the date on which the initial Kyorin Development Plan is provided to aTyr. The Global Development Plan will be consistent with the aTyr Development Plan, the Kyorin Development Plan and the Multi-Regional Clinical Trials Principles. aTyr will update such Global Development Plan annually thereafter based on the updated Kyorin Development Plan and will provide such updated Global Development Plan to the JSC for access by Kyorin. The terms of, and Development activities set forth, in each Global Development Plan will at all times be designed to be in compliance with all applicable Laws and in accordance with professional and ethical standards customary in the pharmaceutical industry. The JSC will review and provide input on each Global Development Plan in accordance with Section 2.2.2.2.

3.2.2. Kyorin Development Plans. On a Licensed Product-by-Licensed Product basis, the Development activities that are necessary or useful to be undertaken for such Licensed Product to achieve a Regulatory Approval in the Kyorin Territory will be set forth in reasonable detail in a written work plan and time table (each, as may be amended or updated, a "**Kyorin Development Plan**") prepared by Kyorin. The initial Kyorin Development Plan [***] will be prepared by Kyorin no later than [***] days after the Effective Date. The terms of, and Development activities set forth in, each Kyorin Development Plan will at all times be designed to be in compliance with all applicable Laws and in accordance with professional and ethical standards customary in the pharmaceutical industry, and may at any time be amended, supplemented or otherwise modified in response to the communications with a Regulatory Authority in the Kyorin Territory with regard to such Development activities in accordance with Section 2.2.2.1. The JSC will review and provide input on each Kyorin Development Plan and will approve all such Kyorin Development Plans in accordance with Section 2.2.2.1. Kyorin will update each applicable Kyorin Development Plan for a Licensed Product [***] (such updates to include any Post-Marketing Studies required by a Regulatory Authority as a condition of granting any such marketing authorizations) and will provide such updated Kyorin Development Plan to the JSC for review, input and approval in accordance with Section 2.2.2.1.

3.2.3. aTyr Development Plan. The plan existing as of the Effective Date for Development of the Licensed Product is set forth in reasonable detail in a written work plan and time table attached to the Letter Agreement (the "**aTyr Development Plan**"). The aTyr Development Plan will be combined with the Kyorin Development Plan in the Global Development Plan.

3.3. Diligence; Standards of Conduct. Notwithstanding anything in this Agreement to the contrary, each Party will use Commercially Reasonable Efforts to (a) timely perform the Development activities to be performed by it as specified under the Global Development Plan or the aTyr Development Plan (until the initial Global Development Plan is finalized in accordance with Section 3.2.1) and the Kyorin Development Plan, as applicable, for a specific Licensed Product; and (b) timely Develop a Licensed Product in the Lead Indication and in each Additional Indication that is the subject of the Global Development Plan or the aTyr Development Plan (until the initial Global Development Plan is finalized in

accordance with Section 3.2.1) and the Kyorin Development Plan, as applicable. Without limiting the generality of the foregoing requirements, and subject to aTyr completing transfer of the aTyr Licensed Know-How in existence as of the Effective Date in accordance with the Technology Transfer Plan, Kyorin will use Commercially Reasonable Efforts to: (i) [***] for the Licensed Product with Regulatory Authorities in the Kyorin Territory on or before the [***] month anniversary of the Effective Date and (ii) subject to availability of Licensed Product under the Clinical Supply Agreement, [***] of the Licensed Product within [***] months after [***] for the Licensed Product by Regulatory Authorities in the Kyorin Territory.

3.4. Supplemental Studies.

3.4.1. *Additional Development Proposals by the Parties*. If either Party desires to conduct a Supplemental Study of a Licensed Product for the purpose of seeking Regulatory Approval to market such Licensed Product in its Territory, such Party will notify the other Party of such desire and the Parties will discuss the possibility to conduct the Supplemental Study in the aTyr Territory and the Kyorin Territory in accordance with the Multi-Regional Clinical Trials Principles. If either (a) the Parties decide to conduct the Supplemental Study [***] or (b) they decide not to conduct such Supplemental Study [***], then both Parties (in the case of clause (a)) or the applicable Party (in the case of clause (b)) will submit to the JSC an amendment to add such Supplemental Study to the applicable Development Plan for such Licensed Product (each "**Additional Development Proposal**"). Each Additional Development Proposal will describe in reasonable detail the applicable Supplemental Study(ies) that the Parties or Party would conduct, including a synopsis of the trial or activities, the proposed enrollment criteria, number of patients to be included, endpoints to be measured, and statistical design and powering (the "**Additional Development Activities**"), as well as a proposed timeline and an analysis of the business opportunity and revenue potential for such Additional Development Activities.

3.4.2. *JSC*. The JSC will address an Additional Development Proposal within [***] days after receipt thereof as set forth in Section 3.4.1. Any changes to the Kyorin Development and Global Development Plan will be subject to Section 2.2.

3.5. CMC Development. [***] will conduct all CMC activities with respect to Licensed Products required to be conducted to support the obtaining and maintaining of Regulatory Approval in the Kyorin Territory for any Licensed Product in the Field (the "**CMC Activities**") in accordance with the CMC Work Plan. The current CMC Work Plan as of the Effective Date is attached as a schedule to the Letter Agreement and will be updated by aTyr and approved by the JSC no later than [***] days after the Effective Date. The terms of, and CMC Activities set forth in, each CMC Work Plan will at all times be designed to be in compliance with all applicable Laws and in accordance with professional and ethical standards customary in the pharmaceutical industry. The JSC will review and provide input on each CMC Work Plan and will approve such CMC Work Plan in accordance with Section 2.2.2.3. aTyr will update each applicable CMC Work Plan for a Licensed Product [***] and will provide such updated CMC Work Plan to the JSC for review, input and approval in accordance with Section 2.2.2.3. Any and all costs and expenses incurred in connection with the CMC Activities (excluding any costs [***]) will be borne [***] except that costs of any CMC Activities that are [***] will be borne [***], *provided* that such costs are not [***]. For clarity, if the actual costs incurred are [***] will be responsible only for the actual costs. To the extent [***] incurs any such costs for CMC Activities on behalf of [***], [***] will [***] amounts incurred by [***] under this Section 3.5 in accordance with the process set forth in Section 8.6.

3.6. Third Parties. Kyorin will be entitled to subcontract to Third Parties, and to utilize the services of Third Parties to perform, its Development activities under this Section 3, *provided* that (a) Kyorin provides a list of such Third Parties to aTyr upon aTyr's request in a reasonably timely manner following such request; (b) Kyorin requires such Third Party to operate in a manner consistent with this

Agreement; and (b) Kyorin remains at all times fully liable to aTyr for its Development responsibilities under this Agreement. Kyorin will require that each agreement with any such Third Party contain confidentiality and non-use provisions that are no less stringent than those set forth in Section 9.1 with respect to aTyr's Confidential Information, and provisions whereby Kyorin obtains ownership of, or a fully sublicenseable license (or an exclusive option to obtain such license) under and to, any Know-How and Patents that are developed by such Third Party in the performance of such agreement and are reasonably necessary or useful to Develop or Commercialize Licensed Products in the Field, *provided* that the foregoing requirement to obtain ownership of, or a fully sublicensable license (or an exclusive option to obtain such license) will not apply to any improvements to the proprietary core or platform technology owned or in-licensed by any such Third Party or its Affiliates unless such improvements are reasonably necessary to Develop or Commercialize those Licensed Products with respect to which such Third Party or its Affiliate conducted its activities under such Third Party agreement. Kyorin will be solely responsible for direction of and communications with such Third Party service provider.

3.7. Records; Reports; Information Sharing.

3.7.1.1. *Development Activities Reports*. Each Party will periodically provide to the other Party, on a Calendar Quarter basis, or more frequently as reasonably requested by the other Party, an update regarding Development activities conducted by or on behalf of such Party with respect to Licensed Products for its Territory, as well as any Supplemental Studies and Post-Marketing Studies conducted by or on behalf of such Party with respect to such Licensed Products. The Parties will periodically report to each other, but in no event less than on a Calendar Quarter basis, regarding their respective activities conducted under the Development Plans or the Global Development Plan, as applicable, for Licensed Products in their respective Territory. In addition, each Party will promptly share with the other Party all material developments that it comes to possess relating to the Development of any Licensed Product in its Territory, including Safety Concerns for Licensed Products.

3.7.1.2. *Scientific Records*. Each Party will maintain scientific records, in sufficient detail and in sound scientific manner appropriate for Patent and regulatory purposes and in compliance with GLP, GCP and GMP, as applicable, with respect to activities intended to be submitted in Regulatory Filings for any Licensed Product, which will fully and accurately reflect all work done and results achieved in the performance of the Development activities, Clinical Studies, and Supplemental Studies with respect to Licensed Products by such Party.

3.7.1.3. *Information Exchange and Assistance*.

(a) *Initial Technology Transfer*. As soon as possible after the Effective Date, but no later than [***] months from the Effective Date (as such period may be extended by mutual written agreement of the Parties), aTyr, at its cost and expense, will complete a transfer to Kyorin of the aTyr Licensed Know-How in existence as of the Effective Date (including, to the extent applicable and in existence and Controlled by aTyr or its Affiliates as of the Effective Date, study reports, batch records, vendor information, validation documentation, pre-clinical data, analyses, manufacturing data, and applicable reference standards used in analytical testing of the Licensed Product) as described in the technology transfer plan to be mutually agreed by the Parties and to be attached as a schedule to the Letter Agreement setting forth the details of such aTyr Licensed Know-How to be transferred and the timing of such transfer (the "**Technology Transfer Plan**").

(b) *Continued Information Exchange and Assistance*. After the completion of the Technology Transfer Plan and during the Term, (i) aTyr will inform Kyorin through the JSC of any new [***] arising during the Term, and will make available to Kyorin, [***], the [***] reasonably requested by Kyorin and in the manner established by the JSC; and (ii) Kyorin will inform aTyr

through the JSC of [***], and will make available to aTyr, [***] described in clause (ii) reasonably requested by aTyr and in the manner established by the JSC. In addition, each Party, [***], will provide the other Party with reasonable assistance to enable such other Party to understand and use any such transferred Know-How.

4. COMMERCIALIZATION

4.1. **Responsibility, Costs**.

4.1.1. *Kyorin.* Subject to the oversight of the JSC and to the other terms of this Agreement, on a Licensed Product-by-Licensed Product basis, Kyorin will be responsible for all Commercialization activities relating to the Licensed Products in the Field in the Kyorin Territory ([***]), at its sole cost and expense, in accordance with the Commercialization Plan.

4.1.2. *aTyr.* Subject to the oversight of the JSC and applicable obligations of aTyr to Kyorin with respect to Commercialization of Licensed Products in the aTyr Territory as set forth in this Agreement, on a Licensed Product-by-Licensed Product basis, aTyr retains the exclusive right, and will have sole discretion and control at its sole cost and expense, to conduct all Commercialization activities relating to the Licensed Products in the aTyr Territory ([***]).

4.2. **Commercialization Plan**. At least [***] months before the scheduled date of the first BLA submission for a Licensed Product in its Territory, Kyorin will prepare and deliver to the JSC for review, input and approval, a reasonable draft written plan that summarizes the Commercialization activities (including any pre-Regulatory Approval activities in preparation for commercial launch) to be undertaken with respect to such Licensed Product in the Kyorin Territory, where such plan will include marketing and promotional activities for such Licensed Product in the Kyorin Territory aligned with the commercial positioning and the key messages approved by the JSC and will not be prepared in a manner that would adversely affect the Commercialization of the Licensed Products by or on behalf of aTyr in the United States (as updated or amended, the "**Commercialization Plan**"). Updates and modifications of the Commercialization Plan for a Licensed Product may be proposed by Kyorin for approval by the JSC, from time to time and no less frequently than [***], based upon, among other things, Kyorin's Commercialization activities with respect to such Licensed Product in the Kyorin Territory.

4.3. **Diligence; Standards of Conduct**. Kyorin will use Commercially Reasonable Efforts to (a) perform all Commercialization activities for such Licensed Product in accordance with the Commercialization Plan; (b) obtain the NHI Price Listing at a price that is [***]; and (c) obtain the NHI Price Listing within a reasonable time after having received approval from the Regulatory Authority to Commercialize Licensed Product in, as applicable, the Lead Indication or any other Additional Indication that is the subject of its corresponding Kyorin Development Plan in the Kyorin Territory, and will begin to Commercialize such Licensed Product in the Lead Indication or such Additional Indication, as applicable, in the Kyorin Territory within [***] months of having obtained such NHI Price Listing.

4.4. **Advertising and Promotional Materials**. Kyorin will be responsible for the creation, preparation, production, reproduction and filing with the applicable Regulatory Authorities, of relevant written sales, promotion and advertising materials relating to each Licensed Product ("**Promotional Materials**") for use in the Kyorin Territory. All such Promotional Materials will be compliant with applicable Law, and consistent in all material respects with the Commercialization Plan. Kyorin will, from time to time during the Term, submit copies of representative samples of its Promotional Materials developed by it for use in the Kyorin Territory to aTyr for reference purposes, together with the summary translation of such Promotion Materials in English. Kyorin will consider in good faith any timely comments aTyr may have with respect to any such Promotional Materials, but will have final decision-making

authority in the Kyorin Territory with respect to such Promotional Materials. Notwithstanding the foregoing, Kyorin will incorporate any changes to Promotional Materials requested by aTyr in a timely fashion in cases where aTyr indicates that it believes in good faith that such change is necessary to enable aTyr to comply with any applicable Law.

4.5. **Reporting Obligations**. Kyorin will report in each JSC meeting in writing, beginning with the first JSC that takes place following the first Regulatory Approval of a Licensed Product in the Field in the Kyorin Territory, a summary (in reasonable detail) of Commercialization activities for such Licensed Product in the Kyorin Territory performed to date. In addition, Kyorin will provide aTyr with written notice of the First Commercial Sale of each Licensed Product in the Kyorin Territory as soon as reasonably practicable after such event; *provided*, *however*, that Kyorin will inform aTyr of such event prior to public disclosure of such event by Kyorin. Kyorin will report such other information in the JSC meeting as aTyr may reasonably request with respect to Commercialization of Licensed Products in the Kyorin Territory and will keep aTyr in the JSC meeting reasonably informed of Kyorin's Commercialization activities with respect to such Licensed Products.

4.6. **Commercialization Reporting Obligations**.

4.6.1. Each Party will be responsible for booking sales of the Licensed Products sold in its Territory. Each Party may warehouse Licensed Products both inside and outside of such Party's Territory, *provided* that any sales with respect to such Licensed Products occur and are booked in such Party's Territory.

4.6.2. Each will be solely responsible for handling all returns of any Licensed Product sold in its Territory, as well as all aspects of Licensed Product order processing, invoicing and collection, distribution, inventory and receivables of Licensed Products sold in its Territory.

4.7. **Recalls, Market Withdrawals or Corrective Actions**. In the event that any Regulatory Authority issues or requests a recall or takes a similar action in connection with a Licensed Product in a Territory, or in the event that either Party determines that an event, incident or circumstance has occurred that may result in the need for a recall or market withdrawal of a Licensed Product in its Territory, the Party notified of such recall or similar action, or the Party that desires such recall or similar action, will as promptly as possible, notify the other Party's Alliance Manager and JSC representatives thereof by telephone or e-mail, and will discuss with the other Party the reasons for the recall, market withdrawal or similar action. Each Party will decide whether to conduct a recall of a Licensed Product in its own Territory and the manner in which any such recall will be conducted (except in the case of a government mandated recall, such Party may act without such advance notice, but will notify the other Party as soon as possible thereafter). Except as may otherwise be agreed to by the Parties and subject to Section 11, each Party will bear the expense of any such recall in its own Territory. Each Party will make available all of its pertinent records that may be reasonably requested by the other Party in order for a Party to effect a recall of a Licensed Product in its Territory. The Parties' rights and obligations under this Section 4.7 will be subject to the terms of any supply agreement(s), including any SDEA or quality related agreements entered into between the Parties. In the event of a conflict between the provisions of any such supply agreement, SDEA or quality related agreements and this Section 4.7, the provisions of such supply agreement, SDEA or quality related agreements will govern.

4.8. **Ex-Territory Sales; Export Monitoring**.

4.8.1. *Ex-Territory Sales.* Subject to applicable Law, neither Party will engage in any advertising or promotional activities relating to any Licensed Product directed primarily to customers or other buyers or users of such Licensed Product located outside of its Territory or accept orders for Licensed

Products from or sell Licensed Products into such other Party's Territory for its own account, and, if a Party receives any order for any Licensed Product in the other Party's Territory, it will refer such orders to the other Party, to the extent it is not prohibited from doing so under applicable Law.

4.8.2. *Export Monitoring.* Each Party will use reasonable efforts to monitor and prevent exports of Licensed Products from its own Territory for Commercialization in the other Party's Territory using methods permitted under applicable Law that are commonly used in the industry for such purpose (if any), and will promptly inform the other Party of any such exports of Licensed Products from its Territory, and any actions taken to prevent such exports. Each Party agrees to take reasonable actions requested in writing by the other Party that are consistent with applicable Law to prevent exports of Licensed Products from its Territory for Commercialization in the other Party's Territory.

5. REGULATORY

5.1. Regulatory Filings and Interactions.

5.1.1. *Responsibilities*. Each Party will be [***] responsible for all regulatory matters relating to a Licensed Product in its Territory and will own all Regulatory Materials in its Territory with respect to such Licensed Product, *provided* that aTyr will, and will cause Third Parties who Manufacture ATYR1923 or the Licensed Products, [***], to (i) [***] as required by the Pharmaceuticals and Medical Device Agency (or successor agency), (ii) handle any regulatory matter relating thereto, and (iii) provide Kyorin [***]. Each Party will have the sole right to (a) oversee, monitor and coordinate all regulatory actions, communications and filings with, and submissions to, each Regulatory Authority in its Territory with respect to each Licensed Product; (b) interface, correspond and meet with each Regulatory Authority in its Territory with respect to each Licensed Product; and (c) seek and maintain all Regulatory Filings in its Territory with respect to each Licensed Product.

5.1.2. *Communications with Regulatory Authorities.* Each Party will notify the other Party, including a brief description in English, of the principal issues raised in each material communication with Regulatory Authorities with respect to each Licensed Product in the Kyorin Territory or that may have a material impact on the Kyorin Territory within [***] Business Days after receipt thereof. Upon a Party's request, the other Party will provide to such requesting Party, [***]: (a) a summary translation of such material communications in English, (b) complete copies of the original correspondence in their native language, or (c) a complete translation of such material communications in English, in each case of (a) through (c) within a reasonable period of time following such request. For the purposes of this Section 5.1.2, "**material communications**" with Regulatory Authorities include meetings with Regulatory Authorities and Regulatory Authority questions or concerns with respect to significant issues in the Kyorin Territory or that may have a material impact on the Kyorin Territory, including any of the following: key product quality attributes (*e.g.*, purity), safety findings affecting the platform (*e.g.*, Serious Adverse Events, emerging safety signals), clinical or nonclinical findings affecting patient safety, lack of efficacy or receipt or denial of Regulatory Approval.

5.1.3. *Regulatory Meetings.* Kyorin will provide aTyr with reasonable advance notice of all substantive meetings with the Governmental Authorities in the Kyorin Territory pertaining to each Licensed Product, or with as much advance notice as practicable under the circumstances. Kyorin will use Commercially Reasonable Efforts, to the extent reasonably practicable, to permit aTyr to have, at aTyr's expense, mutually acceptable representatives of aTyr attend, solely as a non-participating observer, material, substantive meetings, including pre-IND and end of Phase 2 Study meetings, with any Governmental Authorities within the Kyorin Territory pertaining to such Licensed Product; *provided, however*, that (a) if required by the Governmental Authority, attendance by aTyr will be permitted; (b) attendance by the representatives of aTyr will not prevent participation of a representative of Kyorin due to

restrictions imposed by Regulatory Agencies on the number of attendees; and (c) Kyorin will not be obligated to change the schedule of such meeting in order to accommodate the schedule of aTyr's representatives.

5.1.4. *Submissions.* Each Party will provide the other Party with written notice of each of the following events with regard to each Licensed Product in its Territory: (a) promptly following the occurrence thereof (i) the submission of any filings or applications for Regulatory Approval of such Licensed Product in its Territory to any Regulatory Authority, and (ii) receipt or denial of Regulatory Approval for such Licensed Product, and (b) on a quarterly basis, a summary of any INDs (including orphan drug applications and designations) that were filed for such Licensed Product during such preceding Calendar Quarter and those anticipated to be filed within the upcoming Calendar Quarter; *provided*, *however*, that each Party will inform the other Party of such event under (a) or (b) prior to public disclosure of such event by such Party.

5.2. **Diligence; Standards of Conduct**. Kyorin will use Commercially Reasonable Efforts to obtain Regulatory Approval for the Licensed Product in the Kyorin Territory, and aTyr will use Commercially Reasonable Efforts to obtain Regulatory Approval for the Licensed Product in the United States. aTyr will, at Kyorin's request, provide reasonable assistance to Kyorin in its preparation of the Regulatory Materials for consultation with the Regulatory Authority or Regulatory Filing for the Licensed Product in the Kyorin Territory and subsequent regulatory correspondences with respect to such consultation or Regulatory Filing in the Kyorin Territory, which assistance includes aTyr providing Kyorin with the information on the [***]. Any costs incurred by aTyr in providing such assistance will be Development Costs for which Kyorin shall reimburse aTyr as provided in Section 3.1.1.

5.3. **Costs of Regulatory Affairs**. Subject to Section 5.1.1, [***] will be responsible for all costs and expenses incurred in connection with applying for, obtaining and maintaining Regulatory Approval with respect to Licensed Products in its Territory, and related regulatory affairs activities.

5.4. **Right of Reference**. Each Party hereby grants to the other Party, and at the request of the other Party will grant to the other Party's Related Parties, a "Right of Reference," as that term is defined in 21 C.F.R. § 314.3(b) (or any successor rule or analogous Law recognized outside of the United States), to, and a right to copy, access, and otherwise use, all information and data (including all CMC information as well as data made, collected or otherwise generated in the conduct of any Clinical Studies or of any Supplemental Studies or early access/named patient programs for the Licensed Products) included in or used in support of any Regulatory Filing, Regulatory Approval, drug master file or other regulatory documentation (including orphan drug applications and designations) maintained on behalf of such Party (or its Related Parties) that relates to any Licensed Product, to the extent necessary to obtain Regulatory Approval of a Licensed Product in the Kyorin Territory or the aTyr Territory, as applicable, and such Party will provide a signed statement to this effect, if requested by the other Party, in accordance with 21 C.F.R. § 314.50(g)(3) (or any successor or analogous Law outside of the United States). In addition, upon reasonable request of either Party (on behalf of itself or a Sublicensee), the other Party will obtain and provide to the requesting Party certificates or other formal or official attestations concerning the regulatory status of the Licensed Products in the Kyorin Territory or the aTyr Territory, as applicable (*e.g.*, Certificates of Free Sale, Certificates for Export, Certificates to Foreign Governments), at the requesting Party's request and cost, and *provided* further that such attestations are reasonably necessary for the requesting Party to exercise its rights under this Agreement. Notwithstanding anything to the contrary in this Agreement, neither Party will withdraw or inactivate any Regulatory Filing that the other Party references or otherwise uses pursuant to this Section 5.4 other than for Safety Concerns.

5.5. **Pharmacovigilance**. The Parties will cooperate with regard to the reporting and handling of safety information involving the Licensed Products in accordance with the applicable regulatory Laws

and regulations on pharmacovigilance and clinical safety, with aTyr being responsible, at its cost, for maintaining a global safety database, and Kyorin being responsible, at its cost, for pharmacovigilance reporting in the Kyorin Territory. Within [***] days from the Effective Date (as such period may be extended by mutual written agreement of the Parties, but within such time to ensure that all regulatory requirements are met), the Parties will negotiate in good faith and enter into a Safety Data Exchange Agreement ("**SDEA**"), which will define the pharmacovigilance responsibilities of the Parties and include safety data exchange procedures to enable each Party (and their respective related Third Parties, if any) to comply with all of its legal and regulatory obligations related to the Licensed Products.

6. MANUFACTURE

6.1. General. Subject to Section 6.2, aTyr will Manufacture or have Manufactured and supply [***] to Kyorin, and Kyorin will purchase [***] from aTyr, all the Licensed Products required for the Clinical Studies and the Commercialization of the Licensed Products in the Field in the Kyorin Territory–at aTyr's Cost of Goods–and otherwise in accordance with the terms and conditions set forth in the applicable Supply Agreement. aTyr will keep Kyorin reasonably apprised of its Manufacturing activities through Kyorin's representatives on the JSC.

6.2. Supply Agreements. The Parties will use reasonable efforts to negotiate, and enter into within [***] days following the Effective Date, a separate clinical supply agreement (and any other necessary ancillary agreements including a quality technical agreement), to fulfill all clinical supply requirements for the Licensed Product in the Kyorin Territory and to perform such other services for Kyorin as the Parties may agree (the "**Clinical Supply Agreement**"). Promptly following successful process validation for the Licensed Product, the Parties will use reasonable efforts to negotiate and enter into a separate commercial supply agreement (and any other necessary ancillary agreements including a quality technical agreement), to fulfill all commercial supply requirements for the Licensed Product in the Kyorin Territory and to perform such other services for Kyorin as the Parties may agree (the "**Commercial Supply Agreement**", collectively, the "**Supply Agreements**"). The Supply Agreements will contain reasonable and customary terms and conditions as mutually acceptable to the Parties, *provided* that the Supply Agreements will include the key terms as set forth in a schedule to the Letter Agreement.

7. LICENSES

7.1. License Grants.

7.1.1. *License Grants to Kyorin.*

7.1.1.1. *Development License*. Subject to the terms and conditions of this Agreement, on a Licensed Product-by-Licensed Product basis, aTyr hereby grants Kyorin a non-transferable (except as provided in Section 14.1), sublicensable (subject to Sections 3.6 and 7.1.1.3) exclusive (even as to aTyr and its Affiliates) license under the aTyr Licensed Technology and aTyr's interest in the New Joint IP in the Kyorin Territory to Develop such Licensed Product in the Field anywhere in the Kyorin Territory; *provided*, *however*, that such license grant for Development will be limited in each case solely as and to the extent provided in the approved Kyorin Development Plan for such Licensed Product or as otherwise permitted elsewhere under this Agreement, and in each case, solely for purposes of obtaining Regulatory Approval of such Licensed Product in the Kyorin Territory and Commercialization of such Licensed Product in the Kyorin Territory. Notwithstanding the foregoing exclusive grant, aTyr retains the right under the aTyr Licensed Technology and aTyr's interest in the New Joint IP, with the right to grant licenses through multiple tiers in accordance with Section 7.1.2.3, which will apply *mutatis mutandis*, to (a) Develop each Licensed Product in the Field anywhere in the world solely for obtaining Regulatory Approval of Licensed Products and Commercialization of Licensed Products in the aTyr Territory, and (b)

conduct activities to be conducted by or on behalf of aTyr in the Kyorin Territory under the Global Development Plan and Kyorin Development Plan, as applicable.

7.1.1.2. *Commercialization License in the Kyorin Territory*. Subject to the terms and conditions of this Agreement, on a Licensed Product-by-Licensed Product basis, aTyr hereby grants Kyorin a non-transferable (except as provided in Section 14.1), sublicensable (subject to Section 7.1.1.3), royalty-bearing, exclusive (even as to aTyr and its Affiliates) license under the aTyr Licensed Technology and aTyr's interest in the New Joint IP in the Kyorin Territory to Commercialize such Licensed Product in the Field in the Kyorin Territory.

7.1.1.3. *Sublicensing Terms*.

(a) In addition to its subcontracting rights pursuant to Section 3.6:

(i) Kyorin will have the right to sublicense any of its rights under Section 7.1.1.1 and 7.1.1.2, to any of its Affiliates (which sublicensed rights may be further sublicensable through multiple tiers) without the prior consent of aTyr, but subject to the requirements of this Section 7.1.1.3; and

(ii) Kyorin will have the right to sublicense any of its rights under Section 7.1.1.1 and Section 7.1.1.2 to any Third Party with aTyr's prior written consent (such consent not to be unreasonably withheld, conditioned or delayed), subject to the requirements of this Section 7.1.1.3; *provided*, *however*, that, for clarity, [***] will not constitute a sublicense requiring aTyr's prior written consent, but [***] will be a sublicense requiring such aTyr's prior written consent in accordance with the foregoing sentence.

(b) Without limiting Section 7.1.1.3(a)(i), each sublicense granted by Kyorin pursuant to this Section 7.1.1.3 will be subject and subordinate to this Agreement and will contain provisions that are not inconsistent with the terms and conditions of this Agreement. Kyorin will, as soon as reasonably practicable thereafter, provide aTyr with a copy of any executed sublicense agreement covering a material sublicense granted hereunder (which copy may be redacted to remove financial provisions and other provisions which are not necessary to monitor compliance with this Section 7.1.1.3). Each such sublicense agreement will contain the following provisions: (i) a requirement that the Sublicensee comply with the confidentiality and non-use provisions of Section 9.1 with respect to aTyr's Confidential Information, (ii) if such sublicense agreement contains a sublicense of any rights granted under Section 7.1.1.2, such sublicense agreement will also contain the following provisions: (A) a requirement that the Sublicensee submit applicable sales or other reports to Kyorin to the extent necessary or relevant to the reports required to be made or records required to be maintained under this Agreement; and (B) the audit requirement set forth in Section 8.7.3; (iii) a requirement that the Sublicensee comply with the applicable provisions under any in-license agreement of aTyr under which Kyorin elects to take a sublicense pursuant to Section 7.2.1, and (iv) provisions whereby Kyorin obtains ownership of, or a fully sublicensable license (or an exclusive option to obtain such license) under and to, any Know-How and Patents that are developed by the Sublicensee in the performance of such agreement and are reasonably necessary or useful to Develop or Commercialize Licensed Products in the Field, *provided* that the foregoing requirement to obtain ownership of, or a fully sublicensable license (or an exclusive option to obtain such license) will not apply to [***] unless [***].

(c) Notwithstanding any sublicense granted pursuant to this Section 7.1.1.3, Kyorin will remain liable to aTyr for the performance of all of Kyorin's obligations under, and Kyorin's compliance with all provisions of, this Agreement.

7.1.2. *License Grants to aTyr*.

7.1.2.1. *Development Licenses*. Subject to the terms and conditions of this Agreement, on a Licensed Product-by-Licensed Product basis, Kyorin hereby grants aTyr:

(a) a non-transferable (except as provided in Section 14.1), sublicensable (subject to Section 7.1.2.3), royalty-free, milestone-free, non-exclusive license under the Kyorin Background Technology to (i) Develop such Licensed Product in the Field in the aTyr Territory and (ii) conduct activities to be conducted by or on behalf of aTyr in the Kyorin Territory under the Global Development Plan and Kyorin Development Plan, as applicable; and

(b) a non-transferable (except as provided in Section 14.1), sublicensable (subject to Section 7.1.2.3), royalty-free, milestone-free, exclusive (even as to Kyorin and its Affiliates) license under the New Kyorin IP and Kyorin's interest in the New Joint IP to Develop such Licensed Product: (i) anywhere in the aTyr Territory for any and all uses and (ii) in the Kyorin Territory for uses outside of the Field, and a non-transferable (except as provided in Section 14.1), sublicensable (subject to Section 7.1.2.3), royalty-free, milestone-free, non-exclusive license under the New Kyorin IP and Kyorin's interest in the New Joint IP to conduct activities to be conducted by or on behalf of aTyr in the Kyorin Territory under the Global Development Plan and Kyorin Development Plan, as applicable.

7.1.2.2. *Commercialization Licenses in the aTyr Territory*. Subject to the terms and conditions of this Agreement, on a Licensed Product-by-Licensed Product basis, Kyorin hereby grants aTyr:

(a) a non-transferable (except as provided in Section 14.1), sublicensable (subject to Section 7.1.2.3), royalty-free, milestone-free, non-exclusive license under the Kyorin Background Technology to Commercialize such Licensed Product in the Field anywhere in the aTyr Territory; and

(b) a non-transferable (except as provided in Section 14.1), sublicenseable (subject to Section 7.1.2.3), royalty-free, milestone-free, exclusive (even as to Kyorin and its Affiliates) license under the New Kyorin IP and Kyorin's interest in the New Joint IP to Commercialize such Licensed Product: (i) anywhere in the aTyr Territory for any and all uses and (ii) in the Kyorin Territory for uses outside of the Field.

7.1.2.3. *Sublicensing Terms*.

(a) aTyr will have the right to sublicense any of its rights under Sections 7.1.2.1 and 7.1.2.2 to any of its Affiliates or to any Third Party (which sublicensed rights may be further sublicensable through multiple tiers) without the prior consent of Kyorin, subject to the requirements of this Section 7.1.2.3.

(b) Each sublicense granted by aTyr pursuant to this Section 7.1.2.3 will be subject and subordinate to this Agreement and will contain provisions consistent with the terms and conditions of this Agreement. Each such sublicense agreement will contain the following provisions: (i) a requirement that the Sublicensee comply with the confidentiality and non-use provisions of Section 9.1 with respect to Kyorin's Confidential Information; and (ii) a requirement that the Sublicensee comply with the applicable provisions under any in-license agreement of Kyorin under which aTyr elects to take a sublicense pursuant to Section 7.2.2.

(c) Notwithstanding any sublicense granted pursuant to this Section 7.1.2.3, aTyr will remain liable to Kyorin for the performance of all of aTyr's obligations under, and aTyr's compliance with all provisions of, this Agreement.

7.2. Third Party In-Licenses.

7.2.1. *aTyr*. [***] associated with any agreements related to the aTyr Licensed Technology that exist as of the Effective Date, except as otherwise agreed by Kyorin in writing. In the event that, after the Effective Date, aTyr in-licenses aTyr Licensed Technology that is Controlled in the Kyorin Territory for purposes of any of the licenses granted to Kyorin under Section 7.1.1, [***], in which case Kyorin agrees to comply, and will cause its Affiliates and Sublicensees to comply, with any obligations under such agreement of aTyr that apply to Kyorin, its Affiliates or its Sublicensees and of which Kyorin was informed by aTyr.

7.2.2. *Kyorin*. [***] associated with any agreements related to the Kyorin Background Technology that exist as of the Effective Date, except as otherwise agreed by aTyr in writing. In the event that, after the Effective Date, Kyorin in-licenses Kyorin Background Technology that is Controlled in the aTyr Territory for purposes of any of the license granted to aTyr under Section 7.1.2, [***], in which case aTyr agrees to comply, and will cause its Affiliates and Sublicensees to comply, with any obligations under such agreement of Kyorin that apply to aTyr, its Affiliates or its Sublicensees and of which aTyr was informed by Kyorin.

7.3. Bankruptcy. All rights and licenses granted under or pursuant to this Agreement by a Party to the other are and will otherwise be deemed to be, for purposes of Section 365(n) of the Bankruptcy Code, licenses of right to "intellectual property" as defined under Section 101 of the Bankruptcy Code. The Parties agree that the Parties and their respective Sublicensees, as Sublicensees of such rights under this Agreement, will retain and may fully exercise all of their rights and elections under the Bankruptcy Code and any foreign counterpart thereto. The Parties further agree that upon commencement of a bankruptcy proceeding by or against a Party (the "**Bankrupt Party**") under the Bankruptcy Code, the other Party (the "**Non-Bankrupt Party**") will be entitled to a complete duplicate of, or complete access to (as the Non-Bankrupt Party deems appropriate), all such intellectual property and all embodiments of such intellectual property. Such intellectual property and all embodiments of such intellectual property will be promptly delivered to the Non-Bankrupt Party upon any such commencement of a bankruptcy proceeding and upon written request by the Non-Bankrupt Party, unless the Bankrupt Party elects to continue to perform all of its obligations under this Agreement. To the extent that such intellectual property and all embodiments of such intellectual property have not been delivered to the Non-Bankrupt Party upon commencement of a bankruptcy proceeding as described in the immediately preceding sentence, then they will be delivered to the Non-Bankrupt Party upon the rejection of this Agreement by or on behalf of the Bankrupt Party and upon written request by the Non-Bankrupt Party. The Bankrupt Party (in any capacity, including debtor-in-possession) and its successors and assigns (including any trustee) agree not to interfere with the exercise by the Non-Bankrupt Party or its Affiliates or permitted Sublicensees of its rights and licenses to such intellectual property and such embodiments of intellectual property in accordance with this Agreement, and agrees to assist the Non-Bankrupt Party and its Affiliates or permitted Sublicensees in obtaining such intellectual property and such embodiments of intellectual property in the possession or control of Third Parties as are reasonably necessary or desirable for the Non-Bankrupt Party to exercise such rights and licenses in accordance with this Agreement. The foregoing provisions are without prejudice to any rights the Non-Bankrupt Party may have arising under the Bankruptcy Code or other Laws.

7.4. Exclusivity. For the period commencing on the Effective Date and ending on (i) the date that is [***] after the date of the First Commercial Sale of the first Licensed Product in the Kyorin Territory or (ii) [***] following the date of any termination of this Agreement, whichever is earlier, Kyorin will not,

and will cause its Affiliates not to, (a) alone or with any Affiliates or Third Parties Commercialize a Competing Product, or (b) enter into an agreement or other arrangement with any Third Party pursuant to which Kyorin or one of its Affiliates grants such Third Party any license or other rights to Commercialize a Competing Product.

7.5. **No Other Rights**. Except as otherwise expressly provided in this Agreement, under no circumstances will a Party or any of its Affiliates, as a result of this Agreement, obtain any ownership interest, license or other right in or to any Know-How, Patents or other intellectual property rights of the other Party, including tangible or intangible items owned, controlled or developed by the other Party, or provided by the other Party to the receiving Party at any time, pursuant to this Agreement. Neither Party nor any of its Affiliates will use or practice any Know-How or Patents licensed or provided to such Party or any of its Affiliates outside the scope of or otherwise not in compliance with the rights and licenses granted to such Party and its Affiliates under this Agreement.

8. PAYMENTS

8.1. **Upfront Fee**. No later than ten (10) Business Days following the later of: (i) the Effective Date, or (ii) the date Kyorin receives originals of all applicable tax forms from aTyr to be filed with the appropriate tax authorities in Japan by Kyorin on behalf of aTyr, Kyorin will pay to aTyr, as a one-time, non-refundable, non-creditable payment, Eight Million Dollars ($8,000,000). As soon as Kyorin receives the completed applicable tax forms from aTyr, Kyorin will file such applicable tax forms with the appropriate tax authorities.

8.2. **Regulatory Milestone Payments**.

8.2.1. *Regulatory Milestones*. Subject to Section 8.2.2, Kyorin will make one-time, non-refundable, non-creditable milestone payments to aTyr (each, a "**Regulatory Milestone Payment**") upon the first achievement of each of the regulatory milestone events set forth in this Section 8.2.1 (each, a "**Regulatory Milestone Event**") by Kyorin or its Related Parties. The maximum total amount payable by Kyorin to aTyr under this Section 8.2.1 for all Licensed Products under this Agreement is [***] .

Regulatory Milestone Event	Regulatory Milestone Payment
1.[***]	[***]
2.[***]	[***]
3.[***]	[***]
4.[***] - [***]	[***] [***]
5.[***]	[***]
6.[***]	[***]

7.[***] - [***]	[***] [***]

8.2.2. *Payment Terms for Regulatory Milestone Payments*. Kyorin will notify and pay to aTyr the amounts set forth in the table of Section 8.2.1 within [***] days after the achievement of the applicable Regulatory Milestone Event by Kyorin or its Related Parties.

8.3. Sales Milestone Payments.

8.3.1. *Sales Milestones*. Subject to Section 8.3.2, Kyorin will make one-time, non-refundable, non-creditable milestone payments to aTyr (each, a "**Sales Milestone Payment**") when aggregate Annual Net Sales of all Licensed Products in the Kyorin Territory in a given Calendar Year first reach the Japanese Yen threshold values indicated below (each, a **Sales Milestone Event**") during the Term:

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

For clarity, the Sales Milestone Payments will each be paid only once, such that, the maximum total amount payable by Kyorin to aTyr under this Section 8.3 is [***]; *provided*, *however*, that the Sales Milestone Payments will be additive, such that, if all four (4) Sales Milestone Events set forth in the table above are achieved in the same Calendar Year, Kyorin will pay to aTyr the total amount of [***] in a single payment to be made in accordance with Section 8.3.2.

8.3.2. *Payment Terms for Sales Milestone Payments*. Kyorin will notify aTyr of the achievement of any Sales Milestone Event at the same time as Kyorin submits to aTyr a written report provided in Section 8.7.2 and will pay to aTyr the amount of the applicable Sales Milestone Payment no later than [***] days after the end of the [***] in which such Sales Milestone Event was achieved.

8.4. Royalties. During the applicable Royalty Term and subject to Section 8.5, Kyorin will make non-refundable, non-creditable royalty payments to aTyr, on a Licensed Product-by-Licensed Product basis, based on aggregate Annual Net Sales of such Licensed Product in the Kyorin Territory by Kyorin and its Related Parties at the royalty rates set forth below:

Aggregate Annual Net Sales	Royalty Rate
[***]	[***]
[***]	[***]

[***]	[***]
[***]	[***]

8.5. Additional Royalty Terms.

8.5.1. *Royalty Term*. Subject to the remainder of this Section 8.5, on a Licensed Product-by-Licensed Product basis, the royalties due under Section 8.4 will be payable on Annual Net Sales from the First Commercial Sale of such Licensed Product in the Kyorin Territory until the latest of: (a) the earlier of (i) the expiration of the last Valid Claim of the aTyr Licensed Patents Covering such Licensed Product in the Kyorin Territory, or (ii) the first commercial sale by any Person other than Kyorin or its Affiliate or Sublicensee in the Kyorin Territory of any pharmaceutical preparation containing an active ingredient having the same amino-acid sequences as ATYR1923 including any Biosimilar Product; (b) the expiration of Regulatory Exclusivity for such Licensed Product in the Kyorin Territory; and (c) ten (10) years after the First Commercial Sale of such Licensed Product in the Kyorin Territory (the "**Royalty Term**").

8.5.2. *Only One Royalty*. Only one royalty will be due with respect to the sale of the same unit of Licensed Product. Only one royalty will be due hereunder on the sale of a Licensed Product even if the manufacture, use, sale, offer for sale or importation of such Licensed Product infringes more than one claim of the aTyr Licensed Patents.

8.5.3. *Third Party Offsets*. Kyorin will have the right to reduce royalties payable to aTyr pursuant to Section 8.4 by [***] of any royalty payments that Kyorin makes to a Third Party to license any issued Patent Covering the same active pharmaceutical ingredient as that of ATYR1923, *provided* that in no event will the royalties otherwise due to aTyr for any Licensed Product in a Calendar Quarter during the Royalty Term for such Licensed Product be reduced by more than [***] of the amount that would otherwise be due to aTyr in such Calendar Quarter for such Licensed Product but for the reduction permitted under this Section 8.5.3.

8.6. Other Amounts Payable. With respect to any amounts owed under this Agreement by one Party to the other for which no other invoicing and payment procedure is specified in this Section 8, within [***] days after the end of each Calendar Quarter, each Party will provide an invoice, together with reasonable supporting documentation, to the other Party for such amounts owed in respect of such Calendar Quarter. The owing Party will pay any undisputed amounts within [***] days of receipt of the invoice, and any disputed amounts owed by a Party will be paid within [***] days of resolution of the dispute.

8.7. Payment Terms.

8.7.1. *Manner of Payment.* All payments to be made by Kyorin hereunder will be made in Dollars by wire transfer to such bank account as aTyr may designate.

8.7.2. *Reports and Royalty Payments.* Within [***] Business Days after the end of each month after the First Commercial Sale of a Licensed Product, Kyorin will submit to aTyr a written flash report setting forth its reasonable good faith estimates of the number of units of each Licensed Product sold by Kyorin and is Related Parties during such month and, with such report for the last month in a given Calendar Quarter, its reasonable good faith estimates of the Net Sales of each Licensed Product during such Calendar Quarter for aTyr internal reporting purposes. All amounts payable to aTyr pursuant to Section 8.4 will be paid within [***] days after the end of each Calendar Quarter. Each such payment of royalties due to aTyr will be accompanied by a written report showing in Dollars the amount of Net Sales of Licensed

Products and the royalty due from such Calendar Quarter and the cumulative amount of Net Sales from prior Calendar Quarters of the same Calendar Year. The report will include, at a minimum, the following information for the applicable Calendar Quarter, each listed by Licensed Product: (a) the number of units of each Licensed Product on which royalties are owed to aTyr hereunder sold either by Kyorin or its Related Parties; (b) the gross amount received for such sales; (c) the calculation of Net Sales from such gross amount received (including the exchange rate applied in converting from local currency to Dollars); and (d) the royalties owed to aTyr. All such reports will be treated as Confidential Information of Kyorin. If aTyr determines that the calculation of Net Sales for a Calendar Quarter in a royalty report deviates from the amounts previously reported to aTyr for any reason (such as, on account of additional amounts collected or Licensed Product returns), then Kyorin and aTyr will reasonably cooperate to reconcile any such deviations to the extent necessary under applicable legal or financial reporting requirements.

8.7.3. *Records and Audits*. Kyorin will keep, and will cause its Related Parties to keep, complete, true and accurate books and records in accordance with its Accounting Standards in relation to this Agreement, including in relation to Net Sales and royalties. Kyorin will keep, and will cause its Related Parties to keep, such books and records for at least [***] following the Calendar Year to which they pertain. aTyr may, upon written request, cause an internationally-recognized independent accounting firm (the "**Auditor**"), which is reasonably acceptable to Kyorin, to inspect the relevant records of Kyorin and its Affiliates to verify the payments made by Kyorin and the related reports, statements and books of accounts, as applicable. Before beginning its audit, the Auditor will execute an undertaking reasonably acceptable to Kyorin by which the Auditor agrees to keep confidential all information reviewed during the audit. The Auditor will have the right to disclose to aTyr only its conclusions regarding any payments owed under this Agreement. Kyorin and its Affiliates will make their records available for inspection by the Auditor during regular business hours at such place or places where such records are customarily kept, upon receipt of reasonable advance notice from aTyr. The records will be reviewed solely to verify the accuracy of Kyorin's royalties and other payment obligations and compliance with the financial terms of this Agreement. Such inspection right will not be exercised more than once in any Calendar Year and not more frequently than once with respect to records covering any specific period of time. In addition, aTyr will only be entitled to audit the books and records of Kyorin for the three (3) Calendar Years prior to the Calendar Year in which the audit request is made. aTyr agrees to hold in strict confidence all information received and all information learned in the course of any audit or inspection, except to the extent necessary to enforce its rights under this Agreement or to the extent required to comply with any Laws. The Auditor will provide its audit report and basis for any determination to Kyorin at the time such report is provided to aTyr before it is considered final. In the event that the final result of the inspection reveals an undisputed underpayment or overpayment by Kyorin, the underpaid or overpaid amount will be settled promptly. aTyr will pay for such inspections, as well as its expenses associated with enforcing its rights with respect to any payments hereunder, except, if an underpayment of more than five percent (5%) of the total payments due hereunder for the applicable Calendar Year is discovered, then the fees and expenses charged by the Auditor will be paid by Kyorin.

8.7.4. *Currency Exchange*. The exchange rate for converting Net Sales from the local currency to Dollars for the purpose of computing payments to aTyr under Section 8.4 will be the central rate on the last day of the Calendar Quarter, as quoted by Mizuho Bank, Ltd., Tokyo, Japan, to which such royalty payment relates.

8.7.5. *Taxes*.

8.7.5.1. Kyorin may withhold from payments due to aTyr amounts for payment of any withholding tax that is required by Law to be paid to any taxing authority with respect to such payments. Kyorin will provide aTyr with all relevant documents and correspondence, and will also provide to aTyr any other cooperation or assistance on a reasonable basis as may be necessary to enable aTyr to claim

exemption from such withholding taxes and to receive a refund of such withholding tax or claim a foreign tax credit. Kyorin will give proper evidence from time to time as to the payment of any such tax. The Parties will cooperate with each other in seeking deductions under any double taxation or other similar treaty or agreement from time to time in force. Notwithstanding the foregoing, if Kyorin assigns its rights and obligations hereunder to, or otherwise causes payments to be made to aTyr by, an Affiliate or Third Party outside of the United States pursuant to Section 14.1 or uses intellectual property described herein outside of the United States, and if Kyorin or such Affiliate or Third Party is required by applicable Law to withhold any additional taxes from or in respect of any amount payable under this Agreement as a result of such assignment, then any such amount payable under this Agreement will be increased to take into account the additional taxes withheld as may be necessary so that, after making all required withholdings (including withholdings on the withheld amounts), aTyr receives an amount equal to the sum it would have received had no such withholding been made; *provided*, *however*, that Kyorin will have no obligation to pay any additional amount to the extent that the withholding tax would not have been imposed but for (a) the failure by aTyr to take advantage of an otherwise available exemption from or reduction in the rate of withholding tax under any applicable income tax convention between the United States and the jurisdiction in which such Affiliate or Third Party is domiciled, or (b) the assignment by aTyr of its rights under this Agreement or any redomiciliation of aTyr outside of the United States. Notwithstanding the foregoing, if Kyorin has an obligation to pay additional amounts to account for withholding taxes, it will be entitled to a full amount of any foreign tax credit attributable to aTyr if and when realized in cash by aTyr as a result of such payment.

8.7.5.2. Apart from any such permitted withholding and those deductions expressly included in the definition of Net Sales, the amounts payable hereunder will not be reduced on account of any taxes, charges, duties or other levies.

8.7.6. *Blocked Payments*. In the event that, by reason of applicable Law in any country, it becomes impossible or illegal for Kyorin to transfer, or have transferred on its behalf, payments owed to aTyr hereunder, Kyorin will promptly notify aTyr of the conditions preventing such transfer and such payments will be deposited in local currency in the Kyorin Territory to the credit of aTyr in a recognized banking institution designated by aTyr or, if none is designated by aTyr within a period of [***] days, in a recognized banking institution selected by Kyorin, as the case may be, and identified in a written notice given to aTyr.

8.7.7. *Interest Due*. Kyorin will pay aTyr interest on any undisputed payments that are not paid on or before the date such payments are due under this Agreement at a rate of [***] or the maximum applicable legal rate, if less, calculated on the total number of days payment is delinquent.

8.8. **Mutual Convenience**. The royalty and other payment obligations set forth hereunder have been agreed to by the Parties for the purpose of reflecting and advancing their mutual convenience, including the ease of calculating and paying royalties and other amounts to each Party.

9. CONFIDENTIALITY AND PUBLICATION

9.1. Nondisclosure and Non-Use Obligations.

9.1.1. All Confidential Information disclosed by one Party to the other Party under this Agreement will be maintained in confidence by the receiving Party and will not be disclosed to a Third Party or used for any purpose except pursuant to the licenses granted under this Agreement as otherwise set forth herein or any other written agreement between the Parties, without the prior written consent of the disclosing Party, except to the extent that such Confidential Information:

(a) is known by the receiving Party at the time of its receipt, and not through a prior disclosure by the disclosing Party, as documented by the receiving Party's business records;

(b) is known to the public before its receipt from the disclosing Party, or thereafter becomes generally known to the public through no breach of this Agreement by the receiving Party;

(c) is subsequently disclosed to the receiving Party by a Third Party who is not known by the receiving Party to be under an obligation of confidentiality to the disclosing Party; or

(d) is developed by or on behalf of the receiving Party independently of Confidential Information received from the disclosing Party, as documented by the receiving Party's business records.

Specific aspects or details of Confidential Information will not be deemed to be within the public domain or in the possession of the receiving Party merely because the Confidential Information is encompassed by more general information in the public domain or in the possession of the receiving Party. Further, any combination of Confidential Information will 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.

The existence and terms of this Agreement are hereby deemed to be the Confidential Information of each Party.

9.1.2. Notwithstanding the obligations of confidentiality and non-use set forth above, a receiving Party may provide Confidential Information disclosed to it and disclose the existence and terms of this Agreement, in each case, as may be reasonably required in order to perform its obligations or to exercise its rights under this Agreement, and specifically to (a) the receiving Party's Affiliates, Sublicensees or Third Party contractors with respect to Licensed Products, and their employees, directors, agents, consultants, or advisors to the extent necessary for the potential or actual performance of its obligations or exercise of its rights under this Agreement, in each case who are under an obligation of confidentiality and non-use with respect to such information that is no less stringent than the terms of this Section 9.1; (b) governmental or other Regulatory Authorities in order to obtain Patents or perform its obligations or exercise its rights under this Agreement, *provided* that such Confidential Information will be disclosed only to the extent reasonably necessary to do so, and where permitted, subject to confidential treatment; (c) the extent required by Law, including by the rules or regulations of the United States Securities and Exchange Commission or similar regulatory agency in a country other than the United States or of any stock exchange or listing entity; (d) with respect to the terms of this Agreement only, any bona fide actual or prospective acquirers, underwriters, investors, lenders or other financing sources and any bona fide actual or prospective collaborators, licensors, Sublicensees, licensees or strategic partners and to employees, directors, agents, consultants or advisers of such Third Party, in each case who are under obligations of confidentiality and non-use with respect to such information that are no less stringent than the terms of this Section 9.1 (but of duration customary in confidentiality agreements entered into for a similar purpose); and (e) to any Third Party to the extent a Party is required to do so pursuant to the terms of an in-license agreement with such Third Party relating to the intellectual property rights sublicensed by such Party hereunder. If a Party is required by Law to disclose Confidential Information of the other Party that is subject to the confidentiality or non-use provisions of this Section 9.1, such Party will 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. Notwithstanding Section 9.1.1, Confidential Information that is permitted or required to be disclosed will remain otherwise subject to the confidentiality and non-use provisions of this Section 9.1. If either Party concludes that a copy of this Agreement must be filed with the United States Securities and Exchange

Commission or similar regulatory agency in a country other than the United States, such Party will, a reasonable time prior to any such filing, provide the other Party with a copy of such agreement showing any provisions hereof as to which the Party proposes to request confidential treatment, will provide the other Party with an opportunity to comment on any such proposed redactions and to suggest additional redactions, and will take such Party's reasonable comments into consideration before filing such agreement and use reasonable efforts to have terms identified by such other Party afforded confidential treatment by the applicable regulatory agency.

9.2. Publication and Publicity.

9.2.1. *Publication*. Except for disclosures permitted pursuant to Sections 9.1 and 9.3.3, if a Party wishes to make a publication or public presentation that contains any Confidential Information of the other Party (for clarity, any results of Development activities performed by or on behalf of a Party will be the Confidential Information of such Party) or, [***], such Party will deliver to the other Party a copy of the proposed written publication or presentation at least [***] Business Days prior to submission for publication or presentation. Such other Party will have the right (a) to propose modifications to the publication or presentation for patent reasons or trade secret reasons or to remove its Confidential Information, and the publishing Party will remove all Confidential Information of the other Party if so requested by the other Party and otherwise will incorporate the other Party's reasonable comments, or (b) to request a reasonable delay in publication or presentation in order to protect patentable information. If such other Party requests a delay, the publishing Party will delay submission or presentation for a period of [***] days after the date of such request (or such shorter period as may be mutually agreed by the Parties) to enable the other Party to file patent applications protecting such other Party's rights in such information. With respect to any proposed publications or disclosures by investigators or academic or non-profit collaborators, such materials will be subject to review under this Section 9.2.1 to the extent that the publishing Party has the right and ability (after using Commercially Reasonable Efforts to obtain such right and ability) to do so. The publishing Party will not submit or publish any article or other publication to or with any scientific journal or other publisher that requires, as a condition of publication, that the publishing Party agree to make available to the publisher or Third Parties any Materials which are the subject of the publication. aTyr agrees to provide a notice to Kyorin with regard to any publication or presentation by aTyr that includes any results of Development activities with respect to any Licensed Product which does not include any Confidential Information of Kyorin in advance of submission for such publication or presentation, together with a copy of the proposed written publication or presentation.

9.2.2. *Publicity*. Except as set forth in Section 9.1, 9.2.1 or 9.3, the terms of this Agreement may not be disclosed by either Party, and neither Party will use the name, Trademark, trade name or logo of the other Party or its employees in any publicity, news release or other disclosure relating to this Agreement, its subject matter, or the Collaboration without the prior express written permission of the other Party, except (a) as may be required by applicable Law, including by the rules or regulations of the United States Securities and Exchange Commission or similar regulatory agency in any country other than the United States or of any stock exchange or listing entity, *provided* that the Party making such disclosure or use of the name, Trademark, trade name or logo of the other Party or its employees, gives the other Parties reasonable prior notice and otherwise complies with Section 9.1.2, or (b) as expressly permitted by the terms hereof.

9.3. Press Release.

9.3.1. Each Party will each issue a press release at such timing as the Parties agree in advance of such press release in accordance with applicable Laws.

9.3.2. Except as provided in Section 9.2.2 or this Section 9.3, neither Party will issue a press release or public announcement relating to this Agreement without the prior written approval of the other Party (such approval not to be unreasonably withheld, conditioned or delayed), except that a Party may (a) once a press release or other public statement is approved in writing by both Parties, make subsequent public disclosure of the information contained in such press release or other written statement without the further approval of the other Party, and (b) issue a press release or public announcement as required by applicable Law, including by the rules or regulations of the United States Securities and Exchange Commission or similar regulatory agency in a country other than the United States or of any stock exchange or listing entity, *provided* that the Party issuing such press release gives reasonable prior notice to the other Party of and the opportunity to comment on the press release or public announcement, and otherwise complies with this Section 9. In addition, aTyr may, with Kyorin's prior written approval, issue a press release regarding the payment or receipt of any milestone payments under this Agreement with respect to any Licensed Products, *provided* that such press release complies with this Section 9.3.

9.3.3. Notwithstanding anything in this Section 9.3 to the contrary, either Party may issue a press release or make a public disclosure relating to such Party's Development, Manufacturing or Commercialization activities with respect to Licensed Products in such Party's Territory, *provided* that such press release or public disclosure does not disclose Confidential Information of the other Party. Prior to making any such disclosure under this Section 9.3.3, however, disclosing Party will provide the other Party with a draft of such proposed disclosure within a reasonable time (but at least [***] Business Days) prior to disclosure for such other Party's review and comment, and the disclosing Party will consider in good faith any timely comments provided by the other Party.

10. REPRESENTATIONS, WARRANTIES AND COVENANTS

10.1. **Mutual Representations and Warranties as of the Effective Date**. Each Party represents and warrants to the other Party that, as of the Effective Date:

10.1.1. such Party is a corporation duly organized, validly existing and in good standing under the laws of its jurisdiction of incorporation or formation;

10.1.2. such Party has all requisite corporate power and corporate authority to enter into this Agreement and to carry out its obligations under this Agreement;

10.1.3. all requisite corporate action on the part of such Party, its directors and stockholders required by applicable Law for the authorization, execution and delivery by such Party of this Agreement, and the performance of all obligations of such Party under this Agreement, has been taken;

10.1.4. the execution, delivery and performance of this Agreement, and compliance with the provisions of this Agreement, by such Party do not and will not: (a) violate any provision of applicable Law or any ruling, writ, injunction, order, permit, judgment or decree of any Governmental Authority, (b) constitute a breach of, or default under (or an event which, with notice or lapse of time or both, would become a default under) or conflict with, or give rise to any right of termination, cancellation or acceleration of, any agreement, arrangement or instrument, whether written or oral, by which such Party or any of its assets are bound, or (c) violate or conflict with any of the provisions of such Party's organizational documents (including any articles or memoranda of organization or association, charter, bylaws or similar documents); and

10.1.5. no consent, approval, authorization or other order of, or filing with, or notice to, any Governmental Authority or other Third Party is required to be obtained or made by such Party in connection with the authorization, execution and delivery by such Party of this Agreement.

10.2. **Additional Representations and Warranties of aTyr**. aTyr represents and warrants to Kyorin that, as of the Effective Date:

10.2.1. aTyr and aTyr Affiliates Control all right, title and interest in and to the aTyr Licensed Technology, and has the right to grant the license under the aTyr Licensed Technology to Kyorin set forth in this Agreement free of any lien or other encumbrance in favor of any Third Party;

10.2.2. to the Best Knowledge, the aTyr Licensed Patents are the only Patents that are Controlled by aTyr or aTyr Affiliates that are necessary for the Development and Commercialization of the Licensed Products in the Field in the Kyorin Territory;

10.2.3. (i) to the Best Knowledge, the issued Patents within the aTyr Licensed Patents are valid and enforceable, and (ii) neither aTyr nor aTyr's Affiliate has knowledge of any cause which could reasonably be expected to invalidate the pending patent applications within the aTyr Licensed Patents or the Patents to be issued therefrom;

10.2.4. neither aTyr nor aTyr Affiliates have granted to any Third Party any rights in the aTyr Licensed Technology that are inconsistent with the rights granted to Kyorin under this Agreement;

10.2.5. to the Best Knowledge, no claims of infringement, misappropriation or other conflict with any intellectual property rights or other rights of any Third Party have been made or threatened with respect to aTyr's Development or use of the Licensed Products;

10.2.6. to the Best Knowledge, the Development, Manufacturing and Commercialization of any Licensed Product by aTyr as of Effective Date do not infringe any issued patent of which aTyr is aware;

10.2.7. to the Best Knowledge, there is no infringement or misappropriation of any aTyr Licensed Technology by any Third Party;

10.2.8. to the Best Knowledge, the Development of the Licensed Product (including obtainment of the aTyr Licensed Technology) by or on behalf of aTyr has been conducted in compliance in all material respects with the applicable Laws;

10.2.9. there is no pending action or action threatened in writing (or to the Best Knowledge, threatened orally) by any Third Party, including the relevant Governmental Authorities, in relation with the aTyr Licensed Technology or the Licensed Product;

10.2.10. the Yearly Funding Plan for the Calendar Year 2020 submitted to Kyorin before the Effective Date is prepared based on aTyr's good faith estimation; and

10.2.11. to the Best Knowledge, all information furnished by aTyr to Kyorin up through and including the Effective Date concerning any Licensed Product (including safety and efficacy thereof) is accurate and complete in all material respects.

10.3. **Warranty Disclaimer**. EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN THIS AGREEMENT, NEITHER PARTY MAKES ANY REPRESENTATION OR EXTENDS ANY WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, TO THE OTHER PARTY WITH RESPECT TO ANY PATENTS, KNOW-HOW, MATERIALS, LICENSED PRODUCT, GOODS, SERVICES, RIGHTS OR OTHER SUBJECT MATTER OF THIS AGREEMENT AND HEREBY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY, NONINFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ANY AND ALL OF THE

FOREGOING. EACH PARTY HEREBY DISCLAIMS ANY REPRESENTATION OR WARRANTY THAT THE DEVELOPMENT OR COMMERCIALIZATION OF ANY LICENSED PRODUCT PURSUANT TO THIS AGREEMENT WILL BE SUCCESSFUL.

10.4. Certain Covenants.

10.4.1. *Compliance*. Kyorin will, and will cause its Related Parties to, conduct the Collaboration and the Development and Commercialization of the Licensed Products in the Kyorin Territory in accordance with all applicable Laws. aTyr will, and will cause its Related Parties to, conduct all Development activities with respect to Licensed Products to be conducted by aTyr under this Agreement in accordance with all applicable Laws.

10.4.2. *No Debarment*. Each Party will use reasonable efforts to not use, in any capacity in connection with the Collaboration or the performance of its obligations under this Agreement, any Person that has been debarred pursuant to Section 306 of the FD&C Act, as amended, or that is the subject of a conviction described in such section, or, in the case of Kyorin, such equivalent Laws applicable in the Kyorin Territory. Each Party agrees to inform the other Party in writing immediately if it or any Person that is performing the Collaboration or any other activities under this Agreement, is debarred or is subject to debarment or is the subject of a conviction described in Section 306 of the FD&C Act or, in the case of Kyorin, such equivalent Laws applicable in the Kyorin Territory, or if any action, suit, claim, investigation or legal or administrative proceeding is pending or, to the best of the notifying Party's knowledge, is threatened, relating to the debarment or conviction of the notifying Party or any Person or entity used in any capacity by such Party or any of its Affiliates in connection with the Collaboration or the performance of its other obligations under this Agreement.

10.4.3. *Conflicting Transactions*. During the Term, on a Licensed Product-by-Licensed Product basis, aTyr will not, and will cause its Affiliates not to, enter into any agreement with any Third Party under which aTyr or its Affiliates grant a license or other right under the aTyr Licensed Technology that is inconsistent with this Agreement for such Licensed Product. During the Term, on a Licensed Product-by-Licensed Product basis, Kyorin will not, and will cause its Affiliates not to, enter into any agreement with any Third Party under which Kyorin or its Affiliates grant a license or other right under the Kyorin Background Technology or New Kyorin IP that is inconsistent with this Agreement for such Licensed Product.

10.4.4. *Yearly Funding Plan*. aTyr will, no later than [***] after the end of each Calendar Year, provide Kyorin with a Yearly Funding Plan for the next Calendar Year, *provided* that the Yearly Funding Plan for the Calendar Year 2020 will be as attached as a schedule to the Letter Agreement. Should aTyr acknowledge any change or expected change in the Yearly Funding Plan that would reasonably be expected to materially affect [***], it will [***] notify Kyorin of such change and discuss with Kyorin [***].

11. INDEMNIFICATION; LIMITATION OF LIABILITY; INSURANCE

11.1. General Indemnification by Kyorin. Kyorin will indemnify, hold harmless and defend aTyr, its Affiliates, and their respective directors, officers, employees and agents ("**aTyr Indemnitees**") from and against any and all liabilities, damages, costs, fees and expenses (including reasonable attorneys' fees and litigation expenses) (collectively, "**Losses**") incurred by any of the aTyr Indemnitees in connection with Third Party claims or suits to the extent arising out of or resulting from, directly or indirectly, (a) any breach of any representation or warranty made by Kyorin in this Agreement, or any breach or violation of any covenant or agreement of Kyorin in, or in the performance of, this Agreement, (b) the negligence or willful misconduct by or of Kyorin or any of its Related Parties, or any of their respective directors, officers,

employees or agents in the performance of Kyorin's obligations under this Agreement, or (c) the Development or Commercialization of Licensed Products by or on behalf of Kyorin or any of its Related Parties pursuant to this Agreement. Kyorin will have no obligation to indemnify the aTyr Indemnitees to the extent that the Losses arise out of or result from, directly or indirectly, any matters for which aTyr is obligated to indemnify Kyorin Indemnitees under Section 11.2.

11.2. General Indemnification by aTyr. aTyr will indemnify, hold harmless, and defend Kyorin, its Affiliates and their respective directors, officers, employees and agents ("**Kyorin Indemnitees**") from and against any and all Losses incurred by any of the Kyorin Indemnitees in connection with Third Party claims or suits to the extent arising out of or resulting from, directly or indirectly, (a) any breach of any representation or warranty made by aTyr in this Agreement, or any breach or violation of any covenant or agreement of aTyr in, or in the performance of, this Agreement, (b) the negligence or willful misconduct by or of aTyr or any of its Affiliates or Sublicensees, or any of and their respective directors, officers, employees or agents in the performance of aTyr's obligations under this Agreement, or (c) the Development or Commercialization of Licensed Products by or on behalf of aTyr or any of its Affiliates or Sublicensees pursuant to this Agreement. aTyr will have no obligation to indemnify the Kyorin Indemnitees to the extent that the Losses arise out of or result from, directly or indirectly, any matters for which Kyorin is obligated to indemnify aTyr Indemnitees under Section 11.1.

11.3. Indemnification Procedure. The party entitled to indemnification under Section 11 (an "**Indemnified Party**") will notify the Party potentially responsible for such indemnification (the "**Indemnifying Party**") in writing promptly upon being notified of or having actual knowledge of any claim or claims asserted or threatened against the Indemnified Party which could give rise to a right of indemnification under this Agreement, *provided* that the failure to give such notice will not relieve the Indemnifying Party of its indemnity obligation hereunder except to the extent that such failure materially prejudices the Indemnifying Party. If the Indemnifying Party has acknowledged in writing to the Indemnified Party the Indemnifying Party's responsibility for defending a claim, the Indemnifying Party will have the right to defend, at its sole cost and expense, such claim by all appropriate proceedings, *provided* that the Indemnifying Party may not enter into any compromise or settlement unless (a) such compromise or settlement imposes only a monetary obligation on the Indemnifying Party and includes as an unconditional term thereof, the giving by each claimant or plaintiff to the Indemnified Party of a release from all liability in respect of such claim; or (b) the Indemnified Party consents to such compromise or settlement, which consent will not be unreasonably withheld, conditioned or delayed unless such compromise or settlement involves (i) any admission of legal wrongdoing by the Indemnified Party, (ii) any payment by the Indemnified Party that is not indemnified under this Agreement, or (iii) the imposition of any equitable relief against the Indemnified Party. The Indemnified Party will cooperate with the Indemnifying Party and may participate in, but not control, any defense or settlement of any claim controlled by the Indemnifying Party pursuant to this Section 11.3 and will bear its own costs and expenses with respect to such participation, *provided* that the Indemnifying Party will bear such costs and expenses if counsel for the Indemnifying Party will have reasonably determined that such counsel may not properly represent both the Indemnifying Party and the Indemnified Party. If the Indemnifying Party does not elect to assume control of the defense of a claim or if a good faith and diligent defense, in the Indemnified Party's reasonable opinion, is not being or ceases to be materially conducted by the Indemnifying Party, the Indemnified Party will have the right, at the expense of the Indemnifying Party, upon at least [***] Business Days' prior written notice to the Indemnifying Party of its intent to do so, to undertake the defense of such claim for the account of the Indemnifying Party (with counsel reasonably selected by the Indemnified Party and approved by the Indemnifying Party, such approval not to be unreasonably withheld, conditioned or delayed), *provided* that the Indemnified Party will keep the Indemnifying Party apprised of all material developments with respect to such claim. The Indemnified Party may not enter into any compromise or settlement without the prior written consent of the Indemnifying Party, such consent not to be unreasonably withheld, conditioned or delayed.

11.4. **Limitation of Liability**. NEITHER PARTY WILL BE LIABLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES ARISING OUT OF THIS AGREEMENT, OR THE EXERCISE OF ITS RIGHTS OR THE PERFORMANCE OF ITS OBLIGATIONS HEREUNDER, INCLUDING LOST PROFITS ARISING FROM OR RELATING TO ANY BREACH OF THIS AGREEMENT, REGARDLESS OF ANY NOTICE OF SUCH DAMAGES, EXCEPT AS A RESULT OF (A) A PARTY'S GROSS NEGLIGENCE OR WILLFUL MISCONDUCT OR (B) BREACH OF ANY CONFIDENTIALITY OBLIGATIONS ARISING PURSUANT TO SECTION 9. NOTHING IN THIS SECTION 11.4 IS INTENDED TO LIMIT OR RESTRICT THE INDEMNIFICATION RIGHTS OR OBLIGATIONS OF EITHER PARTY UNDER THIS SECTION 11.

11.5. **Insurance**. Each Party will obtain and maintain insurance during the Term and for a period of at least [***] after the last commercial sale of any Licensed Product in its Territory for which it is responsible, with a reputable, solvent insurer in an amount appropriate for its business and products of the type that are the subject of this Agreement, and for its obligations under this Agreement. Specifically, each Party will maintain product liability insurance and clinical trial liability insurance with limits of at least [***] per occurrence and in annual aggregate. Upon request, each Party will provide the other Party with evidence of the existence and maintenance of such insurance coverage. Each Party will provide the other Party with at least [***] days prior written notice of any material change (including cancellation or non-renewal) in the then-current applicable insurance policies including with respect to the amount of coverage or other terms.

12. INTELLECTUAL PROPERTY

12.1. Inventorship.

12.1.1. *Determination of Inventorship*. Inventorship for inventions and discoveries (including Know-How) first made during the course of the Collaboration will be determined in accordance with United States patent Laws for determining inventorship.

12.1.2. *JRA Exception*. Notwithstanding anything to the contrary in this Agreement, each Party will have the right to invoke the America Invents Act Joint Research Agreement exception codified at 35 U.S.C. § 102(c) (the "**JRA Exception**") when exercising its rights under this Agreement, but only with prior written consent of the other Party in its sole discretion. In the event that a Party intends to invoke the JRA Exception, once agreed to by the other Party if required by the preceding sentence, it will notify the other Party and the other Party will cooperate and coordinate its activities with such Party with respect to any filings or other activities in support thereof. The Parties acknowledge and agree that this Agreement is a "joint research agreement" as defined 35 U.S.C. § 100(h).

12.2. Ownership.

12.2.1. aTyr will own the entire right, title and interest in and to all Know-How (and Patents claiming inventions therein) first developed or conceived solely by or on behalf of aTyr in the performance of the Collaboration ("**New aTyr IP**").

12.2.2. Kyorin will own the entire right, title and interest in and to all Know-How (and Patents claiming inventions therein) first developed or conceived solely by or on behalf of Kyorin in the performance of the Collaboration ("**New Kyorin IP**").

12.2.3. Each Party will own an undivided one-half right, title and interest in and to all Know-How (and Patents claiming inventions therein) first developed or conceived jointly by or on behalf of the Parties in the performance of the Collaboration ("**New Joint IP**").

12.3. **Covenants in Support of Joint Ownership of New Joint IP**. Each Party may exercise its ownership rights in and to such New Joint IP, including the right to license and sublicense or otherwise to exploit, transfer or encumber its ownership interest, without an accounting or obligation to, or consent required from, the other Party, but subject to the licenses under this Agreement and the other terms and conditions of this Agreement. For the avoidance of doubt, under no circumstance will Kyorin have the right to grant a sublicense of any New Joint IP to any Third Party for the use, sale, offer for sale or import of any Licensed Product in the aTyr Territory and under no circumstance will aTyr have the right to grant a sublicense of any New Joint IP to any Third Party for the use, sale, offer for sale or import of any Licensed Product in the Field in the Kyorin Territory during the Term. At the reasonable written request of a Party, the other Party will in writing grant such consents and confirm that no such accounting is required to effect the foregoing regarding New Joint IP. Each Party, for itself and on behalf of its Affiliates, licensees and sublicensees, and employees, subcontractors, consultants and agents of any of the foregoing, hereby assigns (and to the extent such assignment can only be made in the future hereby agrees to assign), to the other Party a joint and undivided interest in and to all New Joint IP.

12.4. **Disclosure of Inventions**. Each Party will, promptly but no later than [***] days after the applicable Party's intellectual property department receives notice of the development or conception of any invention within any New aTyr IP, New Kyorin IP or New Joint IP, as the case may be, disclose such invention to the other Party, and such disclosure will contain sufficient detail to assess whether such invention is New aTyr IP, New Kyorin IP or New Joint IP.

12.5. **Prosecution and Maintenance of Patents**.

12.5.1. *Kyorin*.

12.5.1.1. *Prosecution and Maintenance of Kyorin Controlled Patents.* Subject to the remainder of this Section 12.5.1, as between the Parties, Kyorin will have, at its sole discretion, sole responsibility for all applicable Patent Costs, to Prosecute and Maintain in Kyorin's name all Patents within the New Kyorin IP (the "**New Kyorin Patents**") and all Patents within the Kyorin Background Technology (the "**Kyorin Background Patents**" and, together with the New Kyorin Patents, the "**Kyorin Controlled Patents**"). For the avoidance of doubt, subject to Section 12.5.1.2, Kyorin may elect to Abandon any Kyorin Controlled Patents in the aTyr Territory and the Kyorin Territory. For the purpose of Section 12.5, "**Abandon**" means (i) not to Prosecute and Maintain a Patent, or (ii) not to continue to Prosecute and Maintain a Patent claiming priority to a Patent prior to its issuance. Kyorin will furnish to aTyr, via electronic mail or such other method as mutually agreed by the Parties, copies of proposed filings and documents received from patent counsel in the course of Prosecuting and Maintaining the New Kyorin Patents in the aTyr Territory, or copies of documents filed with the relevant national patent offices or other Governmental Authorities with respect to the New Kyorin Patents in the aTyr Territory, and such other material documents related to the Prosecution and Maintenance of the New Kyorin Patents in the aTyr Territory, in sufficient time prior to filing such document or making any payment due thereunder to allow for review and comment by aTyr. Kyorin will consider in good faith timely comments and recommendations made by aTyr in connection with such review.

12.5.1.2. *No Prosecution and Maintenance of New Kyorin Patents.* In the event that Kyorin elects to Abandon any New Kyorin Patent in the aTyr Territory or the Kyorin Territory that includes any composition of matter or method claim with respect to any Licensed Product, Kyorin will notify aTyr of such election at least [***] days before any such New Kyorin Patent would become abandoned, no longer available or otherwise forfeited. aTyr will have the right (but not the obligation), at aTyr's sole discretion, and sole responsibility for all applicable Patent Costs, to Prosecute and Maintain in the aTyr Territory such New Kyorin Patent (which right will include the right to file additional Patents claiming priority to such Patent) in the name of Kyorin. Kyorin will furnish to aTyr, via electronic mail or

such other method as mutually agreed by the Parties, documents received from patent counsel in the course of Prosecuting and Maintaining such assumed New Kyorin Patent, or documents filed with the relevant national patent offices or other Governmental Authorities with respect to such assumed New Kyorin Patent, and such other material documents related to the Prosecution and Maintenance of such assumed New Kyorin Patent, in sufficient time prior to filing such document or making any payment due thereunder to allow for review and comment by Kyorin. Kyorin will sign, or will use reasonable efforts to have signed, all legal documents as are reasonably necessary for aTyr to assume the Prosecution and Maintenance of such New Kyorin Patent. For the avoidance of doubt, if Kyorin elects to Abandon: (i) any New Kyorin Patent in the Kyorin Territory or in the aTyr Territory that does not include any composition of matter or method claim with respect to any Licensed Product; or (ii) any Kyorin Background Patents anywhere in the world, Kyorin will not be required to notify to that effect.

12.5.2. *aTyr*.

12.5.2.1. *Prosecution and Maintenance of aTyr Licensed Patents in the Kyorin Territory.* Subject to remainder of this Section 12.5.2 and to Section 12.5.3 with respect to any Joint Patents, as between the Parties, aTyr will, at its sole responsibility for all applicable Patents Costs, Prosecute and Maintain in aTyr's name and in the Kyorin Territory all aTyr Licensed Patents. aTyr will furnish to Kyorin, via electronic mail or such other method as mutually agreed by the Parties, copies of proposed PCT or national filings and documents received from patent counsel in the course of Prosecuting and Maintaining the aTyr Licensed Patents in the Kyorin Territory, or copies of documents filed with the relevant national patent offices or other Governmental Authorities with respect to such aTyr Licensed Patents, and such other material documents related to the Prosecution and Maintenance of such aTyr Licensed Patents, in sufficient time prior to filing such document or making any payment due thereunder to allow for review and comment by Kyorin. aTyr will consider in good faith timely comments and recommendations made by Kyorin in connection with such review. The Parties will update a schedule to the Letter Agreement if (a) any new aTyr Licensed Patent arises and (b) the status of an aTyr Licensed Patent changes.

12.5.2.2. *No Prosecution and Maintenance of aTyr Licensed Patents in the Kyorin Territory*. In the event that aTyr elects to Abandon any aTyr Licensed Patent in the Kyorin Territory, aTyr will notify Kyorin of such election at least [***] days before any such aTyr Licensed Patent would become abandoned, no longer available or otherwise forfeited. Kyorin will have the right (but not the obligation), at Kyorin's sole discretion, and sole responsibility for all applicable Patent Costs, to Prosecute and Maintain in the Kyorin Territory such aTyr Licensed Patent in the name of aTyr. If Kyorin elects to assume Prosecution and Maintenance of such aTyr Licensed Patent in the Kyorin Territory, such aTyr Licensed Patent will be excluded from the scope of the aTyr Licensed Patents set forth in Section 8.5.1(a) after such election, so that Kyorin owes no royalties to aTyr for such aTyr Licensed Patent going forward. aTyr will furnish to Kyorin, via electronic mail or such other method as mutually agreed by the Parties, documents received from patent counsel in the course of Prosecuting and Maintaining such assumed aTyr Licensed Patent, or documents filed with the relevant national patent offices or other Governmental Authorities with respect to such assumed aTyr Licensed Patent, and such other material documents related to the Prosecution and Maintenance of such assumed aTyr Licensed Patent, in sufficient time prior to filing such document or making any payment due thereunder to allow for review and comment by aTyr. aTyr will sign, or will use reasonable efforts to have signed, all legal documents as are reasonably necessary for Kyorin to assume the Prosecution and Maintenance of such aTyr Licensed Patent.

12.5.3. *Joint Patents*.

12.5.3.1. *Prosecution and Maintenance of Joint Patents.* Subject to remainder of this Section 12.5.3, as between the Parties, aTyr will Prosecute and Maintain in the name of aTyr and Kyorin jointly all Patents within the New Joint IP (the "**Joint Patents**"). The Parties will [***], and Kyorin will

reimburse aTyr for its share of Patent Costs for Joint Patents incurred by aTyr within thirty (30) days after receipt of an invoice therefor. aTyr will furnish to Kyorin, via electronic mail or such other method as mutually agreed by the Parties, copies of proposed PCT or national filings and documents received from patent counsel in the course of Prosecuting and Maintaining the Joint Patents, or copies of documents filed with the relevant national patent offices or other Governmental Authorities with respect to such Joint Patents, and such other material documents related to the Prosecution and Maintenance of such Joint Patents, in sufficient time prior to filing such document or making any payment due thereunder to allow for review and comment by Kyorin. aTyr will consider in good faith timely comments and recommendations made by Kyorin in connection with such review.

12.5.3.2. *No Prosecution and Maintenance of Joint Patents*. In the event that either Party elects to Abandon its interest in any Joint Patent in a country or countries, such Party will notify the other Party of such election at least [***] days before any such Joint Patent would become abandoned, no longer available or otherwise forfeited. The non-Abandoning Party will assume the Abandoning Party's interest in such country or countries, and Abandoning Party will execute such documents and perform such acts, at its expense, as may be reasonably necessary to effect an Abandonment of its entire right, title, and interest in and to such Joint Patent, which Abandonment will be completed in a timely manner to allow the non-Abandoning Party to continue prosecution or maintenance of any such Joint Patent. If the Abandoning Party is Kyorin, any Patents so Abandoned will no longer be considered Joint Patents and will be solely owned by aTyr but will not be included within the aTyr Licensed Patents licensed under this Agreement, and if the Abandoning Party is aTyr, any Patents so Abandoned will no longer be considered Joint Patents and will be solely owned by Kyorin but will not be included within Kyorin Controlled Patents licensed under this Agreement.

12.5.4. *Patent Miscellaneous*. Each Party hereby agrees: (a) to use reasonable efforts to make its employees, agents and consultants reasonably available to the other Party (or to the other Party's authorized attorneys, agents or representatives), to the extent reasonably necessary to enable such Party to undertake any Prosecution and Maintenance described in this Section 12.5; and (b) to reasonably cooperate in any such Prosecution and Maintenance by the other Party.

12.6. Third Party Infringement and Defense.

12.6.1. *Notices*. Each Party will promptly report in writing to the other Party any Competitive Infringement of which such Party (or any of its Affiliates or Sublicensees) becomes aware and will provide the other Party with all available evidence of such Competitive Infringement in such Party's control; *provided*, *however*, that (a) for cases of Competitive Infringement under Section 12.6.2.4 below, such written notice will be given within [***] days, and (b) for cases of infringement as described in Section 12.6.2.5 below, such written notice will be given as specified in Section 12.6.2.5. A notice under Biologics Price Competition and Innovation Act of 2009 (hereinafter the "**BPCIA**"), including notices pursuant to a §351(k) application under the BPCIA (however that section may be amended), or any analogous law outside the United States, with respect to any applicable Patents will be deemed to describe an act of Competitive Infringement, regardless of its content. Subject to the terms of this Section 12.6, the JSC will discuss in good faith strategies for abating such Competitive Infringement of any Licensed Product within each of the Party's respective Territory.

12.6.2. *Rights to Enforce*.

12.6.2.1. *Competitive (Kyorin) Infringement*.

(a) As between the Parties, Kyorin will have the first right (but not the obligation), at Kyorin's sole discretion and sole responsibility for all applicable Patent Costs, to seek to

abate any Competitive (Kyorin) Infringement by enforcing any Kyorin Controlled Patents or any Joint Patent in the Kyorin Territory. If Kyorin decides not to take steps to abate such Competitive (Kyorin) Infringement, within six (6) months after receipt of written notice of such Competitive (Kyorin) Infringement (or such shorter period of time as is required to comply with applicable Law in the Kyorin Territory to not waive any statutory rights), Kyorin will provide aTyr with notice of such decision and aTyr will have the rights set forth in Section 12.6.4.1 with respect to enforcing the Kyorin Controlled Patents in the Kyorin Territory to abate such Competitive (Kyorin) Infringement. [***] will pay all Patent Costs it incurs for such enforcement.

(b) As between the Parties, aTyr will have the first right (but not the obligation), at aTyr's sole discretion and sole responsibility for all applicable Patent Costs, to seek to abate all Competitive (Kyorin) Infringement by enforcing any aTyr Licensed Patent in the Kyorin Territory; *provided, however*, if aTyr desires not to seek to abate any Competitive (Kyorin) Infringement, aTyr will, promptly but within six (6) months after receipt of written notice of such Competitive (Kyorin) Infringement (or such shorter period of time as is required to comply with applicable Law in the Kyorin Territory to not waive any statutory rights), notify Kyorin to that effect and Kyorin will have the right (but not the obligation), at Kyorin's sole discretion and sole responsibility for all applicable Patent Costs, with respect to enforcing the aTyr Licensed Patent in the Kyorin Territory to abate such Competitive (Kyorin) Infringement. If Kyorin has exercised such rights and abated any Competitive (Kyorin) Infringement after [***], the royalty rates set forth in Section 8.4 will be reduced by [***].

12.6.2.2. *Registration*. Upon Kyorin's request, aTyr will, at Kyorin's expense, cooperate with Kyorin for the registration of the exclusive license granted to Kyorin under this Agreement, pursuant to Article 77 (*SENYOU JISSIKEN*) of the Japanese Patent Act.

12.6.2.3. *Competitive (aTyr) Infringement*.

(a) As between the Parties, Kyorin will have the first right (but not the obligation), at Kyorin's sole discretion, to seek to abate any Competitive (aTyr) Infringement by enforcing any Kyorin Controlled Patents solely in the aTyr Territory. If Kyorin does not take steps to abate such Competitive (aTyr) Infringement, within six (6) months after receipt of written notice of such Competitive (aTyr) Infringement (or such shorter period of time as is required to comply with applicable Law in the aTyr Territory to not waive any statutory rights), Kyorin will provide aTyr with notice of such decision and aTyr will have the rights set forth in Section 12.6.4.1 with respect to enforcing the Kyorin Controlled Patents in the aTyr Territory to abate such Competitive (aTyr) Infringement. [***] will pay all Patent Costs it incurs for such enforcement.

(b) As between the Parties, aTyr will have the first right (but not the obligation), at aTyr's sole discretion and sole responsibility for all applicable Patent Costs, to seek to abate all Competitive (aTyr) Infringement by enforcing any Joint Patent in the aTyr Territory; *provided, however*, if aTyr desires not to seek to abate any Competitive (aTyr) Infringement, aTyr will, promptly but within six (6) months after receipt of written notice of such Competitive (aTyr) Infringement (or such shorter period of time as is required to comply with applicable Law in the aTyr Territory to not waive any statutory rights), notify Kyorin to that effect and Kyorin will have the right (but not the obligation), at Kyorin's sole discretion and sole responsibility for all applicable Patent Costs, with respect to enforcing the Joint Patent in the aTyr Territory to abate such Competitive (aTyr) Infringement.

12.6.2.4. *35 USC 271(e)(2) Infringement*. Notwithstanding anything to the contrary in this Section 12.6.2, for a Competitive Infringement under 35 USC 271(e)(2), the time period set forth in Section 12.6.2.1 or 12.6.2.2, as applicable, during which a Party will have the initial right to bring a Proceeding will be shortened to a total of [***] days, so that, to the extent the other Party has the right,

pursuant to such Section 12.6.2.1 or 12.6.2.2, as applicable to initiate a Proceeding if the first Party does not initiate a Proceeding, such other Party will have such right if the first Party does not initiate a Proceeding within [***] days after such first Party's receipt of written notice of such Competitive Infringement. [***] will bear all the Patent Costs arising therefrom.

12.6.2.5. *Notifications Relating to BCPIA.* Each Party will promptly notify the other Party in writing of any notification or certification filed under BPCIA, including notices pursuant to a §351(k) application under the BPCIA, or any analogous law outside the United States, claiming that an applicable Patent is invalid or that infringement will not arise from the manufacture, use or sale of any Licensed Product, or any Biosimilar Product with respect to such Licensed Product, by a Third Party. The Parties' rights to bring infringement actions with respect thereto are set forth in Section 12.6. Notwithstanding the foregoing, each Party will consult with the other Party regarding the strategy for litigation of patents in connection with the BPCIA or analogous ex-U.S. law in such Party's Territory and will consider in good faith the other Party's input regarding such strategy. The Parties will execute such documents as necessary for the prosecution of any such action in accordance with Section 12.6. Without limiting the foregoing, aTyr will be responsible for any filings with respect to the Licensed Products under the BPCIA in the aTyr Territory, including providing lists of Patents which may include Kyorin Controlled Patents, if applicable, and Kyorin hereby authorizes aTyr to undertake such filings and agrees to provide such other information as aTyr may reasonably request in connection therewith.

12.6.3. *Defense*. As between the Parties, the Party controlling the Prosecution and Maintenance of any Patent under Section 12.5 will have the right (but not the obligation), at its sole discretion, to defend against a declaratory judgment action or other action (such as a revocation proceeding or an opposition) challenging any such Patent (a "**Third Party Action**"), other than with respect to (a) any counter-claims in any enforcement action brought by the other Party pursuant to Section 12.6.2 or (b) any action by a Third Party in response to an enforcement action brought by the other Party, which in both cases ((a) and (b)) will be controlled by such other Party. If the Party controlling such Prosecution and Maintenance of Patents under Section 12.5 does not defend such Patent under this Section 12.6.3 within [***] days (or such shorter period of time as is required to comply with applicable Law in the United States or any other country in the Territory to not waive any statutory rights), or elects not to continue any such defense (in which case it will promptly provide notice thereof to the other Party), then, (i) in the case of any of the foregoing done by aTyr, Kyorin will have the right (but not the obligation), at its sole discretion and sole responsibility for all applicable Patent Costs, to defend any Joint Patent against a Third Party Action, and (ii) in the case of any of the foregoing done by Kyorin, aTyr will have the right (but not the obligation), at its sole discretion, to defend any Kyorin Controlled Patent against a Third Party Action, in each case of (i) and (ii), as further set forth in Section 12.6.4.1. If aTyr does not defend any aTyr Licensed Patent in the Kyorin Territory within [***] days (or such shorter period of time as is required to comply with applicable Law in the United States or any other country in the Territory to not waive any statutory rights), or elects not to continue any such defense (in which case aTyr will promptly provide notice thereof to Kyorin), Kyorin will have the right (but not the obligation), at Kyorin's sole discretion and sole responsibility for all applicable Patent Costs, to defend such aTyr Licensed Patent in the Kyorin Territory in the name of aTyr. aTyr will furnish to Kyorin, via electronic mail or such other method as mutually agreed by the Parties, documents received from patent counsel in the course of Prosecuting and Maintaining such aTyr Licensed Patent, or documents filed with the relevant national patent offices or other Governmental Authorities with respect to such aTyr Licensed Patent, and such other material documents related to the Prosecution and Maintenance of such aTyr Licensed Patent, in sufficient time prior to filing such document or making any payment due thereunder to allow for review and comment by aTyr. aTyr will sign, or will use reasonable efforts to have signed, all legal documents as are reasonably necessary for Kyorin to defend such aTyr Licensed Patent.

12.6.4. *Withdrawal, Cooperation and Participation.* With respect to any infringement action or Third Party Action identified above in Section 12.6 and subject to the terms of this Section 12.6.4:

12.6.4.1. If the controlling Party ceases to pursue or withdraws from such action (the "**Withdrawing Party**"), it will promptly notify the other Party (in sufficient time to enable the other Party to meet any deadlines by which any action must be taken to preserve any rights in such infringement or defensive action) and (a) if aTyr is the Withdrawing Party, then Kyorin will have the right (but not the obligation) to substitute itself for aTyr in any infringement action or Third Party Action identified above in Section 12.6 involving the aTyr Licensed Patents in the Kyorin Territory and proceed under the terms and conditions of this Section 12.6, and (b) if Kyorin is the Withdrawing Party, then aTyr will have the right (but not the obligation) to substitute itself for Kyorin in any infringement action identified above in Section 12.6 relating to the Kyorin Controlled Patents in the Kyorin Territory or the aTyr Territory, and proceed under the terms and conditions of this Section 12.6 (Kyorin or aTyr, as applicable, under (a) or (b), the "**New-Controlling Party**").

12.6.4.2. The Withdrawing Party will cooperate with the New-Controlling Party controlling any such action (as may be reasonably requested by the New-Controlling Party), including, [***], (a) providing access to relevant documents and other evidence, (b) using reasonable efforts to make its and its Affiliates and licensees and Sublicensees and all of their respective employees, subcontractors, consultants and agents available at reasonable business hours and for reasonable periods of time, but only to the extent relevant to such action, and (c) if reasonably necessary, by being joined as a party, subject to this clause (c) to the New-Controlling Party agreeing to [***]. The New-Controlling Party controlling any such action will keep the Withdrawing Party reasonably updated with respect to any such action, including providing copies of all materials documents received or filed in connection with any such action.

12.6.4.3. The Withdrawing Party will have the right to consult with the New-Controlling Party regarding any such action controlled by such New-Controlling Party, [***]. If the Withdrawing Party elects to so be involved, the New-Controlling Party will provide such Withdrawing Party and its counsel with an opportunity to consult with the New-Controlling Party and its counsel regarding the prosecution of such action (including reviewing the contents of any correspondence, legal papers or other documents related thereto), and the New-Controlling Party will take into account reasonable and timely requests of the Withdrawing Party regarding such enforcement or defense. Nothing in this Section 12.6.4.3 will limit the New-Controlling Party's ability to prosecute any such action.

12.6.5. *Settlement*. With respect to any Competitive Infringement or Third Party Action identified above in this Section 12.6, the Party controlling such action will have the right to settle or otherwise dispose of such action on such terms as such Party will determine in its sole discretion, including by granting a license or sublicense to a Third Party under the rights granted to such Party in Section 7, *provided* that, notwithstanding the foregoing, such controlling Party will inform the other Party of the terms and conditions of such settlement or disposition, and no such settlement or other disposition will (a) impose any monetary restriction or obligation on or admit fault of the other Party or (b) adversely affect the other Party's rights under this Agreement to any such Patent then being enforced or defended, in each case (clauses (a) and (b)) without the prior written consent of the other Party, not to be unreasonably withheld, conditioned or delayed.

12.6.6. *Damages*. With respect to any Competitive Infringement or Third Party Action identified above in this Section 12.6, upon the request of the Party controlling such action, the other Party will reasonably cooperate with such controlling Party in seeking damages. The damages that such controlling Party recovers as a result of the final judgment or settlement of such action, if any, will be used

first to reimburse the Parties for their respective Patent Costs arising from such action, with the balance of such recovery to be allocated to the controlling Party.

12.7. Patent Extensions. With respect to any election for patent term restoration or extension, supplemental protection certificate or any of their equivalents, (a) Kyorin will have the sole right to make any such decision relating to any Kyorin Controlled Patents, and (b) aTyr will have the sole right to make any such decision relating to any aTyr Licensed Patents and any Joint Patent, in each case of (a) and (b) with respect to any Licensed Product, *provided* that notwithstanding the foregoing clauses (a) and (b), each Party will use reasonable efforts to obtain any such patent term restoration or extension, supplemental protection certificate or any of their equivalents available for such Patents subject to the enforcement rights specified in Section 12.6.2 with respect to any Licensed Product; and further *provided*, *however*, that no Party will be required to use any such reasonable efforts in a manner inconsistent with any term of this Section 12.7 if any such item could impair the applicable Patent (including its enforcement potential) or the ability to obtain any such patent term restoration or extension, supplemental protection certificate or any of their equivalents for any other pharmaceutical product. Upon the request by a Party, the other Party will reasonably cooperate with the implementation of such requesting Party's decisions made in a manner consistent with this Section 12.7. If aTyr does not elect for patent term restoration or extension, supplemental protection certificate or any of their equivalents with respect to any aTyr Licensed Patents or any Joint Patent in the Kyorin Territory relating to any Licensed Product, aTyr will, promptly but within the period of time as is required to comply with applicable Law in the Kyorin Territory to not waive any statutory rights, notify Kyorin to that effect and Kyorin will have the right (but not the obligation), at Kyorin's sole discretion and sole responsibility for all applicable Patent Costs, with respect to any election for patent term restoration or extension, supplemental protection certificate or any of their equivalents with respect to any such aTyr Licensed Patent or such Joint Patent in the Kyorin Territory.

12.8. Patent Listings. With respect to any filings made to Regulatory Authorities with respect to any Kyorin Controlled Patents for any Licensed Product or any Patents within the New aTyr IP or the aTyr Licensed Technology (including any Joint Patent) for any Licensed Product, including as required or allowed in connection with in the United States, the FDA's Orange or Purple Book, if applicable, or, outside the United States, other international equivalents, but subject to Section 12.6.2.4, (a) the Parties will list any such Patents as may be required by applicable Laws, and (b) otherwise (i) Kyorin will have the sole right to make any such decision whether to list for any Kyorin Controlled Patents with respect to any Licensed Product, and (ii) aTyr will have the sole right to make any such decision whether to list for any Patents within the New aTyr IP or the aTyr Licensed Technology (including any Joint Patent) with respect to any Licensed Product. Upon the request by a Party, the other Party will reasonably cooperate in the implementation of such requesting Party's decisions made in a manner consistent with this Section 12.8.

12.9. Common Interest. All information exchanged between the Parties regarding the Prosecution and Maintenance, and enforcement and defense, of Patents under this Section 12 will be deemed Confidential Information of the disclosing Party. In addition, the Parties acknowledge and agree that, with regard to such Prosecution and Maintenance, and enforcement and defense, the interests of the Parties as collaborators and licensor and licensee are to obtain the strongest patent protection possible, and as such, are aligned and are legal in nature. The Parties agree and acknowledge that they have not waived, and nothing in this Agreement constitutes a waiver of, any legal privilege concerning the Patents under this Section 12, including privilege under the common interest doctrine and similar or related doctrines. Notwithstanding anything to the contrary contained herein, to the extent a Party has a good faith belief that any information required to be disclosed by such Party to the other Party under this Section 12 is protected by attorney-client privilege or any other applicable legal privilege or immunity, such Party will not be required to disclose such information and the Parties will in good faith cooperate to agree upon a procedure (including entering into a specific common interest agreement, disclosing such information on a "for

counsel eyes only" basis or similar procedure) under which such information may be disclosed without waiving or breaching such privilege or immunity.

12.10. Trademarks.

12.10.1. *Owned Trademarks*. Each Party has the right to use any Trademark it Controls for Licensed Products in its Territory at its sole discretion, and each Party and its Affiliates will retain all right, title, and interest in and to its and their respective corporate names and logos.

12.10.2. *Licensed Products Trademarks*. Kyorin may, at its sole discretion but subject to JSC review, select one or more Trademark(s) for use with each Licensed Product throughout the Kyorin Territory. Any Trademark(s) that are developed and used by Kyorin to promote and sell Licensed Products in the Kyorin Territory are hereinafter referred to as the "**Kyorin Trademarks**." Any Trademark(s) that are developed and used by aTyr to promote and sell Licensed Products in the aTyr Territory are hereinafter referred to as the "**aTyr Trademarks**." As between the Parties, aTyr will own all rights, title, and interests in and to all aTyr Trademarks and all goodwill associated therewith throughout the aTyr Territory. As between the Parties, Kyorin will own all rights, title, and interests in and to all Kyorin Trademarks and all goodwill associated therewith throughout the Kyorin Territory. aTyr will also own rights to any Internet domain names incorporating the applicable aTyr Trademarks or any variation or part of such aTyr Trademarks used as its URL address or any part of such address; and Kyorin will also own rights to any Internet domain names incorporating the applicable Kyorin Trademarks or any variation or part of such Kyorin Trademarks used as its URL address or any part of such address.

12.10.2.1. *License Agreement*. If the Parties agree on the use of any aTyr Trademarks to promote and sell any Licensed Product in the Kyorin Territory or the use of any Kyorin Trademarks to promote and sell any Licensed Product in the aTyr Territory, then aTyr and Kyorin will enter into a separate trademark license agreement containing commercially reasonable and customary terms pursuant to which the Party owning such Trademark will grant the other Party an exclusive, royalty-free license to use the applicable Trademark(s) to Commercialize the applicable Licensed Products in the other Party's Territory. Notwithstanding the foregoing, Kyorin will have no obligation to, and aTyr may, at its sole discretion, and cost and expense, apply for the registration of Kyorin Trademarks in the aTyr Territory.

12.10.2.2. *Trademark Infringement*. In the event either Party becomes aware of any infringement of any Kyorin Trademark or aTyr Trademark (if used by Kyorin under Section 12.10.2.1 in the Kyorin Territory), as applicable, by a Third Party, such Party will promptly notify the other Party and the Parties will consult with each other and jointly determine the best way to prevent such infringement, including by the institution of legal proceedings against such Third Party. Notwithstanding the foregoing, the Party owning such Trademark retains the sole right (but not obligation) to seek to abate any such infringement.

12.10.3. *No Other Trademark Rights*. For the avoidance of doubt, neither Party will have any right to use the other Party's or the other Party's Affiliates' corporate names or logos in connection with Development, Manufacturing, or Commercialization of Licensed Products, unless otherwise permitted by this Agreement or agreed in writing by such Party.

13. TERM AND TERMINATION

13.1. Term. This Agreement will be effective as of the Effective Date and, unless terminated earlier, continue on a Licensed Product-by-Licensed Product basis until the date on which the Royalty Term has expired in the Kyorin Territory for such Licensed Product and will finally expire upon the expiration of the Royalty Term for the final Licensed Product (the "**Term**").

13.2. **Termination by Kyorin for Convenience**. At any time following the first anniversary of the Effective Date, Kyorin may terminate this Agreement in its entirety, for any reason or no reason, *provided* that it gives ninety (90) days' prior written notice to aTyr.

13.3. **Termination for Cause**.

13.3.1. *Material Breach.*

13.3.1.1. aTyr will have the right to terminate this Agreement in its entirety upon delivery of written notice to Kyorin in the event of any material breach by Kyorin of this Agreement, *provided* that such termination will not be effective if such breach has been cured within [***] days (or [***] days with respect to any payment breach) after written notice thereof is given by aTyr to Kyorin specifying the nature of the alleged breach, or, if such breach (other than a payment breach) cannot be cured within such [***] day period, within [***] days after such notice if Kyorin commences actions to cure such breach within such [***]-day period and thereafter diligently continues such actions, but fails to cure the breach by the end of such [***]-day period. In the event of an uncured material breach by Kyorin of its diligence obligation under Section 3.3, 4.3 or 5.2, aTyr, in its sole discretion, may elect to convert the licenses granted under Section 7.1.1 to non-exclusive licenses upon written notice to Kyorin instead of terminating this Agreement.

13.3.1.2. Kyorin will have the right to terminate this Agreement in its entirety upon delivery of written notice to aTyr in the event of any material breach by aTyr of any material terms and conditions of this Agreement, *provided* that such termination will not be effective if such breach has been cured within [***] days after written notice thereof is given by Kyorin to aTyr specifying the nature of the alleged breach, or, if such breach cannot be cured within such [***] day period, within [***] days after such notice if aTyr commences actions to cure such breach within such [***]-day period and thereafter diligently continues such actions, but fails to cure the breach by the end of such [***]-day period.

13.3.2. *Patent Challenge*. aTyr will have the right to terminate this Agreement in its entirety immediately upon written notice to Kyorin if Kyorin or any of its Affiliates, directly or indirectly through any Third Party, commences any interference or opposition proceeding with respect to, challenges the validity or enforceability of, or opposes any extension of, or the grant of a supplementary protection certificate with respect to, any aTyr Licensed Patent. Kyorin will have the right to terminate this Agreement in its entirety immediately upon written notice to aTyr if aTyr or any of its Affiliates, directly or indirectly through any Third Party, commences any interference or opposition proceeding with respect to, challenges the validity or enforceability of, or opposes any extension of, or the grant of a supplementary protection certificate with respect to any Kyorin Controlled Patent.

13.4. **Termination for Insolvency**.

13.4.1. *Insolvency of aTyr*. If, at any time during the Term (a) a case is commenced by or against aTyr under Title 11, United States Code, as amended, or analogous provisions of applicable Law outside the United States (the "**Bankruptcy Code**") and, in the event of an involuntary case under the Bankruptcy Code, such case is not dismissed within sixty (60) days after the commencement thereof, (b) aTyr files for or is subject to the institution of bankruptcy, liquidation or receivership proceedings (other than a case under the Bankruptcy Code), (c) aTyr assigns all or a substantial portion of its assets for the benefit of creditors, (d) a receiver or custodian is appointed for aTyr's business, (e) a substantial portion of aTyr's business or assets is subject to attachment or similar process, or (f) aTyr ceases to conduct its business pertaining to the Licensed Product; then, in any such case ((a), (b), (c), (d), (e) or (f)), Kyorin may terminate this Agreement upon written notice to aTyr to the extent permitted under applicable Law.

13.4.2. *Insolvency of Kyorin*. If, at any time during the Term (a) a case is commenced by or against Kyorin under Civil Rehabilitation Act, as amended, and, in the event of an involuntary case under the Civil Rehabilitation Act (Minji Saisei Hou) or the Corporate Reorganization Act (Kaisha Kousei Hou), such case is not dismissed within [***] days after the commencement thereof, (b) Kyorin files for or is subject to the institution of bankruptcy, liquidation or receivership proceedings (other than a case under the Civil Rehabilitation Act or the Corporate Reorganization Act), (c) Kyorin assigns all or a substantial portion of its assets for the benefit of creditors, (d) a receiver or custodian is appointed for Kyorin's business, (e) a substantial portion of Kyorin's business or assets is subject to attachment or similar process, or (f) subject to Section 13.2, Kyorin ceases to conduct its business pertaining to the Licensed Product; then, in any such case ((a), (b), (c), (d), (e) or (f)), aTyr may terminate this Agreement upon written notice to Kyorin to the extent permitted under applicable Law.

13.5. Effect of Termination by aTyr for Cause or Insolvency or by Kyorin for Convenience. Upon termination of this Agreement by aTyr pursuant to Section 13.3.1.1, 13.3.2 or 13.4.2 or by Kyorin pursuant to Section 13.2:

13.5.1. *Termination of Rights and Obligations*. All licenses granted under Section 7.1 will terminate, and all other rights and obligations of the Parties under this Agreement will terminate, except as provided elsewhere in this Section 13.5 or in Section 13.8.

13.5.2. *Transfer of Clinical Studies*. At aTyr's written request if made by the effective date of termination by Kyorin pursuant to Section 13.2, Kyorin will use reasonable efforts to transfer to aTyr or its designated Third Party then on-going associated Clinical Studies at Kyorin's costs and expenses. Kyorin will pay for, (a) subject to Section 13.5.13, all reasonable Development Costs for the Licensed Products to be incurred by Kyorin in connection with the then on-going associated Clinical Studies until the transfer of the same to aTyr or its designee as set forth in this Section 13.5.2, or (b) the reasonable costs and expenses to wind-down those then on-going associated Clinical Studies that aTyr does not request for the transfer under this Section 13.5.2.

13.5.3. *Reversion Licenses*. Effective upon the date of termination, and subject to Section 13.5.3.3, Kyorin hereby grants (without any further action required on the part of aTyr) to aTyr and its Affiliates, a worldwide, irrevocable, perpetual, sublicenseable through multiple tiers (subject to Section 7.1.2.3, *mutatis mutandis*):

13.5.3.1. non-exclusive license under all Kyorin Background Technology necessary to Develop and Commercialize the Licensed Products existing as of the date of such termination (and derivatives, improvements, modifications, enhancements or replacements thereof) (collectively, "**Reversion Products**") (it being understood and agreed that with respect to any Kyorin Background Technology that is in-licensed by Kyorin or any of its Related Parties, aTyr will be responsible for any payments due to a Third Party with respect thereto and aTyr's rights will be subject to the terms of the applicable Third Party agreement); and

13.5.3.2. exclusive (even as to Kyorin and its Affiliates) license under all New Kyorin IP to Develop and Commercialize the Reversion Products (collectively, the above licenses granted pursuant to this Section 13.5.3.2, the "**Reversion Licenses**").

13.5.3.3. In the case of termination by aTyr pursuant to Section 13.3.1.1, 13.3.2 or 13.4.2, the Reversion Licenses will be royalty-free and fully paid-up. In the case of termination by Kyorin pursuant to Section 13.2, in consideration for the Reversion Licenses, aTyr will make payments to Kyorin based on (A) worldwide aggregate Net Sales of Reversion Products Covered by any Kyorin Controlled Patents by aTyr and its Affiliates or sublicensees in a given Calendar Year at the rate of [***]

and (B) worldwide aggregate non-royalty milestone payments made to aTyr or its Affiliates by aTyr's or its Affiliates' Sublicensees sublicensed under such Kyorin Controlled Patent at the rate of [***], *provided* that the maximum aggregate payment under this Section 13.5.3.3 will be equal to the total amount of (a) the [***] incurred by or on behalf of Kyorin and its Affiliates as of the date of termination in connection with [***] activities for the Licensed Products in support of obtaining Commercialization of the Licensed Products in the Kyorin Territory (where the total amount of such [***] will be notified by Kyorin in a timely manner (but in any event within thirty (30) days after the effective date of termination)), and (b) the [***] already paid by Kyorin at the time of the termination date, *provided* further that aTyr will provide Kyorin with a copy of any executed sublicense agreement (which copy will include financial provisions and other provisions which are necessary to verify aTyr's payment obligations under this Section 13.5.3.3). Payments and reports will be made by aTyr to Kyorin in a manner analogous to that set forth in Sections 8.5, 8.6 and 8.7, including the adjustments set forth therein (*mutatis mutandis*).

13.5.3.4. At aTyr's written request if made within thirty (30) days after the effective date of termination, the Parties will discuss and, if agreed, enter into commercially reasonable prosecution and enforcement and defense terms for the licensed Kyorin Background Technology and New Kyorin IP with respect to the Reversion Products (which in no event will give aTyr less rights than it had pursuant to Section 12 during the Term), and aTyr will bear [***] the costs of such prosecution, enforcement and defense activities to the extent agreed.

13.5.4. *Regulatory Approvals and Regulatory Materials*. Kyorin will, as promptly as practicable, (a) assign to aTyr or aTyr's designee possession and ownership of all assignable governmental or regulatory filings and approvals (including all Regulatory Approvals, Regulatory Materials, NHI Price Listing) and material correspondence and conversation logs relating to the Development or Commercialization of the Reversion Products, (b) transfer to aTyr or aTyr's designee copies of all data, reports, records and materials, and other sales and marketing related information in Kyorin's possession or Control to the extent that such data, reports, records, materials or other information relate to the Development or Commercialization of the Reversion Products and are available as of the termination date, including all non-clinical and clinical data relating to the Reversion Products, and customer lists and customer contact information and all adverse event data related to the Reversion Products in Kyorin's possession or Control, and (c) transfer to aTyr all records and materials in Kyorin's possession or Control containing Confidential Information of aTyr related to the Reversion Products. In addition, effective as of the date of such termination, Kyorin will appoint aTyr as Kyorin's and/or Kyorin's Related Parties' agent for all Reversion Product-related matters involving Regulatory Authorities in the Kyorin Territory until all Regulatory Approvals, Regulatory Materials, NHI Price Listing and other governmental or regulatory filings have been assigned to aTyr or its designee. In the event of failure to obtain assignment, Kyorin hereby consents and grants to aTyr the right to access and reference (without any further action required on the part of Kyorin, whose authorization to file this consent with any Regulatory Authority is hereby granted) any such item with respect to all Reversion Products.

13.5.5. *Appointment as Distributor*. If the effective date of termination is after the First Commercial Sale of a Reversion Product, to the extent permitted by applicable Laws, then, effective upon the date of such termination, Kyorin or its Related Parties will appoint aTyr as its exclusive distributor of such Reversion Product in the Kyorin Territory and grant aTyr the right to appoint sub-distributors, until such time as all Regulatory Approvals in the Kyorin Territory have been transferred to aTyr or its designee.

13.5.6. *Continuation of Supply*. If Kyorin or its Related Parties are Manufacturing finished product with respect to Reversion Products on the effective date of termination, at aTyr's option if made within thirty (30) days after the effective date of termination, Kyorin or its Related Parties will use Commercially Reasonable Efforts to supply such finished product to aTyr [***].

13.5.7. *Third Party Agreements*. If aTyr so requests, and to the extent permitted under Kyorin's obligations to Third Parties on the effective date of termination, Kyorin will transfer to aTyr or its designated Third Party any Third Party agreements relating to the Development or Commercialization of the Reversion Products to which Kyorin is a party, subject to any required consents of such Third Party which Kyorin will use Commercially Reasonable Efforts to obtain promptly.

13.5.8. *Kyorin Trademarks*. Promptly following the effective date of termination, Kyorin will promptly transfer and assign to aTyr all of Kyorin's and its Affiliates' rights, title and interests in and to the Kyorin Trademark(s) exclusively used in connection with the Reversion Products in the Field (but not any Kyorin house marks or any trademark containing the word "Kyorin").

13.5.9. *Inventory Transfer*. Kyorin will transfer to aTyr any inventory of the Reversion Products Controlled by Kyorin or its Affiliates as of the termination date at the actual price paid by Kyorin for such supply.

13.5.10. *Return of Confidential Information*. Except in the case of aTyr for any Confidential Information that is the subject of its Reversion Licenses, each Party will promptly return to the other Party (or as directed by such other Party destroy and certify to such other Party in writing as to such destruction) all of such other Party's Confidential Information provided by or on behalf of such other Party hereunder that is in the possession or control of such Party (or any of its Affiliates, Sublicensees or subcontractors), except that such Party will have the right to retain one (1) copy of intangible Confidential Information of such other Party for legal purposes.

13.5.11. *Dissolution of Committees*. The JSC (and any subcommittees thereof) will be dissolved as of the effective date of such termination, *provided* that, for any surviving provisions requiring action or decision by the JSC or an Executive Officer, each Party will appoint representatives to act as its JSC members or Executive Officer, as applicable.

13.5.12. *Further Assurances*. Kyorin will provide any other assistance reasonably requested by aTyr for the purpose of ensuring an orderly transition to aTyr or its designee of, and allowing aTyr or its designee to proceed expeditiously with, the Development and Commercialization of Reversion Products. Without limiting the foregoing, Kyorin will execute all documents and take all such further actions as may be reasonably requested by aTyr, at aTyr's cost, in order to give effect to the foregoing clauses.

13.5.13. *Transition Period*. Notwithstanding anything to the contrary in Sections 13.5.2 through 13.5.12 or elsewhere in this Agreement, Kyorin's obligations under such Sections will expire in [***] months after the effective date of the termination or upon completion of the transition under the relevant section in Section 13.5, *provided* that in either case, aTyr will use reasonable efforts to complete the transition as soon as practically possible.

13.6. **Effect of Termination by Kyorin for Cause or Insolvency**. The rights and obligations of this Agreement will be in effect even after the termination of this Agreement by Kyorin pursuant to Section 13.3.1.2, 13.3.2 or 13.4.1, excluding termination for breach of Section 6, which is subject to Section 13.7 instead, *provided* that Kyorin may, upon notice to aTyr, elect to reduce its payment obligations accruing after such termination under Section 8 by [***], *provided* further that if Kyorin elects to exercise such right, Kyorin will not claim for damages against aTyr based on the same breach (*i.e.*, the breach constituting the cause of the termination).

13.7. **Effect of Termination by Kyorin for aTyr Failure to Supply**. Kyorin may terminate this Agreement by written notice to aTyr as provided in the Clinical Supply Agreement or the Commercial Supply Agreement. If this Agreement is terminated at the same time as the Clinical Supply Agreement or

the Commercial Supply Agreement as provided in this Section 13.7, the rights and obligations of the Parties will terminate, except as provided in Section 13.8. Each Party will promptly return to the other Party (or as directed by such other Party destroy and certify to such other Party in writing as to such destruction) all of such other Party's Confidential Information provided by or on behalf of such other Party hereunder that is in the possession or control of such Party (or any of its Affiliates, Sublicensees or subcontractors), except that such Party will have the right to retain one (1) copy of intangible Confidential Information of such other Party for legal purposes.

13.8. Effect of Termination; Survival. In addition to the termination consequences set forth in Sections 13.5, 13.6 and 13.7, the following provisions will survive termination of this Agreement for any reason: Sections 1, 8.7.3 (for the period described therein), 9 (for the period of three (3) years), 10.3, 11, 12.1, 12.2, 12.3, 13.5 (as applicable), 13.6 (as applicable), 13.7 (as applicable), 13.8 and 14. Termination of this Agreement for any reason will not relieve the Parties of any liability or obligation which accrued hereunder prior to the effective date of such termination, nor preclude either Party from pursuing all rights and remedies it may have hereunder or at law or in equity, with respect to any breach of this Agreement. For the avoidance of doubt, termination of this Agreement will not affect any SDEA, which will continue to survive so long as any Licensed Products thereunder are being Developed or Commercialized by the Parties.

13.9. Effect of Expiration; Survival. Upon expiration of the Royalty Term for a Licensed Product in the Kyorin Territory or upon expiration of this Agreement, the licenses granted from each Party to the other Party in Section 7 with respect to such Licensed Product will become fully-paid, non-exclusive, irrevocable, and perpetual in the Field in the respective Territory. In addition, the following provisions will survive expiration of this Agreement: Sections 1, 8.7.3 (for the period described therein), 9 (for the period of three (3) years), 10.3, 11, 12.1, 12.2, 12.3, 13.9 and 14. Expiration of this Agreement will not relieve the Parties of any liability or obligation which accrued hereunder prior to the effective date of such expiration, nor preclude either Party from pursuing all rights and remedies it may have hereunder or at law or in equity, with respect to any breach of this Agreement. For the avoidance of doubt, expiration of this Agreement will not affect any SDEA, which will continue to survive so long as any Licensed Products thereunder are being Developed or Commercialized by the Parties.

14. MISCELLANEOUS

14.1. Assignment.

14.1.1. *General*. Except as provided in this Section 14.1.1, this Agreement may not be assigned or otherwise transferred, nor may any right or obligation hereunder be assigned or transferred, by either Party without the prior written consent of the other Party. Notwithstanding the foregoing, either Party may, without the other Party's prior written consent, assign this Agreement and its rights and obligations hereunder in whole or in part to an Affiliate or to a Third Party that acquires, by or otherwise in connection with, merger, sale of assets, reorganization or otherwise, all or substantially all of the business of the assigning Party to which the subject matter of this Agreement relates, *provided* that if this Agreement is assigned to an Affiliate of a Party, such Party will remain jointly and severally liable for the performance of this Agreement. Any permitted successor (if other than the assigning Party) or assignee of any rights or obligation under this Agreement must expressly assume performance hereof. An assignment to an Affiliate will terminate, and all rights so assigned will revert to the assigning Party, if and when such Affiliate ceases to be an Affiliate of the assigning Party. Any purported assignment in violation of this Section 14.1.1 will be void.

14.1.2. *Securitization***.** Notwithstanding anything to the contrary in Section 14.1 or elsewhere in this Agreement, aTyr may assign to a Third Party its right to receive the milestone payments under

Sections 8.2 and 8.3 and the royalty payments under Section 8.4 (such assignment, a "**Securitization Transaction**") without the prior written consent of Kyorin. Further, in connection with a contemplated Securitization Transaction, aTyr may disclose to such Third Party the Confidential Information of Kyorin (including the royalty reports contemplated under Section 8.7.2), without the prior written consent of Kyorin, to the extent reasonably necessary to enable such Third Party to evaluate the Securitization Transaction opportunity (*provided* that such Third Party is under obligations of confidentiality and non-use with respect to such Confidential Information that are no less stringent than the terms of Section 9.1 (but of duration customary in confidentiality agreements entered into for a similar purpose)), and to allow such Third Party to exercise its rights under this Section 14.1.2. As part of any consummated Securitization Transaction, aTyr may assign, without the prior written consent of Kyorin, its right to receive the royalty reports and to conduct audits under, respectively, Sections 8.7.2 and 8.7.3 to the counterparty in such Securitization Transaction, and to allow such counterparty to exercise its rights under such Sections. In the event that a Securitization Transaction is implemented, aTyr will promptly provide Kyorin with a written notice to that effect. If aTyr assigns to any Third Party in a Securitization Transaction the right to receive payments and royalty reports and to conduct audits directly, then Kyorin will no longer have the obligation to make the milestone payments or the royalty payments to, furnish the royalty reports to, or accept the audits of aTyr.

14.2. **Governing Law**. This Agreement will be construed and the respective rights of the Parties determined in accordance with the substantive Laws of Switzerland, notwithstanding any provisions of Swiss Law or any other Law governing conflicts of laws to the contrary.

14.3. **Arbitration**.

14.3.1. *Disputes*. Except as otherwise expressly set forth in this Agreement, including Section 2.3.1, disputes of any nature arising under, relating to, or in connection with this Agreement ("**Disputes**") will be resolved pursuant to this Section 14.3.

14.3.2. *Dispute Escalation.* In the event of a Dispute between the Parties, the Parties will first attempt to resolve such Dispute by negotiation and consultation between themselves. In the event that such Dispute is not resolved on an informal basis within [***] days from receipt of the written notice of a Dispute, any Party may, by written notice to the other, have such Dispute referred to the Executive Officers (or their designee, which designee is required to have decision-making authority on behalf of such Party), who will attempt to resolve such Dispute by negotiation and consultation for a [***] day period following receipt of such written notice.

14.3.3. *Full Arbitration*. Except as otherwise expressly set forth in this Agreement, in the event that the Executive Officers have not resolved such Dispute within [***] days referred to in Section 14.3.2, either Party may at any time after such [***] day period submit such Dispute to be finally settled by arbitration administered by the International Court of Arbitration of the International Chamber of Commerce (the "**ICC**") in accordance with its then existing arbitration rules or procedures regarding commercial or business disputes, as modified by this Section 14.3. The arbitration will be heard and determined by three (3) arbitrators with relevant experience in the pharmaceutical and biotechnology industry selected in accordance with ICC rules, each of whom will be impartial and independent. Such arbitration will be governed by the Laws of Switzerland, will be conducted in English and will take place in Zurich, Switzerland. The arbitration award so given will, absent manifest error, be a final and binding determination of the Dispute, will be fully enforceable in any court of competent jurisdiction. Either Party may apply for interim injunctive relief with the arbitrators until the arbitration award is rendered or the controversy is otherwise resolved. The arbitrators will be authorized to award compensatory damages, but will not be authorized to (a) award non-economic damages, (b) award punitive damages or any other damages expressly excluded under this Agreement, or (c) reform, modify or materially change this

Agreement or any other agreements contemplated hereunder; *provided, however*, that the damage limitations described in clauses (a) and (b) will not apply if such damages are statutorily imposed. Each Party will bear its own attorney's fees, costs, and disbursements arising out of the arbitration, and will pay an equal share of the fees and costs of the arbitrators; *provided, however*, that the arbitrators will be authorized to determine whether a Party is the prevailing party, and if so, to award to that prevailing party reimbursement for any or all of its reasonable attorneys' fees, costs and disbursements (including, for example, expert witness fees and expenses, photocopy charges, travel expenses, etc.), or the fees and costs of the ICC and the arbitrators. Except in a proceeding to enforce the results of the arbitration or as otherwise required by Law, neither Party nor any arbitrator may disclose the existence, content or results of any arbitration hereunder without the prior written consent of both Parties.

14.3.4. *Expedited Arbitration*.

14.3.4.1. Each Party will have the right to refer a Dispute to expedited arbitration to the extent permitted under this Agreement or the amount of the Dispute is expressly stated to be for [***] or less (in each case, an "**Expedited Dispute**").

14.3.4.2. In the case of an Expedited Dispute, then the Parties will follow the expedited dispute resolution process in this Section 14.3.4 (and not the dispute resolution process in Section 14.3.3 of this Agreement) ("**Expedited Arbitration**"). The Parties agree and acknowledge that any good faith dispute under Expedited Arbitration will not be deemed to be a material breach of this Agreement.

14.3.4.3. The Expedited Dispute will be submitted to fast-track, binding arbitration in accordance with the following:

(a) Arbitration will be conducted in Zurich, Switzerland under the rules of the ICC for the resolution of commercial Disputes in the most expedited manner permitted by such rules. The Parties will appoint a single arbitrator to be selected by mutual agreement. If the Parties are unable to agree on an arbitrator, the Parties will request that the ICC select the arbitrator. The arbitrator will be a professional in business or licensing with at least ten (10) years of experience in the pharmaceutical and life sciences industries, including the conduct of development and commercialization collaborations. The cost of the arbitration will be borne equally by the Parties. Except in a proceeding to enforce the results of the arbitration or as otherwise required by applicable Laws, neither Kyorin nor aTyr nor any arbitrator may disclose the existence, content or results of any arbitration hereunder without the prior written agreement of Kyorin and aTyr.

(b) Within thirty (30) days after such Dispute is referred to arbitration, each Party will provide the arbitrator with a proposal and written memorandum in support of its position regarding the Expedited Dispute, as well as any documentary evidence it wishes to provide in support thereof (each a "**Brief**") and each Party's Brief will be provided to the other Party after the arbitrator receives it from both Parties.

(c) Within thirty (30) days after a Party submits its Brief, the other Party will have the right to respond thereto. The response and any material in support thereof will be provided to the arbitrator and the other Party.

(d) The arbitrator will have the right to meet with the Parties as necessary to inform the arbitrator's determination and to perform independent research and analysis. Within thirty (30) days of the receipt by the arbitrator of both Parties' responses (or expiration of the thirty (30) day period if any Party fails to submit a response), the arbitrator will deliver his/her decision regarding

the Expedited Dispute in writing, *provided* that the arbitrator will select one of the resolutions proposed by the Parties.

14.3.5. *Injunctive Relief*. Notwithstanding the dispute resolution procedures set forth in this Section 14.3, in the event of an actual or threatened breach of this Agreement, the aggrieved Party may seek provisional equitable relief (including restraining orders, specific performance or other injunctive relief) in any court having competent jurisdiction, without first submitting to any dispute resolution procedures hereunder.

14.3.6. *Tolling*. The Parties agree that all applicable statutes of limitation and time-based defenses (such as estoppel and laches), as well as all time periods in which a Party must exercise rights or perform obligation hereunder, will be tolled once the dispute resolution procedures set forth in this Section 14.3 have been initiated and for so long as they are pending, and the Parties will cooperate in taking all actions reasonably necessary to achieve such a result. In addition, during the pendency of any Dispute under this Agreement initiated before the end of any applicable cure period, including under Section 13.3, (a) this Agreement will remain in full force and effect, (b) the provisions of this Agreement relating to termination for material breach with respect to such Dispute will not be effective, (c) the time periods for cure under Section 13.3 as to any termination notice given prior to the initiation of arbitration will be tolled, (d) any time periods to exercise rights or perform obligations will be tolled, and (e) neither Party will issue a notice of termination pursuant to this Agreement based on the subject matter of the arbitration, until the arbitral tribunal has confirmed the material breach and the existence of the facts claimed by a Party to be the basis for the asserted material breach, *provided* that if such breach can be cured by (i) the payment of money, the defaulting Party will have an additional ten (10) days within its receipt of the arbitral tribunal's decision to pay such amount or (ii) the taking of specific remedial actions, the defaulting Party will have a reasonably necessary period to diligently undertake and complete such remedial actions within such reasonably necessary period or any specific timeframe established by such arbitral tribunal's decision before any such notice of termination can be issued. Further, with respect to any time periods that have run during the pendency of the dispute, the applicable Party will have a reasonable period of time or any specific timeframe established by such arbitral tribunal's decision to exercise any rights or perform any obligations affected by the running of such time periods.

14.4. Standstill.

14.4.1. *Restrictions.* Except with the written consent of aTyr (which may be withheld by aTyr at the sole discretion of its Board of Directors), Kyorin agrees that, until the date that is [***] months following the termination of this Agreement, neither Kyorin nor any of its Affiliates (as such term is defined in Rule 12b-2 of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**") for purposes of this Section 14.4.1 and Section 14.4.2 will, directly or indirectly:

(a) propose (i) any merger, consolidation, business combination, tender or exchange offer, purchase of aTyr's assets or businesses, or similar transaction involving aTyr or (ii) any recapitalization, restructuring, liquidation or other extraordinary transaction with respect to aTyr;

(b) (i) propose to acquire beneficial ownership of any securities (including in derivative form) of aTyr (collectively, a transaction specified in Sections 14.4.1(a)(i), 14.4.1(a)(ii) and this 14.4.1(b)(i) involving a majority of aTyr's outstanding securities or consolidated assets, is referred to as a "**Business Combination**"), (ii) propose or seek, whether alone or in concert with others, any "solicitation" (as such term is used in the rules of the Securities and Exchange Commission) of proxies or consents to vote any securities of aTyr, or seek to advise or knowingly influence any Person, with respect to voting of any securities of aTyr, (iii) nominate any person as a director of aTyr, (iv) propose

any matter to be voted upon by the stockholders of aTyr, or (v) act, alone or in concert with others, to seek to control the management, Board of Directors, policies or affairs of aTyr;

(c) deposit any securities of aTyr in a voting trust or subject any securities of aTyr to any arrangement or agreement with respect to the voting of such securities;

(d) knowingly encourage, accept or support a tender, exchange or other offer or proposal by any other Person or group (each, an "**Offeror**") for securities of aTyr; *provided*, *however*, that from and after the filing of a Schedule 14D-9 (or successor form of Tender Offer Solicitation/Recommendation Statement under Rule 14d-9 of the Exchange Act) by aTyr recommending that stockholders accept any such offer filed after such offer has commenced, Kyorin will not be prohibited from taking any of the actions otherwise prohibited by this clause (d) for so long as the Board of Directors of aTyr maintains and does not withdraw such recommendation;

(e) form, join or in any way participate in a third party "group" (as such term is used in the rules of the Securities and Exchange Commission) (or discuss with any third party the potential formation of a group) with respect to any securities of aTyr or a Business Combination involving aTyr; or

(f) request aTyr (or any of its officers, directors, Affiliates, employees, attorneys, accountants, financial advisors and other professional representatives) to amend or waive any provision of this Section 14.4.1 or Section 14.4.2.

14.4.2. *Exceptions*. Notwithstanding the restrictions of Section 14.4.1, nothing in that Section will prohibit Kyorin or any of its Affiliates from (i) making a confidential proposal to aTyr for a transaction involving a Business Combination; *provided* that such confidential proposal would not reasonably be expected to require public disclosure, or (ii) owning or acquiring in the ordinary course and for passive investment purposes the legal or beneficial interest representing beneficial ownership for purposes of Section 13(d) of the Exchange Act of up to [***] of the outstanding shares of common stock of aTyr. The restrictions of Section 14.4.1 will terminate automatically upon (i) aTyr (X) publicly announcing that it has entered into a definitive agreement with a Third Party to effect a Business Combination, or (Y) publicly announcing aTyr's or its Board of Directors' approval or recommendation of any Business Combination; or (ii) any Person (for the avoidance of doubt, other than Kyorin or any of its Affiliates) commencing a tender or exchange offer that, if consummated, would make such person (or any of its Affiliates) the beneficial owner (within the meaning of Section 13(d) of the Exchange Act) of more than fifty percent (50%) of aTyr's equity securities, or any rights or options to acquire such ownership, including from a Third Party, except if such Third Party tender or exchange offer is withdrawn or terminated within fourteen (14) calendar days after its commencement, or aTyr or its Board of Directors rejects such Third Party offer or recommends that the stockholders of aTyr do not tender or exchange their securities within fourteen (14) calendar days after its commencement, *provided* that Kyorin and aTyr expressly agree that the termination of the obligations under Section 14.4.1 pursuant to this Section 14.4.2 will only occur if, in connection with the applicable event set forth in this Section 14.4.2, there is and has been no breach by Kyorin or any of its Affiliates of the restrictions set forth in Section 14.4.1.

14.5. Entire Agreement; Amendments. This Agreement, together with any applicable supply agreement (and related quality agreements) between the Parties, any applicable quality related agreements between the Parties, and SDEA, contains the entire understanding of the Parties with respect to the subject matter hereof, and supersedes all previous arrangements with respect to the subject matter hereof, whether written or oral, including, effective as of the Effective Date, the Confidentiality Agreements between aTyr and Kyorin, dated July 19, 2019 (*provided* that all information disclosed or exchanged under such Confidentiality Agreement will be treated as Confidential Information disclosed hereunder). This

Agreement may be amended, or any term hereof modified, only by a written instrument duly-executed by authorized representatives of both Parties. The exhibits or schedules referenced herein may be amended, or any term hereof modified, only by a written instrument duly-executed by authorized representatives of both Parties.

14.6. **Severability**. If any provision hereof should be held invalid, illegal or unenforceable in any respect in any jurisdiction, the Parties will substitute, by mutual consent, valid provisions for such invalid, illegal or unenforceable provisions, which valid provisions in their economic effect are sufficiently similar to the invalid, illegal or unenforceable provisions that it can be reasonably assumed that the Parties would have entered into this Agreement with such valid provisions. In case such valid provisions cannot be agreed upon, the invalid, illegal or unenforceable nature of one or several provisions of this Agreement will not affect the validity of this Agreement as a whole, unless the invalid, illegal or unenforceable provisions are of such essential importance to this Agreement that it is to be reasonably assumed that the Parties would not have entered into this Agreement without the invalid, illegal or unenforceable provisions.

14.7. **Headings**. The captions to the Sections hereof are not a part of this Agreement, but are merely for convenience to assist in locating and reading the several Sections hereof.

14.8. **Waiver of Rule of Construction**. Each Party has had the opportunity to consult with counsel in connection with the review, drafting and negotiation of this Agreement. Accordingly, the rule of construction that any ambiguity in this Agreement will be construed against the drafting Party will not apply.

14.9. **Interpretation**. Except where the context expressly requires otherwise, (a) the use of any gender herein will be deemed to encompass references to either or both genders, and the use of the singular will be deemed to include the plural (and vice versa); (b) the words “include”, “includes” and “including” will be deemed to be followed by the phrase “without limitation” and will not be interpreted to limit the provision to which it relates; (c) the word “shall” will be construed to have the same meaning and effect as the word “will”; (d) any definition of or reference to any agreement, instrument or other document herein will be construed as referring to such agreement, instrument or other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein); (e) any reference herein to any Person will be construed to include the Person’s successors and assigns; (f) the words “herein”, “hereof” and “hereunder”, and words of similar import, will be construed to refer to this Agreement in each of their entirety, as the context requires, and not to any particular provision hereof; (g) all references herein to Sections will be construed to refer to Sections of this Agreement, and references to this Agreement include all exhibits and schedules referenced herein, as applicable; (h) the word “notice” means notice in writing (whether or not specifically stated) and will include notices, consents, approvals and other written communications contemplated under this Agreement; (i) provisions that require that a Party, the Parties or any committee hereunder “agree,” “consent” or “approve” or the like will require that such agreement, consent or approval be specific and in writing, whether by written agreement, letter, approved minutes or otherwise (but excluding e-mail and instant messaging); (j) references to any specific law, rule or regulation, or article, section or other division thereof, will be deemed to include the then-current amendments thereto or any replacement or successor law, rule or regulation thereof; and (k) the term “or” will be interpreted in the inclusive sense commonly associated with the term “and/or”.

14.10. **No Implied Waivers; Rights Cumulative**. No failure on the part of aTyr or Kyorin to exercise, and no delay in exercising, any right, power, remedy or privilege under this Agreement, or provided by statute or at Law or in equity or otherwise, will impair, prejudice or constitute a waiver of any such right, power, remedy or privilege or be construed as a waiver of any breach of this Agreement or as

an acquiescence therein, nor will any single or partial exercise of any such right, power, remedy or privilege preclude any other or further exercise thereof or the exercise of any other right, power, remedy or privilege.

14.11. **Notices**. All notices which are required or permitted hereunder will be in writing and sufficient if delivered personally, sent by facsimile (and promptly confirmed by personal delivery, registered or certified mail or overnight courier), sent by nationally-recognized overnight courier or sent by registered or certified mail, postage prepaid, return receipt requested, addressed as follows:

If to aTyr, to:	aTyr Pharma, Inc. 3545 John Hopkins Court, Suite #250 San Diego, CA 92121 U.S.A. Attention: President and Chief Executive Officer Facsimile No.: (858) 731-8394
With a copy to (which will not constitute notice):	Cooley LLP 4401 Eastgate Mall San Diego, CA 92121 U.S.A. Attention: L. Kay Chandler, Esq. Facsimile No.: (858) 550-6420
If to Kyorin, to:	KYORIN Pharmaceutical Co., Ltd. 6, Kanda Surugadai 4-Chome Chiyoda-ku, Tokyo 101-8311 Japan Attention: Senior Director, Business Development HQs Facsimile No.: +81 (3) 3525-4706
With a copy to (which will not constitute notice):	KYORIN Holdings, Inc. 6, Kanda Surugadai 4-Chome Chiyoda-ku, Tokyo 101-8311 Japan Attention: Director, Legal Facsimile No.: +81 (3) 3525-4721

or to such other address as the Party to whom notice is to be given may have furnished to the other Party in writing in accordance herewith. Any such notice will be deemed to have been given: (a) when delivered if personally delivered on a Business Day (or if delivered or sent on a non-Business Day, then on the next Business Day); (b) on the Business Day of receipt if sent by overnight courier or facsimile; or (c) on the Business Day of receipt if sent by mail.

14.12. **Compliance with Export Regulations**. Neither Party will export any technology licensed to it by the other Party under this Agreement except in compliance with U.S. export Laws and regulations.

14.13. **Force Majeure**. Neither Party will be held liable to the other Party nor be deemed to have defaulted under or breached this Agreement for failure or delay in performing any obligation under this Agreement to the extent that such failure or delay is caused by or results from causes beyond the reasonable control of the affected Party, potentially including embargoes, war, acts of war (whether war be declared or not), insurrections, riots, civil commotions, strikes, lockouts or other labor disturbances, fire, earthquakes, floods, or other acts of God. The affected Party will notify the other Party of such force

majeure circumstances as soon as reasonably practical, and will promptly undertake all reasonable efforts necessary to cure such force majeure circumstances and resume performance of its obligations hereunder.

14.14. **Independent Parties**. It is expressly agreed that aTyr and Kyorin will be independent contractors and that the relationship between aTyr and Kyorin will not constitute a partnership, joint venture or agency. aTyr will not have the authority to make any statements, representations or commitments of any kind, or to take any action, which will be binding on Kyorin, without the prior written consent of Kyorin, and Kyorin will not have the authority to make any statements, representations or commitments of any kind, or to take any action, which will be binding on aTyr, without the prior written consent of aTyr.

14.15. **Expenses**. Except as otherwise provided herein, all fees, costs and expenses (including any legal, accounting and banking fees) incurred in connection with the preparation, negotiation, execution and delivery of this Agreement and to consummate the transactions contemplated hereby will be paid by the Party hereto incurring such fees, costs and expenses.

14.16. **Counterparts**. This Agreement may be executed in two (2) or more counterparts, including by facsimile or PDF signature pages, each of which will be deemed an original, but all of which together will constitute one and the same instrument.

14.17. **Performance by Affiliates**. Each Party acknowledges and accepts that the other Party may exercise its rights and perform its obligations (including granting or continuing licenses and other rights) under this Agreement either directly or through one or more of its Affiliates. A Party's Affiliates will have the benefit of all rights (including all licenses and other rights) of such Party under this Agreement, but not be subject to such Party's obligation, unless expressly provided herein, or in the case of a permitted assignment, in accordance with Section 14.1. Accordingly, in this Agreement "Kyorin" will be interpreted to mean "Kyorin or its Affiliates" and "aTyr" will be interpreted to mean "aTyr or its Affiliates" where necessary to give each Party's Affiliates the benefit of the rights provided to such Party in this Agreement and the ability to perform its obligations (including granting or continuing licenses and other rights) under this Agreement; *provided*, *however*, that in any event each Party will remain responsible for the acts and omissions, including financial liabilities, of its Affiliates.

14.18. **Binding Effect; No Third Party Beneficiaries**. As of the Effective Date, this Agreement will be binding upon and inure to the benefit of the Parties and their respective permitted successors and permitted assigns. Except as expressly set forth in this Agreement, no Person other than the Parties and their respective Affiliates and permitted successors and permitted assignees hereunder will be deemed an intended beneficiary hereunder or have any right to enforce any obligation of this Agreement.

14.19. **Further Assurances**. The Parties agree to reasonably cooperate with each other in connection with any actions required to be taken in furtherance of their respective obligations under this Agreement, including (a) furnishing to each other such further information; (b) executing and delivering to each other such other documents; and (c) doing such other acts and things (including working collaboratively to correct any clerical, typographical, or other similar errors in this Agreement), all as the other Party may reasonably request for the purpose of carrying out the intent of this Agreement.

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IN WITNESS WHEREOF, the Parties have executed this Agreement as of the Effective Date.

aTyr Pharma, Inc.	KYORIN Pharmaceutical Co., Ltd.
BY: /S/ Sanjay S. Shukla	BY: /S/ Shigeru Ogihara
NAME: Sanjay S. Shukla, M.D., M.S.	NAME:Shigeru Ogihara
TITLE: President and Chief Executive Officer	TITLE:Representative Director President and Chief Executive Officer