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Registration No. 333-

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

FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

ATHENEX, INC.
(Exact Name of Registrant as Specified in Its Charter)

Delaware	**43-1985966**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

1001 Main Street, Suite 600
Buffalo, NY 14203
(716) 427-2950
(Address, including zip code and telephone number, including area code, of registrant's principal executive offices)

Johnson Y.N. Lau
Chief Executive Officer
Athenex, Inc.
1001 Main Street, Suite 600
Buffalo, NY 14203
(716) 427-2950
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:
James M. Jenkins, Esq.
Alexander R. McClean, Esq.
Harter Secrest & Emery LLP
1600 Bausch & Lomb Place
Rochester, NY 14604
(585) 232-6500

Approximate date of commencement of proposed sale to the public:
From time to time after this registration statement becomes effective.

If the only securities being registered on this form are being offered pursuant to dividend or interest reinvestment plans, please check the following box. ☐

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, other than securities offered only in connection with dividend or interest reinvestment plans, 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 registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. ☒

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. ☐

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

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. ☐

CALCULATION OF REGISTRATION FEE

TITLE OF EACH CLASS OF SECURITIES TO BE REGISTERED(1)	**AMOUNT TO BE REGISTERED(1)**	**PROPOSED MAXIMUM OFFERING PRICE PER SHARE**	**PROPOSED MAXIMUM AGGREGATE OFFERING PRICE**	**AMOUNT OF REGISTRATION FEE**
Common Stock, $0.001 par value per share	3,945,750	$14.73(2)	$58,120,897.50(2)	$7,544.09

(1) In the event of a stock split, stock dividend or similar transaction involving our common stock, the number of shares registered shall automatically be increased to cover additional shares of common stock issuable pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act").

(2) Estimated for the sole purpose of computing the registration fee in accordance with Rule 457(c) under the Securities Act for the shares of common stock for resale by the selling stockholders named herein. The price per share and the aggregate offering price are based on the average of the high and low prices of the registrant's common stock on January 24, 2020, as reported on the Nasdaq Global Select Market.

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PROSPECTUS

Athenex, Inc.

3,945,750 Shares of Common Stock Offered by the Selling Stockholders

This prospectus relates to the offer and resale by the selling stockholders identified herein of up to 3,945,750 shares of our common stock, par value $0.001 per share ("Common Stock"). This prospectus provides you with a general description of the securities listed above. You should carefully read this prospectus and the documents incorporated by reference before buying any of the securities being offered.

The registration of shares of Common Stock hereunder does not mean that the selling stockholders will actually offer or sell the full number of shares being registered pursuant to this prospectus. The selling stockholders may sell the shares of Common Stock and other securities registered hereby from time to time. The shares of Common Stock may be offered and sold by any selling stockholders through public or private transactions, at market prices prevailing at the time of sale or at negotiated prices. The selling stockholders may retain underwriters, dealers or agents from time to time. For additional information on the methods of sale, you should refer to the section entitled "Plan of Distribution" in this prospectus.

We will receive no proceeds from any sale by selling stockholders of the securities covered by this prospectus, but we may, in some cases, pay certain registration and offering fees and expenses on their behalf.

Our Common Stock is traded on The Nasdaq Global Select Market under the symbol "ATNX." On January 24, 2020, the last reported sale price of our Common Stock on The Nasdaq Global Select Market was $14.33 per share.

Investing in our Common Stock involves a high degree of risk. Please read "Risk Factors" beginning on page 9 of this prospectus before making a decision to invest in our Common Stock.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is January 27, 2020

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You should rely only on the information contained in, or incorporated by reference into, this prospectus and any applicable prospectus supplement we or the selling stockholders have authorized for use in connection with this offering. We and the selling stockholders have not authorized anyone to provide you with different information. We and the selling stockholders are not making an offer to sell or seeking an offer to buy securities under this prospectus or any applicable prospectus supplement in any jurisdiction where the offer or sale is not permitted. The information contained in this prospectus, any applicable prospectus supplement and the documents incorporated by reference herein and therein, are accurate only as of their respective dates, regardless of the time of delivery of this prospectus, any applicable prospectus supplement, or any sale of a security.

ABOUT THIS PROSPECTUS

This prospectus relates to the resale by the selling stockholders described in the section of this prospectus entitled "Selling Stockholders" (hereinafter defined as "Selling Stockholders") of up to 3,945,750 shares of our common stock, $0.001 par value per share (the "Common Stock").

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission (the "SEC") as a "well-known seasoned issuer" as defined in Rule 405 under the Securities Act of 1933, as amended (the "Securities Act") using a "shelf" registration process. Under this shelf registration process, the Selling Stockholders may, from time to time, offer and sell the shares of common stock described in this prospectus in one or more offerings. In a prospectus supplement, we may also add, update, or change any of the information contained in this prospectus or in the documents we have incorporated by reference into this prospectus. This prospectus, together with any applicable prospectus supplement and the documents incorporated by reference into this prospectus and any applicable prospectus supplement, will include all material information relating to this offering. Before buying any of the securities being offered, you should carefully read this prospectus and any applicable prospectus supplement, together with the additional information described in the section entitled "Where You Can Find Additional Information."

This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the section entitled "Where You Can Find More Information."

Unless otherwise mentioned or unless the context requires otherwise, when used in this prospectus, the terms "Athenex", "Company", "we", "us", and "our" refer to Athenex, Inc. and its subsidiaries.

NOTE ABOUT FORWARD-LOOKING STATEMENTS

This prospectus, including the documents that we incorporate by reference herein, contains, and any applicable prospectus supplement or free writing prospectus, including the documents we incorporate by reference therein, may contain forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and section 27A of the Securities Act. All statements other than statements of historical fact are "forward-looking statements" for purposes of this prospectus. In some cases, you can identify forward-looking statements by terminology such as "anticipate," "believe," "continue," "could," "estimate," "expect," "foresee," "goal," "guidance," "indicate," "intend," "likely," "may," "might," "mission," "preliminary," "plan," "potentially," "predict," "probable," "project," "promising," "seek," "should," "strategy," "will," "would" and similar expressions and variations thereof.

Forward-looking statements appear in a number of places throughout this prospectus and the documents that we incorporate by reference herein, and include statements based largely on our current expectations and projections about future events and trends that we believe may affect our financial condition, results of operations, business strategy, short-term and long-term business operations and objectives and financial needs, such as:

- our ongoing and planned preclinical development and clinical trials;
- the development stage of our primary clinical candidates;
- the timing of and our ability to make regulatory filings and obtain and maintain regulatory approvals for our product candidates;
- the degree of clinical utility of our future product candidates, particularly in specific patient populations;

- our intellectual property position;
- our ability to develop commercial functions;
- our reliance on third parties, collaborations and license agreements for success in certain areas of our business;
- alliances or licensing agreements;
- expectations regarding clinical trial data;
- our history of operating losses and need to raise additional capital to continue as a going concern;
- our results of operations and our history of fluctuating revenue, cash needs, spending of the proceeds from offerings of securities;
- our dependence on our public-private partnerships and the and the possibility that we or our counterparties fail to meet the obligations of those agreements and we lose the benefits of those partnerships;
- our ability to integrate acquired assets and businesses into our existing operations;
- risks related to doing business in international jurisdictions such as the United Kingdom, the European Union, China and Latin America; and
- the industry in which we operate and the trends that may affect our industry or us.

These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those described in the "Risk Factors" section included in our most recent Annual Report on Form 10-K. Moreover, we operate in a very competitive and rapidly changing environment, and new risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business. In light of these risks, uncertainties and assumptions, actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements.

We discuss in greater detail, and incorporate by reference into this prospectus in their entirety, many of these risks and uncertainties under the heading "Risk Factors" contained in any applicable prospectus supplement, in any free writing prospectus we may authorize for use in connection with a specific offering, and in our most recent Annual Report on Form 10-K, as well as any amendments thereto reflected in subsequent filings with the SEC. These statements reflect our current views with respect to future events and are based on assumptions and subject to risks and uncertainties. Given these uncertainties, you should not rely on these forward-looking statements. We undertake no obligation to update publicly any forward-looking statements for any reason after the date of this prospectus to conform these statements to actual results or to changes in our expectations, except as required by law.

PROSPECTUS SUMMARY

The following summary, because it is a summary, may not contain all the information that may be important to you. This prospectus incorporates important business and financial information about the Company that is not included in, or delivered with, this prospectus. Before making an investment, you should read the entire prospectus and any amendment carefully. You should also carefully read the risks of investing discussed under "Risk Factors" and the financial statements included in our other filings with the SEC. This information is incorporated by reference into this prospectus, and you can obtain it from the SEC as described below under the headings "Where You Can Find More Information" and "Incorporation by Reference."

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered a copy of any or all of the information that has been incorporated by reference in the prospectus but not delivered with the prospectus. You may request a copy of these filings, excluding the exhibits to such filings which we have not specifically incorporated by reference in such filings, at no cost, by writing us at 1001 Main Street, Suite 600, Buffalo, NY, 14203, United States.

Company Overview

We are a global biopharmaceutical company dedicated to becoming a leader in the discovery, development and commercialization of next generation drugs for the treatment of cancer. We are organized around three platforms, including an Oncology Innovation Platform, a Commercial Platform and a Global Supply Chain Platform. Our current clinical pipeline in the Oncology Innovation Platform is derived from our four different platform technologies: (1) Orascovery, based on a non-absorbed P-glycoprotein inhibitor, (2) Src Kinase inhibition, (3) T-cell Receptor-engineered T-cells ("TCR-T"), and (4) arginine deprivation therapy. We have assembled a strong and experienced leadership team and have established global operations across the pharmaceutical value chain to execute our mission to become a global leader in bringing innovative cancer treatments to the market and improve health outcomes.

Oncology Innovation Platform

Orascovery

Our Orascovery platform technology is based on the novel oral P-glycoprotein ("P-gp") pump inhibitor molecule, encequidar, formerly known as HM30181A. The P-gp pump is a plasma membrane protein on the cells of the intestines which forms a localized drug transport system and limits oral absorption of widely used P-gp substrate cancer chemotherapeutic drugs such as paclitaxel, irinotecan and docetaxel, thus restricting their current dosing to intravenous ("IV") administration. IV administration of chemotherapy can result in adverse events which are due, in part, to high peak blood concentration levels of the chemotherapeutic drugs. In addition, for some agents, there are infusion-related reactions caused, in part, by solubilizing dilution agents used to facilitate IV administration. A cancer patient's inability to tolerate IV chemotherapies may limit the duration of treatment and may limit the effectiveness of IV anti-cancer therapies. Sequential co-administration of encequidar and oral paclitaxel (formerly known as "Oraxol") is designed to facilitate oral absorption of paclitaxel and achieve therapeutic blood levels by blocking the P-gp pump. We believe oral administration of paclitaxel in combination with encequidar has the potential to reduce high concentrations of paclitaxel in the blood and may eliminate infusion-related reactions related to IV administration, which could improve patient tolerability and allow for longer dosing durations to improve efficacy. In addition to oral paclitaxel and encequidar, we are advancing other clinical candidates on this platform, each for the treatment of solid tumors:

- Oral irinotecan and encequidar (formerly known as "Oratecan");
- Oral docetaxel and encequidar (formerly known as "Oradoxel");

- Oral topotecan and encequidar (formerly known as "Oratopo"); and
- Oral eribulin and encequidar (formerly known as "Eribulin ORA").

Src Kinase Inhibition

Src Kinase, a tyrosine kinase protein involved in regulating cell growth, is strongly implicated in metastasis. Inhibiting Src Kinase may limit the growth or proliferation of cancerous cell types. Our Src Kinase Inhibition platform refers to novel small molecule compounds that have multiple mechanisms of action, including the inhibition of the activity of Src Kinase and the inhibition of tubulin polymerization. We believe the combination of these mechanisms of action provides a broader range of anti-cancer activity compared to either mechanism of action alone. Our key clinical product candidates and their indications in this platform are:

- Tirbanibulin (formerly known as "KX2-391" and "KX-01") ointments for actinic keratosis, skin cancer and psoriasis;
- Tirbanibulin oral for solid and liquid tumors; and
- KX2-361 (also known as "KX-02") for brain cancers, such as glioblastoma multiforme ("GBM").

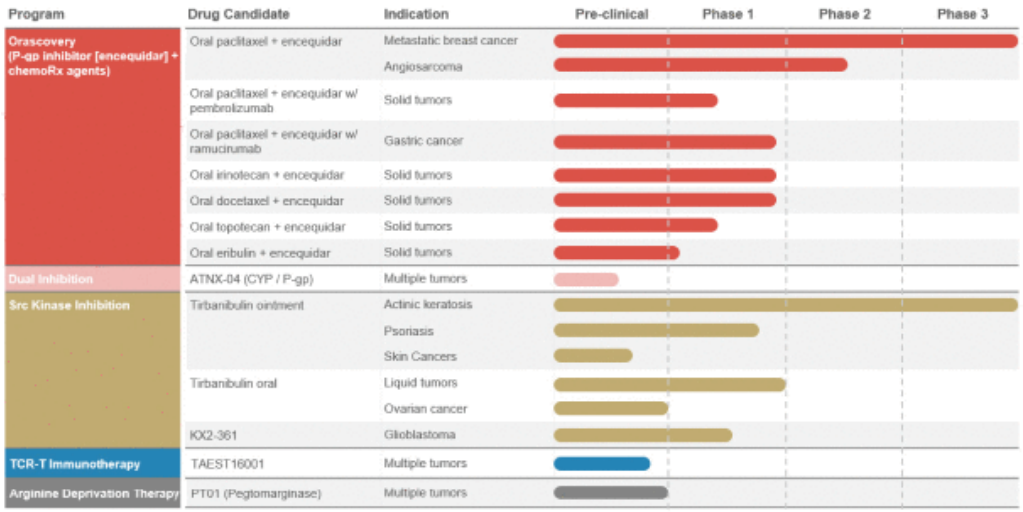
T-cell Receptor-Engineered T-cells

In 2018, Axis Therapeutics Limited ("Axis"), which is owned 55% by us and 45% by Xiangxue Life Sciences Ltd. ("XLifeSc"), commenced the development of T-cell Receptor ("TCR") engineered T-cells through an in-license from XLifeSc. TCR-T immunotherapy technology harnesses and enhances the patient's own immune cells to target and eliminate cancer. It is a cell-based therapy that takes advantage of unique attributes of TCR mediated target recognition and provides a potentially potent and selective TCR-T directed response against cancer cells. Central to this platform is the ability to first identify endogenous TCRs with specificity for a defined tumor antigen and to then enhance the affinity of the TCR to optimize tumor recognition and killing. These high affinity TCRs can be incorporated into a patient's own T cells, converting the cells into a potentially potent anti-cancer therapy. Using this technology, we believe the platform has generated autologous engineered T-cells with high binding affinity, specificity for intended target cells, increased expression levels of the TCR and persistence in patient circulation during therapy. Preliminary studies have shown positive clinical signals. Axis is responsible for all development, manufacturing and commercialization of this TCR-T immunotherapy technology in worldwide territories, excluding mainland China.

Arginine Deprivation Therapy

The arginine deprivation therapy platform, based on our PEGylated genetically modified human arginase technology which isin-licensed from Avalon Polytom (HK) Limited, targets cancer growth and survival by removing the supply of arginine to a proportion of cancers with disrupted urea cycle. A significant proportion of cancer types lack the ability to synthesize arginine due to deficient expression of certain metabolic enzymes of the urea cycle, including argininosuccinate synthetase 1, argininosuccinate lyase or ornithine transcarbamylase. Our arginase biologic product, PT01 (also known as "Pegtomarginase"), is designed to deplete arginine from tumors with disrupted urea cycle, which we believe can halt the growth of the cancers and induce cell death. Healthy cells capable of producing sufficient levels of arginine would be largely unaffected.

The following pipeline chart sets forth certain information concerning our key innovative drug product candidates:



Commercial Platform

Our Commercial Platform includes our Specialty Pharmaceuticals business and our manufacture of products subject to Section 503B of the Federal Food, Drug and Cosmetic Act ("FDCA"). Our Specialty Pharmaceuticals business markets specialty pharmaceuticals, including multisource oncology and therapeutically related products, sourced through licensing agreements with our partners, which we refer to as our Global Partner network. This Global Partner network is an integral part of our growing commercial oncology business in the United States. Our 503B product offerings, which include sterile to sterile products and products from sterilized bulk API, support our offerings in the U.S. oncology market.

In advance of the launch of our proprietary product candidates in the United States, our commercial team is marketing oncology and oncology symptom-related products to lay the foundation for our infrastructure build-out. We believe it is important to minimize supply chain disruptions for high potency oncology active pharmaceutical ingredients. We have thus internalized key components of the supply chain that we believe are integral to minimizing the associated risks.

Global Supply Chain Platform

Our Global Supply Chain platform was established to manufacture active pharmaceutical ingredients ("API") for use internally in our research and development and clinical studies, and for sale to pharmaceutical customers globally. Our Commercial Platform currently markets 30 products by the Athenex Pharmaceutical Division ("APD") and five products subject to Section 503B of the FDCA through our U.S. Food and Drug Administration ("FDA") registered pharmaceutical compounding outsourcing facility.

Our global operations across our Oncology Innovation Platform, Commercial Platform and Global Supply Chain Platform as of the date of this prospectus are shown below:

* *Includes Guatemala City, Guatemala and Buenos Aires, Argentina*

Our manufacturing facilities in Clarence and Amherst, New York and Chongqing, China provide our manufacturing and packaging capabilities for our oncology drugs used in global clinical studies, our 503B products and our API operations. Our Clarence facility, where we manufacture our oncology drugs used in global clinical studies and 503B products, is approximately 27,000 square feet. Our Amherst facility is dedicated to packaging our proprietary oncology products for clinical testing and is approximately 3,000 square feet. Our plant in Chongqing, China, where we manufacture API, is approximately 105,000 square feet, but the plant is currently only producing API for our own clinical trials and we are not producing commercial batches of API due to a decision we made to suspend commercial production based on discussions with the Department of Emergency Management of Chongqing ("DEMC"). We chose to suspend production in May 2019 based on concerns raised by the DEMC related to the location of our plant. We hope to reach a resolution of the suspension with the DEMC, but we can provide no assurances of when, if at all, commercial production of API will resume at the plant. Prior to the suspension of commercial production, our Global Supply Platform marketed 18 APIs in the specialty and generic market segments in the United States. We are also party to an agreement with Chongqing Maliu Riverside Development & Investment Co., Ltd. for the construction, according to U.S GMP standards, of both an approximately 440,000 square foot API plant and an approximately 510,000 square foot formulation plant in Chongqing, China. Construction on the new API plant has been completed and we are preparing for the commencement of commercial operations, which is expected to occur during the first half of 2020.

In addition, pursuant to an agreement with New York State Development Corporation, d/b/a Empire State Development ("ESD"), ESD is funding the costs of constructing a new manufacturing facility in Dunkirk, New York, which we will lease. This manufacturing facility, which was originally planned to be 320,000 square feet, has been expanded to approximately 409,000 square feet to meet the required needs of the facility and within the terms of our agreement with ESD. We expect to manufacture our injectable and 503B products and, eventually, our proprietary oncology products for commercial production at this facility.

Recent Developments

Lead Orascovery platform drug candidate: Oral paclitaxel and encequidar

Pivotal Phase 3 Data Presented

On December 13, 2019, we presented the data from our pivotal Phase 3 trial of oral paclitaxel and encequidar in patients with metastatic breast cancer at the 2019 San Antonio Breast Cancer Symposium. The study was a randomized, active-controlled clinical trial comparing oral paclitaxel and encequidar monotherapy against intravenous paclitaxel ("IV paclitaxel") monotherapy. The trial randomized subjects in a 2:1 ratio to oral paclitaxel and encequidar, and was designed to compare the safety and efficacy of oral paclitaxel and encequidar with IV paclitaxel. The primary endpoint was overall tumor response rate ("ORR") (confirmed by scans at two consecutive timepoints) as assessed by RECIST v1.1 criteria, a generally accepted method for assessing tumor response. Blinded assessments of tumor response were made by two independent radiologists, using a computer algorithm to assign responses.

A total of 402 metastatic breast cancer patients were enrolled (oral paclitaxel and encequidar=265 vs. IV paclitaxel=137), which represented the intent-to-treat ("ITT") population. Patient demographics were balanced. The prespecified modifiedintent-to-treat ("mITT") population comprised 360 patients (oral paclitaxel and encequidar=235 vs. IV paclitaxel=125), which includes patients who received at least 7 doses of oral paclitaxel and encequidar (the majority of one cycle) or one dose of IV paclitaxel and excludes patients that did not have tumors that could be evaluated by the central radiologist at baseline. The study was designed with 360 evaluable patients (mITT population), and was statistically powered to detect a difference of 15% in confirmed ORR at p=.045 with 80% power at the final analysis.

In the final analysis of the primary endpoint of the study, oral paclitaxel and encequidar (205 mg/m^2 /day 3 days/week) showed a statistically significant improvement in ORR at 40.4% compared to IV paclitaxel (175 mg/m^2 once every 3 weeks) at 25.6%, a difference of 14.8% (p=0.005) favoring oral paclitaxel and encequidar, based on prespecified mITT analysis. Based on ITT analysis, oral paclitaxel and encequidar also showed a statistically significant improvement in ORR over IV paclitaxel, with 35.8%, ORR, compared to 23.4% for IV paclitaxel, a difference of 12.4% (p=0.011).

The study results showed that approximatelyone-third of confirmed responders who received oral paclitaxel and encequidar experienced a confirmed tumor response for more than 200 days. Ongoing analysis as of July 25, 2019 showed the median durations of response were 39.0 weeks for the patients who received oral paclitaxel and encequidar, compared to 30.1 weeks for those who received IV paclitaxel.

Secondary endpoints in the study include progression-free survival ("PFS") and overall survival ("OS"). Ongoing analysis as of July 25, 2019 of PFS in the prespecified mITT and ITT populations showed a strong trend favoring oral paclitaxel and encequidar. The study results showed a median PFS of 9.3 months for oral paclitaxel and encequidar compared to 8.3 months for IV paclitaxel (p=0.077, hazard ratio=0.760) in the prespecified mITT and ITT populations. Ongoing analysis as of July 25, 2019 of OS in the prespecified mITT population favored oral paclitaxel and encequidar over IV paclitaxel, by an additional 11 months, with a median of 27.9 months compared to 16.9 months, respectively (p=0.035, hazard ratio=0.684). In the ITT population, the median OS was 27.7 months for the oral paclitaxel and encequidar group compared to 16.9 months for the IV paclitaxel group (p=0.114).

In the study, the oral paclitaxel and encequidar group had lower incidence and severity of neuropathy compared to IV paclitaxel: 57% of IV paclitaxel patients experienced neuropathy (all grades) versus 17% of oral paclitaxel and encequidar patients, with grade 2 or above neuropathy observed in 31.1% of IV paclitaxel patients versus 7.6% of oral and encequidar patients. Grade 3 neuropathy was observed in 8% of IV paclitaxel patients versus 1% of oral paclitaxel and encequidar patients. The results also showed lower incidence of alopecia compared to IV paclitaxel, with 28.8% of the oral paclitaxel and encequidar group experiencing alopecia versus 48.2% of the IV paclitaxel group in treatment-emergent adverse events of interest. For other treatment-emergent adverse events of interest, there was a higher incidence of neutropenia with CTCAE grade ≥ 3 (29.9% vs. 28.1%; with Grade 4 14.8% vs 8.9%) and gastro-intestinal side effects, such as diarrhea with CTCAE grade ≥ 3 (5.3% vs. 1.5%) and vomiting or nausea with CTCAE grade ≥ 3 (6.8% vs. 0.7%), in the oral paclitaxel and encequidar group as compared to the IV paclitaxel group.

We intend to file a New Drug Application ("NDA") with the FDA in 2020 to secure regulatory approval of Oral Paclitaxel for metastatic breast cancer, and if approved, to establish it as the chemotherapy of choice for patients with metastatic breast cancer.

Other Recent Developments for Oral Paclitaxel and Encequidar

In October 2019, we announced that we received Orphan Designations from the European Commission (EC) for paclitaxel and encequidar for the treatment of soft tissue sarcoma, following a positive opinion from the European Medicines Agency (EMA).

As of May 21, 2019, approximately 13% of patients treated in clinical studies with oral paclitaxel and encequidar experienced serious adverse events that were considered to be related to the study treatment. The most common were neutropenia in approximately 4% of patients and febrile neutropenia in approximately 3% of patients; pneumonia in approximately 2% of patients; and sepsis, dehydration and vomiting in approximately 1% of patients; septic shock, gastroenteritis, anemia, diarrhea, mucositis, gastrointestinal bleeding and nausea each in less than one percent of patients. Serious treatment-related infections other than sepsis, septic shock or pneumonia were reported in approximately 1% of patients. Approximately 1% of patients with serious infections had other concurrent treatment-related serious adverse events.

Lead Src Kinase Inhibition platform candidate: Tirbanibulin ointment, for Actinic Keratosis ("AK")

In October 2019, we announced a progress update from our partner Almirall, S.A. on tirbanibulin ointment for the treatment of AK. We also completed pre-NDA consultation with the U.S. FDA. We expect to file an NDA with the FDA for tirbanibulin ointment during the first quarter of 2020.

Additional Business Developments

On December 12, 2019, the Company entered into an exclusive license agreement (the "License Agreement") with Guangzhou Xiangxue Pharmaceutical Co., Ltd. ("Xiangxue") (together, the "Parties"), in which the Company granted Xiangxue exclusive rights to develop and commercialize certain licensed products for China, Hong Kong and Macau (the "Territory"), including (i) the Company's oral formulations of encequidar with paclitaxel or irinotecan (e.g. oral paclitaxel and oral irinotecan), and (ii) tirbanibulin (KX2-391, also known as KX-01) using ointment preparations, (the "Licensed Products") for certain indications, including oncological and actinic keratosis indications, as well as other indications that the Company and Xiangxue mutually agree to pursue under the License Agreement. The License Agreement contains an option, exercisable by Xiangxue, for two additional product candidates which may be included under the License Agreement. Under the terms and conditions of the License Agreement, the Company and Xiangxue will be jointly responsible for the development of Licensed Products in the Territory in their permitted fields of use and Xiangxue will be responsible for the

commercialization of the Licensed Products in the Territory in their permitted fields of use. Xiangxue has agreed to pay the Company an upfront payment of $30 million, subject to the satisfaction of certain conditions. The Company may be eligible to receive future additional payments up to $170 million in the event defined development, sales and change of control milestones are achieved, and to receive tiered royalties at rates ranging from the low teens to low twenties based on annual net sales of Licensed Products in the Territory and a percentage of sublicensing revenue. The License Agreement will continue until Xiangxue has no payment obligations under the License Agreement, unless terminated earlier in accordance with the terms of the License Agreement. The License Agreement may be terminated in its entirety upon the mutual agreement of the Parties, by Xiangxue for convenience upon requisite notice, or by either Party for material breach as set forth in the License Agreement. The License Agreement also will be terminated with respect to any Licensed Product for Xiangxue's failure to meet agreed upon development milestones with respect to such Licensed Product.

On December 9, 2019, we closed a private placement with M. Kingdon Offshore Master Fund, LP as lead investor together with a number of institutional investors (collectively, the "Investors"), pursuant to which we sold an aggregate of 3,945,750 shares of our common stock at a purchase price of $15.30 per share for aggregate gross proceeds of $60.4 million and net proceeds of approximately $59.4 million. In connection with the private placement, we entered into a registration rights agreement (the "Registration Rights Agreement") with the Investors, pursuant to which, we agreed to register for resale the shares of common stock the Investors purchased in the offering by no later than February 7, 2020. In addition, pursuant to the Registration Rights Agreement the Investors have customary notice and piggy-back registration rights, subject to certain limitations, which notice and piggy-back registration rights have been waived for this offering.

In September 2019, we announced that we had completed construction of the new active pharmaceutical ingredient facility in Chongqing, China. The 440,000-square-foot facility is preparing to commence operations in the first half of 2020. The construction of the facility is part of our strategy for vertical integration in order to capture value across the supply chain. Once operational, the facility is expected to expand our API production capabilities to further support our global clinical development needs and ensure the supply of API for commercial launches. The new API facility was constructed in accordance with an agreement with Chongqing Maliu Riverside Development & Investment Co., Ltd.

In the second quarter of 2019, we chose to suspend operations at our API plant in Chongqing, based on the concerns raised by the DEMC related to the location of our plant. As a result of suspending these operations, we are currently unable to produce commercial batches of API, which has impacted our revenue. We can provide no assurances of when, if at all, commercial production of API will resume at the plant. Although we currently are producing API for our ongoing clinical studies, we can make no assurances that such production will be able to provide sufficient quantities for all future clinical studies and that alternative suppliers will be available if needed to produce API for our clinical trials.

Corporate Information

We were originally formed under the laws of the state of Delaware in November 2003 under the name Kinex Pharmaceuticals, LLC. In December 2012, we converted from a limited liability company to a Delaware corporation, Kinex Pharmaceuticals, Inc. In August 2015, we amended and restated our certificate of incorporation to change our name to Athenex, Inc. Our principal executive offices are located at 1001 Main Street, Suite 600, Buffalo, NY 14203, and our telephone number is (716) 427-2950. Our website address is www.athenex.com. The information contained on, or that can be accessed through, our website is not a part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

The Offering

This prospectus is part of a registration statement that we filed with the SEC utilizing a shelf registration process. Under this shelf registration process, the Selling Stockholders may, from time to time, offer and sell up to an aggregate of 3,945,750 shares of Common Stock in one or more offerings. Throughout this prospectus, when we refer to the shares of our Common Stock being registered on behalf of the Selling Stockholders for offer and sale, we are referring to the 3,945,750 shares of Common Stock that are being registered pursuant to the terms of the (1) Registration Rights Agreement, dated as of December 9, 2019, by and among the Company and the Selling Stockholders and (2) Share Purchase Agreement, dated as of December 5, 2019, by and among the Company and the Selling Stockholders (the "Purchase Agreement"; together with the Registration Rights Agreement, the "Registration Rights Agreements"). When we refer to the Selling Stockholders in this prospectus, we are referring to the holders of registration rights under the Registration Rights Agreements and, as applicable, their permitted transferees or other successors-in-interest that may be identified in a supplement to this prospectus or, if required, a post-effective amendment to the registration statement of which this prospectus is a part. See "Selling Stockholders" beginning on page 10 of this prospectus. The shares of Common Stock may be offered and sold by the Selling Stockholders through public or private transactions, at market prices prevailing at the time of sale or at negotiated prices. The Selling Stockholders may retain underwriters, dealers or agents from time to time. We do not expect to provide a prospectus supplement containing further information regarding the resale of our Common Stock by the Selling Stockholders.

RISK FACTORS

Investing in our Common Stock involves a high degree of risk. Before deciding whether to invest in our Common Stock, you should carefully consider the risks described under "Risk Factors" in our most recent Annual Report on Form 10-K and any updates in our Quarterly Reports on Form 10-Q filed with the SEC, which are incorporated by reference into this prospectus and any prospectus supplement we may file. Our business, financial condition, results of operations and prospects could be materially adversely affected by any of these risks. The trading price of our securities could decline due to any of these risks, and you may lose all or part of your investment. The risks referred to above are not the only ones that may exist. For further details, see the sections entitled "Where You Can Find More Information" and "Incorporation by Reference."

USE OF PROCEEDS

We will not receive any proceeds from the shares of our Common Stock offered for resale by the Selling Stockholders, but we may, in some cases, pay certain registration and offering fees and expenses on their behalf.

SELLING STOCKHOLDERS

This prospectus covers the resale from time to time by the Selling Stockholders identified in the table below of an aggregate of up to 3,945,750 shares of our Common Stock. None of the Selling Stockholders are licensed broker-dealers or affiliates of licensed broker-dealers. Other than as described in the table below, the Selling Stockholders and their affiliates have not held a position or office, or had any material relationship, with us within the last three years.

The table below (1) lists the Selling Stockholders and other information regarding the beneficial ownership (as determined under Section 13(d) of the Exchange Act and the rules and regulations thereunder) of our Common Stock by the Selling Stockholders; (2) has been prepared based upon information furnished to us by the Selling Stockholders; and (3) to our knowledge, is accurate as of the date of this prospectus. The Selling Stockholders may sell all, some or none of their securities in this offering. The Selling Stockholders identified in the table below may have sold, transferred or otherwise disposed of some or all of their securities since the date of this prospectus in transactions exempt from or not subject to the registration requirements of the Securities Act. Information concerning the Selling Stockholders may change from time to time and, if necessary, we will amend or supplement this prospectus accordingly and as required.

Selling Stockholder	Number of Shares Beneficially Owned Prior to the Offering	Percentage of Common Stock Beneficially Owned Prior to this Offering(1)	Maximum Number of Shares to be sold in this Offering	Number of Shares Beneficially Owned After the Offering(2)	Percentage of Common Stock Beneficially Owned After this Offering(1)
M. Kingdon Offshore Master Fund, LP	3,715,960	4.6%	2,600,000	1,115,960	1.4%
Schonfeld Strategic 460 Fund LLC	756,579	*	457,516	299,063	*
Avoro Life Sciences Fund LLC	5,120,195	6.3%	261,437	4,858,758	6.0%
Point72 Associates, LLC	338,597(3)	*	326,797	11,800	*
J. Goldman Master Fund, L.P.	300,000	*	300,000	—	*

* Less than 1%.

(1) Percentage ownership for the Selling Stockholders is determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations thereunder and is based on 81,618,643 outstanding shares of our Common Stock as of January 24, 2020.

(2) The totals reported in this column assume that (a) all of the securities registered by the registration statement of which this prospectus is a part are sold in this offering; (b) the Selling Stockholders do not (i) sell any of the shares of Common Stock, if any, that have been issued to them other than those covered by this prospectus; and (ii) acquire additional shares of our Common Stock after the date of this prospectus and prior to the completion of this offering.

(3) Includes 11,800 shares of Common Stock held by Cubist Core Investments, L.P., an affiliate of Point72 Associates, LLC.

PLAN OF DISTRIBUTION

The Selling Stockholders, which as used herein includes donees, pledgees, transferees or othersuccessors-in-interest selling shares of Common Stock or interests in shares of Common Stock received after the date of this prospectus from a Selling Stockholder as a gift, pledge, partnership distribution or other transfer, may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of Common Stock or interests in shares of Common Stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices.

The Selling Stockholders may use any one or more of the following methods when disposing of shares or interests therein:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales effected after the date the registration statement of which this prospectus is a part is declared effective by the SEC;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- broker-dealers may agree with the Selling Stockholders to sell a specified number of such shares at a stipulated price per share;
- the in-kind distribution of the shares by an investment fund to its limited partners, members or other equity holders;
- a combination of any such methods of sale; and
- any other method permitted by applicable law.

The Selling Stockholders may, from time to time, pledge or grant a security interest in some or all of the shares of Common Stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of Common Stock, from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of Selling Stockholders to include the pledgee, transferee or other successors in interest as Selling Stockholders under this prospectus. The Selling Stockholders also may transfer the shares of Common Stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

In connection with the sale of our Common Stock or interests therein, the Selling Stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the Common Stock in the course of hedging the positions they assume. To the extent permitted by applicable securities laws, the Selling Stockholders may also sell shares of our Common Stock short and deliver these securities to close out their short positions, or loan or pledge the Common Stock to broker-dealers that in turn may sell these securities. The Selling Stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the

delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The aggregate proceeds to the Selling Stockholders from the sale of the Common Stock offered by them will be the purchase price of the Common Stock less discounts or commissions, if any. Each of the Selling Stockholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of Common Stock to be made directly or through agents. We will not receive any of the proceeds from this offering. Upon any exercise of the warrants by payment of cash, however, we will receive the exercise price of the warrants.

The Selling Stockholders also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act, provided that they meet the criteria and conform to the requirements of that rule.

The Selling Stockholders and any underwriters, broker-dealers or agents that participate in the sale of the Common Stock or interests therein may be "underwriters" within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. Selling Stockholders who are "underwriters" within the meaning of Section 2(11) of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act.

To the extent required, the shares of our Common Stock to be sold, the names of the Selling Stockholders, the respective purchase prices and public offering prices, the names of any agents, dealer or underwriter, any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

In order to comply with the securities laws of some states, if applicable, the Common Stock may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the Common Stock may not be sold unless it has been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

We have advised the Selling Stockholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the Selling Stockholders and their affiliates. In addition, to the extent applicable we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the Selling Stockholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The Selling Stockholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

We have agreed to indemnify the Selling Stockholders against liabilities, including liabilities under the Securities Act and state securities laws, relating to the registration of the shares offered by this prospectus.

We have agreed with the Selling Stockholders to keep the registration statement of which this prospectus constitutes a part effective until the earlier of (1) such time as all of the shares covered by this prospectus have been disposed of pursuant to and in accordance with the registration statement or (2) the date on which all of the shares may be sold without restriction pursuant to Rule 144 of the Securities Act, include sales by persons deemed to be "affiliates" of the Company at the time of the sale or within the three month period prior to such sale.

LEGAL MATTERS

The validity of the securities offered hereby will be passed upon for us by Harter Secrest & Emery LLP, Rochester, New York.

EXPERTS

The consolidated financial statements and consolidated financial statement schedule incorporated in this prospectus by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2018 have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report (which report expresses an unqualified opinion on the consolidated financial statements and includes an explanatory paragraph regarding a going concern uncertainty), which is incorporated herein by reference. Such consolidated financial statements and consolidated financial statement schedule have been so incorporated in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

INCORPORATION BY REFERENCE

The SEC allows us to incorporate by reference information into this prospectus and any accompanying prospectus supplement from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus, while information that we file later with the SEC will automatically update and supersede the information in this prospectus. We incorporate by reference into this prospectus and the registration statement of which this prospectus is a part the information or documents listed below that we have filed with the SEC, except for information "furnished" under Items 2.02 or 7.01 and any related Items 9.01 on Form 8-K or other information "furnished" to the SEC which is not deemed filed and not incorporated in this prospectus, until the termination of the offering of securities described in this prospectus:

- Annual Report on Form 10-K for the fiscal year ended December 31, 2018, filed with the SEC on March 11, 2019 (the "Form10-K");
- Definitive Proxy Statement on Schedule 14A, filed with the SEC on April 25, 2019, to the extent incorporated by reference in Part III of our Form 10-K;
- Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2019, June 30, 2019 and September 30, 2019, filed with the SEC on May 9, 2019, August 7, 2019 and November 12, 2019, respectively;
- Current reports on Form 8-K filed with the SEC on January 3 , March 6, March 7, March 21, March 29, April 2, May 6, June 6, June 13, August 2, December 5 and December 16, 2019; and
- The description of our Common Stock contained in our registration statement onForm 8-A, filed with the SEC on June 12, 2017, and any amendment or report filed for the purpose of updating such description.

We also incorporate by reference any future filings (other than current reports furnished under Item 2.02 or Item 7.01 of Form8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the registration statement of which this prospectus is a part and prior to effectiveness of such registration statement, until we file a post-effective amendment that indicates the termination of the offering of the securities made by this prospectus, which will become a part of this prospectus from the date that such documents are filed with the SEC. Information in such

future filings updates and supplements the information provided in this prospectus. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later-filed document modify or replace such earlier statements.

We will furnish without charge to each person, including any beneficial owner, to whom a prospectus is delivered, upon written or oral request, a copy of any or all of the documents incorporated by reference into this prospectus but not delivered with the prospectus, including exhibits that are specifically incorporated by reference into such documents. You should direct any requests for documents to:

Athenex, Inc.
1001 Main Street, Suite 600
Buffalo, NY 14203
(716) 427-2950

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at http://www.sec.gov. Copies of certain information filed by us with the SEC are also available on our website at www.athenex.com. Our website is not a part of this prospectus and is not incorporated by reference in this prospectus.

This prospectus is part of a registration statement we filed with the SEC. This prospectus omits some information contained in the registration statement in accordance with SEC rules and regulations. You should review the information and exhibits in the registration statement for further information about us and our consolidated subsidiaries and the securities we are offering. Statements in this prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings. You should review the complete document to evaluate these statements.

ATHENEX, INC.

3,945,750 Shares of Common Stock Offered by the Selling Stockholders

PROSPECTUS

January 27, 2020

We have not authorized any dealer, salesperson or other person to give any information or represent anything not contained in or incorporated by reference into this prospectus. You must not rely on any unauthorized information. If anyone provides you with different or inconsistent information, you should not rely on it. This prospectus does not offer to sell any shares in any jurisdiction where it is unlawful. Neither the delivery of this prospectus, nor any sale made hereunder, shall create any implication that the information in this prospectus is correct after the date hereof.

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

The expenses relating to the registration of the securities will be borne by the registrant. Such expenses are estimated to be as follows:

Item	
SEC registration fee	$ 7,544.09
Legal fees and expenses*	15,000
Accounting fees and expenses*	20,000
Printing and miscellaneous fees and expenses*	4,000
Total	**$ 46,544.09**

* Indicates an estimate

Item 15. Indemnification of Directors and Officers

Under Section 145 of the Delaware General Corporation Law, we can indemnify our directors and officers against liabilities they may incur in such capacities, including liabilities under the Securities Act of 1933, as amended. Our amended and restated certificate of incorporation provides that we must indemnify our directors and officers to the fullest extent permitted by law and requires us to pay expenses incurred in defending or otherwise participating in any proceeding in advance of its final disposition upon our receipt of an undertaking by the director or officer to repay such advances if it is ultimately determined that the director or officer is not entitled to indemnification. Our certificate of incorporation further provides that rights conferred under such certificate of incorporation do not exclude any other right such persons may have or acquire under the certificate of incorporation, the bylaws, any statute, agreement, vote of stockholders or disinterested directors or otherwise.

The amended and restated certificate of incorporation also provides that, pursuant to Delaware law, our directors shall not be liable for monetary damages for breach of the directors' fiduciary duty of care to us and our stockholders. This provision in the amended and restated certificate of incorporation does not eliminate the duty of care, and in appropriate circumstances equitable remedies such as injunctive or other forms of non-monetary relief will remain available under Delaware law. In addition, each director will continue to be subject to liability for breach of the director's duty of loyalty to us for acts or omissions not in good faith or involving intentional misconduct, or knowing violations of law, for actions leading to improper personal benefit to the director, and for payment of dividends or approval of stock repurchases or redemptions that are unlawful under Delaware law. The provision also does not affect a director's responsibilities under any other law, such as the federal securities laws or state or federal environmental laws. We also maintain directors' and officers' liability insurance that provides coverage (1) to our directors and officers against loss arising from claims arising from or incurred as a result of such service and (2) to us with respect to indemnification payments that we may make to our directors and officers.

In addition, we have agreements to indemnify our directors and certain of our officers in addition to the indemnification provided for in the amended and restated certificate of incorporation. These agreements, among other things, indemnify our directors and some of our officers for certain expenses (including attorneys' fees), judgments, fines and settlement amounts incurred by such person in any action or proceeding, including any action by or in our right, on account of services by that person as a director or officer of our company or as a director or officer of our subsidiary, or as a director or officer of any other company or enterprise that the person provides services to at our request.

Item 16. Exhibits

The exhibits to the registration statement are listed in the Exhibit Index attached hereto and incorporated by reference herein.

Item 17. Undertakings

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement. *Provided, however*, that the undertakings set forth in paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement or is contained in a form of prospectus filed pursuant to Rule 424(b) that is a part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time

shall be deemed to be the initial bona fide offering thereof. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 that is incorporated by reference in this registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by a registrant for expenses incurred or paid by a director, officer or controlling person 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 of 1933 and will be governed by the final adjudication of such issue.

EXHIBIT INDEX

Exhibit Number	Description	Location
4.1	Share Purchase Agreement, by and among Athenex, Inc., M. Kingdon Offshore Master Fund, LP, Schonfeld Strategic 460 Fund LLC, Point72 Associates, LLC, J. Goldman Master Fund, L.P., and Avoro Life Sciences Fund LLC dated as of December 5, 2019.	Incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on December 5, 2019
4.2**	Registration Rights Agreement, by and among Athenex, Inc., M. Kingdon Offshore Master Fund, LP, Schonfeld Strategic 460 Fund LLC, Point72 Associates, LLC, J. Goldman Master Fund, L.P., and Avoro Life Sciences Fund LLC dated as of December 9, 2019.	Filed herewith
5.1	Opinion of Harter Secrest & Emery LLP	Filed herewith
23.1	Consent of Deloitte & Touche LLP	Filed herewith
23.2	Consent of Harter Secrest & Emery LLP	Filed herewith (included in Exhibit 5.1)
24.1	Power of Attorney	Included on signature page

** The Company has filed a redacted version of the Agreement, omitting the portions of the Agreement (indicated by asterisks) which the Company desires to keep confidential.

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SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3, and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Buffalo, State of New York, on January 24, 2020.

ATHENEX, INC.

By: /s/ Johnson Y.N. Lau
Johnson Y.N. Lau
Chief Executive Officer and Board Chairman

KNOW ALL PERSONS BY THESE PRESENTS, the undersigned hereby constitute and appoint Johnson Y.N. Lau and Teresa Bair and each of them, his true and lawful attorney-in-fact and agent, each with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, or any related registration statement filed pursuant to Rule 462(b) under the Securities Act, and to file the same, with exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite or necessary to be done in connection therewith, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that each of said attorneys-in-fact and agents, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

IN WITNESS WHEREOF, each of the undersigned has executed this power of attorney as of the date indicated.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement onForm S-3 has been signed by the following persons in the capacities and on the dates indicated:

Signature	Title	Date
/s/ Johnson Y.N. Lau Johnson Y.N. Lau	Chief Executive Officer and Board Chairman (Principal Executive Officer)	January 24, 2020
/s/ Randoll Sze Randoll Sze	Chief Financial Officer	January 24, 2020
/s/ Kim Campbell Kim Campbell	Director	January 22, 2020
/s/ Manson Fok Manson Fok	Director	January 24, 2020
/s/ Benson Kwan Hung Tsang Benson Kwan Hung Tsang	Director	January 22, 2020
/s/ Jinn Wu Jinn Wu	Director	January 22, 2020
/s/ John Moore Vierling, M.D. John Moore Vierling, M.D.	Director	January 22, 2020
/s/ Jordan Kanfer Jordan Kanfer	Director	January 22, 2020
/s/ Stephanie Davis Stephanie Davis	Director	January 24, 2020
/s/ John Tiong Lu Koh John Tiong Lu Koh	Director	January 22, 2020

Exhibit 4.2

REGISTRATION RIGHTS AGREEMENT

dated as of December 9, 2019

by and among

ATHENEX, INC.

AND
THE INVESTORS NAMED ON SCHEDULE I

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REGISTRATION RIGHTS AGREEMENT

THIS REGISTRATION RIGHTS AGREEMENT (this "*Agreement*") is made and entered into as of December 9, 2019 by and among (i) Athenex, Inc., a Delaware corporation (the "*Company*"), and the Investors named on Schedule I (each, an "*Investor*" and, together, the "*Investors*").

RECITALS:

WHEREAS, the Investors have agreed to purchase from the Company, and the Company has agreed to sell to the Investors, shares of common stock, par value US $0.001 per share (the "*Common Stock*") of the Company, on the terms and conditions set forth in the Share Purchase Agreement dated as of December 5, 2019 by and among the Company and the Investors (the "Share Purchase Agreement"); and

WHEREAS, it is a condition to the closing of the transactions contemplated under the Share Purchase Agreement (the "*Closing*") that the parties hereto enter into this Agreement to set forth certain rights and obligations of the parties in connection with the transactions contemplated under the Share Purchase Agreement.

NOW, THEREFORE, in consideration of the premises set forth above, the mutual promises and covenants set forth herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto hereby agree as follows:

ARTICLE I

DEFINITIONS AND INTERPRETATION

Section 1.1 Definitions. Capitalized terms used and not otherwise defined herein shall have the respective meanings set forth in the Share Purchase Agreement. As used in this Agreement, the following capitalized terms shall have the respective meanings set forth below in this Section 1.1:

"*Affiliate*" means, in respect of a Person, any other Person that, directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such Person, and (i) in the case of a natural person, shall include, without limitation, such Person's spouse, parents, children, siblings, mother-in-law and father-in-law and brothers and sisters-in-law, (ii) in the case of a Shareholder, shall include (A) any Person who holds shares as a nominee for such Shareholder, (B) any shareholder of such Shareholder, (C) any Person which has a direct or indirect interest in such Shareholder (including, if applicable, any general partner or limited partner) or any fund manager thereof; (D) any Person that directly or indirectly controls, is controlled by, under common control with, or is managed by such Shareholder or its fund manager, (E) the relatives of any individual referred to in (B) above, and (F) any trust controlled by or held for the benefit of such individuals. For the purpose of this definition, "control" (and correlative terms) shall mean the direct or indirect power, whether by contract, equity ownership or otherwise, to direct the policies or management of a Person, provided that the direct or indirect ownership of twenty-five percent (25%) or more of the voting power of a Person is deemed to constitute control of that Person.

"*Agreement*" has the meaning set forth in the Preamble.

"*beneficial ownership*" or "*beneficially own*" or similar term means beneficial ownership as defined under Rule 13d-3 under the Exchange Act.

"*Board*" and "*Board of Directors*" means the Board of Directors of the Company.

"*Business Day*" has the meaning as defined in the Certificate of Incorporation.

"*Certificate of Incorporation*" means the Company's Certificate of Incorporation, together with any and all amendments and subsequent restatements thereto.

"*Claim Notice*" has the meaning set forth in Section 2.9(c).

"*Closing*" has the meaning set forth in the Recitals.

"*Closing Date*" has the meaning set forth in Section 2.4(a).

"*Commission*" means the United States Securities and Exchange Commission or any other federal agency at the time administering the Securities Act or other governmental agency administering the securities laws in the jurisdiction in which the Company's securities are registered or being registered.

"*Commission Restrictions*" has the meaning set forth in Section 2.5(b).

"*Common Stock*" has the meaning set forth in the Recitals.

"*Company*" has the meaning set forth in the Preamble.

"*Confidential Information*" has the meaning set forth in Section 3.1.

"*Cut Back Shares*" has the meaning set forth in Section 2.5(b).

"*Default*" has the meaning set forth in Section 2.5(a).

"*Default Payment Date*" has the meaning set forth in Section 2.5(a).

"*Director(s)*" means the members of the Board.

"*Effectiveness Deadline*" has the meaning set forth in Section 2.5(a).

"*Email*" has the meaning set forth in Section 3.3.

"*Exchange Act*" means the U.S. Securities Exchange Act of 1934, as amended.

"*Filing Deadline*" has the meaning set forth in Section 2.4(a).

"*Investor*" and "*Investors*" have the meaning set forth in the Preamble.

"*Liquidated Damages*" has the meaning set forth in Section 2.5(a).

"*Nasdaq*" means the Nasdaq Global Select Market.

"*Permitted Transfer*" means a transfer of Subject Shares: (a) not involving a change in beneficial ownership, (b) in transactions involving the distribution without consideration of the Subject Shares by the holder to any of its partners, members, or retired partners or members, or to the estate of any of its partners or members or retired partners or members, (c) in transactions in compliance with Rule 144 promulgated under the Securities Act ("*Rule 144*"), (d) by members that are entities to affiliated entities or funds (United States based ornon-United States based), and (e) to the Company by any holder of the Subject Shares pursuant to the Company's repurchase option set forth in any agreement entered into as of or after the date hereof if such agreement is approved by a majority of the Board or a committee of the Board.

"*Person*" means an individual, corporation, partnership, limited liability company, association, trust, unincorporated organization, or other entity.

"*Piggyback Registration*" has the meaning set forth in Section 2.6(a).

"*Prior Investors*" means Perceptive Life Sciences Master Fund, Ltd., a Cayman Islands exempted company; venBio Select Fund LLC, a Delaware limited liability company; OrbiMed Partners Master Fund Limited, a Bermuda exempted company; and The Biotech Growth Trust PLC, a United Kingdom investment trust.

"*Prospectus*" means (i) the prospectus included in any registration statement, as amended or supplemented by any prospectus supplement, with respect to the terms of the offering of any portion of the Registrable Securities covered by such registration statement and by all other amendments and supplements to the prospectus, including post-effective amendments and all material incorporated by reference in such prospectus, and (ii) any "free writing prospectus" as defined in Rule 405 under the Securities Act.

"*register*," "*registered*" and "*registration*" means (i) a registration effected by preparing and filing a registration statement in compliance with the Securities Act, and the declaration or ordering of the effectiveness of such registration statement, or (ii) in the context of a public offering in a jurisdiction other than the United States, a registration, qualification or filing under the applicable securities laws of such other jurisdiction.

"*Registrable Securities*" means (i) the Subject Shares, and (ii) shares of the Common Stock of the Company issued as a dividend or other distribution with respect to, or in exchange for or in replacement of, any of the Subject Shares, directly, or indirectly, whether by merger, amendment to the Certificate of Incorporation, stock split, dividend, recapitalization, or otherwise. Notwithstanding the foregoing, "*Registrable Securities*" shall not include any Registrable Securities sold by a Person in a transaction in which rights under Article II are not assigned in accordance with this Agreement or any Registrable Securities sold in a public offering, whether sold pursuant to Rule 144, or in a registered offering, or otherwise.

"*Registration Expenses*" means all expenses incurred by the Company in complying with Section 2.4 hereof, including, without limitation, all registration, qualification and filing fees,

printing expenses, escrow fees, fees and disbursements of counsel for the Company, blue sky fees and expenses, the expense of any special audits incident to or required by any such registration and the reasonable fees and disbursements of one counsel for the Investor (which fees and disbursements of counsel shall be subject to an aggregate cap of US$35,000), and any fee charged by any depositary bank, transfer agent or share registrar, but excluding Selling Expenses. For the avoidance of doubt, the Company shall pay all expenses incurred in connection with a registration pursuant to Article II notwithstanding the cancellation or delay of the registration proceeding for any reason.

"*Registration Statement*" has the meaning set forth in Section 2.4(a).

"*Restricted Securities*" means the Securities of the Company required to bear the legend set forth in Section 2.2 hereof.

"*Restriction Termination Date*" has the meaning set forth in Section 2.5(b).

"*Securities*" means, with respect to the Company, any shares of Common Stock, equity interest, shares of any class in the share capital (common, preferred or otherwise) and any convertible securities, options, warrants and any other type of equity or equity-linked securities convertible, exercisable or exchangeable for any such equity interest or shares of any class in the share capital of the Company.

"*Securities Act*" and "*Act*" means the United States Securities Act of 1933 as amended from time to time.

"*Selling Expenses*" means all underwriting discounts and selling commissions.

"*Share Purchase Agreement*" has the meaning set forth in the Recitals.

"*Shareholder*" or "*Shareholders*" means Persons who hold the shares of the Common Stock from time to time.

"*Subject Shares*" means the shares of the Common Stock issued to the Investors at the Closing; provided, however, that for the avoidance of doubt, the term "Subject Shares" does not include (i) any shares of Common Stock sold to Perceptive pursuant to a Share Purchase Agreement dated as of June 29, 2018 by and between the Company and Perceptive, which are subject to a Registration Rights Agreement, dated as of July 3, 2018, by and between the Company and Perceptive or (ii) any shares of Common Stock sold to the Prior Investors pursuant to a Share Purchase Agreement dated as of May 3, 2019 by and among the Company and the Prior Investors, which are subject to a Registration Rights Agreement, dated as of May 7, 2019, by and among the Company and the Prior Investors.

"*Transaction Documents*" means this Agreement, the Share Purchase Agreement, and each of the other agreements and documents entered into or delivered by the parties hereto in connection with the transactions contemplated hereby or thereby.

"*Violation*" has the meaning set forth in Section 2.9(a).

Section 1.2 Interpretation and Rules of Construction. In this Agreement, except to the extent otherwise provided or that the context otherwise requires:

(a) when a reference is made in this Agreement to an Article or Section, such reference is to an Article or Section of this Agreement;

(b) the headings for this Agreement are for reference purposes only and do not affect in any way the meaning or interpretation of this Agreement;

(c) the words "hereof," "herein" and "hereunder" and words of similar import, when used in this Agreement, refer to this Agreement as a whole and not to any particular provision of this Agreement;

(d) all terms defined in this Agreement have the defined meanings when used in any certificate or other document made or delivered pursuant hereto, unless otherwise defined therein;

(e) the definitions contained in this Agreement are applicable to the singular as well as the plural forms of such terms; and

(f) references to a Person are also to its successors and permitted assigns.

ARTICLE II
TRANSFER RESTRICTIONS; REGISTRATION RIGHTS

Section 2.1 Transfer Restrictions

The Restricted Securities (including the Subject Shares) shall not be sold, assigned, transferred or pledged except (i) pursuant to an effective registration statement, (ii) pursuant to Rule 144 of the Securities Act, or (iii) upon the conditions specified in this Article II, which conditions are intended to, *inter alia*, ensure compliance with the provisions of applicable securities laws. Each Investor will cause any proposed purchaser, assignee, transferee or pledgee of any such Restricted Securities held by such holder to agree in writing to take and hold such Securities subject to the provisions and upon the conditions specified in this Agreement.

Section 2.2 Restrictive Legend; Execution by the Company.

(a) Each certificate (if any) representing the Subject Shares, and any replacement Securities issued in respect of the Subject Shares, shall (unless otherwise permitted by the provisions of Section 2.3 below) be stamped or otherwise imprinted with legends substantially in the following form (in addition to any legend required under applicable federal, state, local or non-United States law):

(i) "THE SECURITIES REPRESENTED BY THIS INSTRUMENT HAVE NOT BEEN REGISTERED UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED, OR THE SECURITIES LAWS OF ANY STATE AND MAY NOT BE TRANSFERRED, SOLD, OFFERED FOR SALE, PLEDGED, HYPOTHECATED OR OTHERWISE DISPOSED OF EXCEPT WHILE A REGISTRATION STATEMENT

RELATING THERETO IS IN EFFECT UNDER SUCH ACT AND APPLICABLE STATE SECURITIES LAWS OR PURSUANT TO AN EXEMPTION FROM REGISTRATION UNDER SUCH ACT AND SUCH LAWS. ANY ATTEMPT TO TRANSFER, SELL, OFFER TO SELL, PLEDGE, HYPOTHECATE OR OTHERWISE DISPOSE OF THIS INSTRUMENT IN VIOLATION OF THESE RESTRICTIONS SHALL BE VOID."

(ii) "THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO AND MAY ONLY BE SOLD, DISPOSED OF OR OTHERWISE TRANSFERRED IN COMPLIANCE WITH THE REGISTRATION RIGHTS AGREEMENT, DATED DECEMBER 9, 2019 AND THE SHARE PURCHASE AGREEMENT, DATED DECEMBER 5, 2019, ENTERED INTO BY THE HOLDER OF THESE SHARES AND THE COMPANY. COPIES OF SUCH AGREEMENTS ARE ON FILE AT THE PRINCIPAL OFFICE OF THE COMPANY. THESE RESTRICTIONS ARE BINDING ON TRANSFEREES OF THESE SHARES. BY ACCEPTING ANY INTEREST IN SUCH SHARES THE PERSON ACCEPTING SUCH INTEREST SHALL BE DEEMED TO AGREE TO AND SHALL BECOME BOUND BY ALL THE PROVISIONS OF SAID AGREEMENTS AS APPLICABLE."

(b) The Investors consent to the Company making a notation on its records and giving instructions to any transfer agent of the Restricted Securities in order to implement the restrictions on transfer established in this Section 2.2.

(c) The Company agrees that it will cause the certificates evidencing the shares of the Common Stock to bear the legend required by this Section 2.2, and it shall supply, free of charge, a copy of this Agreement to any holder of a certificate evidencing shares of the Common Stock containing such legend upon written request from such holder to the Company at its principal office. The parties hereto do hereby agree that the failure to cause the certificates evidencing the appropriate shares of the Common Stock to bear the legend required by this Section 2.2 and/or failure of the Company to supply, free of charge, a copy of this Agreement as provided under this Section 2.2 shall not affect the validity or enforcement of this Agreement.

Section 2.3 Notice of Proposed Transfers. The holder of each Subject Share, by acceptance thereof, agrees to comply in all respects with the provisions of this Section 2.3. Prior to any proposed sale, assignment, transfer or pledge of any Subject Shares, each Investor shall give written notice to the Company of such Investor's intention to effect such transfer, sale, assignment or pledge. Each such notice shall describe the manner and circumstances of the proposed transfer, sale, assignment or pledge in sufficient detail (stating at a minimum the name and address of the transferee and identifying the Securities of the Company being transferred), and if reasonably requested by the Company, shall be accompanied, at such holder's expense, by either (a) a written opinion of legal counsel who shall be, and whose legal opinion shall be, reasonably satisfactory to the Company addressed to the Company, to the effect that the proposed transfer of the Subject Shares may be effected without registration under the Securities Act, or (b) a "no action" letter from the Commission to the effect that the transfer of such Securities without registration will not result in a recommendation by the staff of the Commission that action be taken with respect thereto, whereupon the holder of such Subject Shares shall be entitled to transfer such Subject Shares in accordance with the terms of the notice delivered by the holder to the Company; provided that, the requirements of subsections 2.3(a) and (b) above shall not apply to Permitted Transfers. For the avoidance of

doubt, it shall not be reasonable for the Company to request that a notice be accompanied by any such opinion or "no action" letter if, among other things, both the transferor and the transferee have certified in writing that each of them is not a U.S. Person (as defined under Rule 902 of Regulation S promulgated under the Securities Act). Notwithstanding the foregoing exceptions to the requirements of this Section 2.3 for Permitted Transfers, all transferees shall be bound by the obligations of the transferor in this Agreement. Each certificate evidencing the Restricted Securities transferred as above provided shall bear the appropriate restrictive legends set forth in Section 2.2 above, except (i) if such transfer is made pursuant to Rule 144, (ii) is sold pursuant to the Registration Statement or (iii) if in the opinion of counsel for such holder and the Company such legend is not required in order to establish compliance with any provision of the Securities Act.

Section 2.4 Registration.

(a) Promptly following the date of the Closing (the "*Closing Date*") but no later than sixty (60) days after the Closing Date (the "*Filing Deadline*"), the Company shall prepare and file with the Commission one registration statement on Form S-3 (or, if Form S-3 is not then available to the Company, on Form S-1) (the "*Registration Statement*") covering the resale of the Registrable Securities. Subject to any Commission comments, such Registration Statement shall include the plan of distribution attached hereto as Exhibit A; provided, however, that no Investor shall be named as an "underwriter" in the Registration Statement without such Investor's prior written consent. Such Registration Statement shall not include any shares of Common Stock or other Securities for the account of any other holder without the prior written consent of the Investors. The Registration Statement (and each amendment or supplement thereto, and each request for acceleration of effectiveness thereof) shall be provided to the Investors and their respective counsel for comment not less than three business days prior to its filing or other submission.

(b) Expenses. The Company shall pay all Registration Expenses incurred in connection with the registration of the Registrable Securities to be effected pursuant to this Section 2.4. Each Investor shall bear its own Selling Expenses incurred in connection with the sale of such Investors' shares sold under the Registration Statement.

(c) Deferral. Notwithstanding the foregoing, if the Company shall furnish to the Investors a certificate signed by the Chief Executive Officer of the Company stating that in the good faith judgment of the Board or a committee of the Board, it would be materially detrimental to the Company and its Shareholders for such Registration Statement to be filed, then the Company shall have the right to defer such filing for a period of not more than sixty (60) days; provided, however, that the Company may not utilize this right more than once; provided, further that during such sixty (60) day period, the Company shall not file any registration statement pertaining to the public offering of any other Securities of the Company.

Section 2.5 Effectiveness

(a) The Company shall use its best efforts to have the Registration Statement declared effective as soon as practicable. The Company shall notify the Investors by facsimile or Email as promptly as practicable, and in any event, within twenty-four (24) hours, after any

Registration Statement is declared effective and shall simultaneously provide the Investors with copies of any related Prospectus to be used in connection with the sale or other disposition of the Securities covered thereby. If (A) a Registration Statement covering the Registrable Securities is not declared effective by the Commission prior to the earlier of (i) five (5) Business Days after the Commission shall have informed the Company that no review of the Registration Statement will be made or that the Commission has no further comments on the Registration Statement; or (ii) the 90th day after the Closing Date (the 120th day if the Commission reviews the Registration Statement), or (B) after a Registration Statement has been declared effective by the Commission (the "*Effectiveness Deadline*"), sales cannot be made continuously pursuant to such Registration Statement for any reason (including without limitation by reason of a stop order, or the Company's failure to update the Registration Statement), each such event shall constitute a "*Default*" for purposes hereof. In the event that a Default occurs then, in addition to any other rights the Investors may have hereunder or under applicable law, commencing on the date the Default first occurred, and on each one month anniversary thereafter until the applicable Default is cured (each, a "*Default Payment Date*"), the Company shall pay to each Investor an amount in cash, as liquidated damages and not as a penalty ("*Liquidated Damages*"), equal to 1.0% of the aggregate purchase price paid by such Investor pursuant to the Share Purchase Agreement for any Registrable Securities then held by such Investor on the applicable Default Payment Date. The parties hereto agree that in no event shall the aggregate amount of Liquidated Damages payable to the Investors exceed, in the aggregate, twenty-five percent (25%) of the aggregate purchase price paid by the Investors pursuant to the Share Purchase Agreement. If the Company fails to pay any Liquidated Damages pursuant to this Section 2.5(a) in full within five (5) Business Days after the applicable Default Payment Date, the Company will pay interest thereon at a rate of 1.5% per month (or such lesser maximum amount that is permitted to be paid by applicable law) to the Investors, accruing daily from the date such Liquidated Damages are due until such amounts, plus all such interest thereon, are paid in full. If paid between Default Payment Dates, Liquidated Damages shall be prorated on a days elapsed basis (measured from and after the last Default Payment Date up to and until the date the Default is cured) relative to the total number of days in the period for which the Liquidated Damages are accruing.

(b) Rule 415; Cutback If at any time the Commission takes the position that the offering of some or all of the Registrable Securities in a Registration Statement is not eligible to be made on a delayed or continuous basis under the provisions of Rule 415 under the Securities Act or requires any Investor to be named as an "underwriter", the Company shall use its commercially reasonable best efforts to persuade the Commission that the offering contemplated by the Registration Statement is a valid secondary offering and not an offering "by or on behalf of the issuer" as defined in Rule 415 and that no Investor is an "underwriter". The Investors shall have the right to participate or have their counsel participate in any meetings or discussions with the Commission regarding the Commission's position and to comment or have their counsel comment on any written submission made to the Commission with respect thereto. No written submission shall be made to the Commission to which an Investor's counsel reasonably objects. In the event that, despite the Company's commercially reasonable best efforts and compliance with the terms of this Section 2.5(b), the Commission refuses to alter its position, the Company shall (i) remove from the Registration Statement such portion of the Registrable Securities (the "*Cut Back Shares*") and/or (ii) agree to such restrictions and limitations on the registration and resale of the Registrable Securities as the Commission may require to assure the Company's compliance with the requirements of Rule 415 (collectively, the "*Commission Restrictions*"); provided, however,

that the Company shall not agree to name any Investor as an "underwriter" in such Registration Statement without the prior written consent of such Investor. If and to the extent permitted by the Commission, the Cut-Back Shares shall be allocated among the Investors on a pro rata basis, in proportion to their respective Registrable Securities purchased pursuant to the Share Purchase Agreement. No Liquidated Damages shall accrue as to any Cut Back Shares until such date as the Company is able to effect the registration of such Cut Back Shares in accordance with any Commission Restrictions (such date, the "*Restriction Termination Date*" of such Cut Back Shares). From and after the Restriction Termination Date applicable to any Cut Back Shares, all of the provisions of this Section 2 (including the Liquidated Damages provisions) shall again be applicable to such Cut Back Shares; provided, however, that (i) the Filing Deadline for the Registration Statement including such Cut Back Shares shall be ten (10) Business Days after such Restriction Termination Date, and (ii) the date by which the Company is required to obtain effectiveness with respect to such Cut Back Shares shall be the 90th day immediately after the Restriction Termination Date. For the avoidance of doubt, for purposes of this Section 2.5(b), the term "commercially reasonable best efforts" shall not require the Company to institute or maintain any action, suit or proceeding against the Commission or any member of the Staff of the Commission.

Section 2.6 Rights to Piggyback Registration

(a) If, at any time following the date of this Agreement, any Registrable Securities remain outstanding for which (A) there is not one or more effective registration statements covering all of the Registrable Securities and (B) the Company proposes for any reason to register any shares of Common Stock under the Securities Act (other than pursuant to a registration statement on Form S-4 or Form S-8 (or a similar or successor form)) with respect to an offering of Common Stock by the Company for its own account or for the account of any of its stockholders, it shall at each such time promptly give written notice to the holders of the Registrable Securities of its intention to do so (but in no event less than thirty (30) days before the anticipated filing date) and, to the extent permitted under the provisions of Rule 415 under the Securities Act, include in such registration all Registrable Securities with respect to which the Company has received written requests for inclusion therein within fifteen (15) days after receipt of the Company's notice (a "*Piggyback Registration*"). Such notice shall offer the holders of the Registrable Securities the opportunity to register such number of shares of Registrable Securities as each such holder may request and shall indicate the intended method of distribution of such Registrable Securities.

(b) Notwithstanding the foregoing, (A) if such registration involves an underwritten public offering, the Investors must sell their Registrable Securities to, if applicable, the underwriter(s) at the same price and subject to the same underwriting discounts and commissions that apply to the other Securities sold in such offering (it being acknowledged that the Company shall be responsible for other expenses as set forth in Section 2.4(b)) and subject to the Investors entering into customary underwriting documentation for selling stockholders in an underwritten public offering, and (B) if, at any time after giving written notice of its intention to register any Registrable Securities pursuant to Section 2.6(a) and prior to the effective date of the registration statement filed in connection with such registration, the Company shall determine for any reason not to cause such registration statement to become effective under the Securities Act, the Company shall deliver written notice to the Investors and, thereupon, shall be relieved of its

obligation to register any Registrable Securities in connection with such registration; provided, however, that nothing contained in this Section 2.6(b) shall limit the Company's liabilities and/or obligations under this Agreement, including, without limitation, the obligation to pay Liquidated Damages under Section 2.5. If the managing underwriter(s) for the underwritten public offering advise the Company that the number of shares proposed to be included in the offering exceeds the number that can reasonably be sold in the offering, then the shares to be included in such offering shall be allocated, first, to the account of the Company, in the event that the public offering relates to a primary offering by or on behalf of the Company, or, if the offering is being made pursuant to a demand registration right granted to one or more holders of Common Stock, such holders, second, to the Investors (proportionally), and third, to any other holder of Common Stock having the right to include its shares in such offering.

Section 2.7 Obligations of the Company.

Whenever required to effect the registration of any Registrable Securities under this Agreement, the Company shall keep the Investors advised in writing as to the initiation of such registration and as to the completion thereof, and shall, at its expense promptly:

(a) Registration Statement. Prepare and file with the Commission a registration statement with respect to such Registrable Securities and use its commercially reasonable efforts to cause such registration statement to become effective, and keep any such registration statement effective for a period of one year or until the Investors have completed the distribution described in the registration statement relating thereto, whichever occurs first.

(b) Amendments and Supplements. Prepare and file with the Commission such amendments and supplements to the registration statement and the Prospectus used in connection with such registration statement as may be necessary to comply with the provisions of the Securities Act or other applicable securities laws with respect to the disposition of all Securities covered by such registration statement.

(c) Registration Statements and Prospectuses. Furnish to the Investors such number of copies of registration statements and Prospectuses, including a preliminary prospectus, in conformity with the requirements of the Securities Act or other applicable securities laws, and such other documents as it may reasonably request in order to facilitate the disposition of the Registrable Securities owned by it that are included in such registration.

(d) Blue Sky. Use its best efforts to register and qualify the Securities covered by such registration statement under such other securities or blue sky laws of such jurisdictions as shall be reasonably requested by the Investors, provided that the Company shall not be required in connection therewith or as a condition thereto to qualify to do business or to file a general consent to service of process in any such states or jurisdictions.

(e) Notification. Notify the Investors at any time when a Prospectus relating to its Registrable Securities is required to be delivered under the Securities Act or other applicable securities laws of the happening of any event as a result of which the Prospectus included in such registration statement, as then in effect, includes an untrue statement of a material fact or omits to state a material fact required to be stated therein or necessary to make the statements therein not misleading in the light of the circumstances then existing.

(f) Listing on Securities Exchange(s). Cause all such Registrable Securities registered pursuant hereto to be listed on the Nasdaq, or such other internationally recognized exchange, for long as the Company's Securities are listed on such exchange.

Section 2.8 Furnish Information.

It shall be a condition precedent to the obligations of the Company to take any action pursuant to Section 2.4 with respect to the Registrable Securities of the Investors, that the Investors shall furnish to the Company such information regarding itself, the Registrable Securities held by it and the intended method of disposition of such Securities as shall be reasonably requested in writing by the Company to timely effect the registration of its Registrable Securities. The failure of any Investor to timely provide such information shall result in such Investor's shares being excluded from the Registration Statement, and shall not delay the Company's filing of the Registration Statement from any other holder.

Section 2.9 Indemnification.

The following indemnification provisions shall apply in the event any Registrable Securities are included in a registration statement under Section 2.4:

(a) By the Company. To the extent permitted by law, the Company will indemnify and hold harmless each Investor, and the partners, officers, directors, employees, trustees and legal counsel of each Investor and each Person, if any, who controls an Investor within the meaning of Section 15 of the Securities Act against any expenses, losses, claims, damages, or liabilities (joint or several) (or actions in respect thereof) to which they may become subject under the Securities Act, the Exchange Act or other applicable law, insofar as such expenses, losses, claims, damages, or liabilities (or actions in respect thereof) arise out of or are based upon any of the following statements, omissions or violations (each a "*Violation*"):

(i) any untrue statement or alleged untrue statement of a material fact contained or incorporated by reference in any registration statement, offering circular, Prospectus or other document, or any amendments or supplements thereto;

(ii) 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 in which they were made, not misleading; or

(iii) any violation or alleged violation of the Securities Act, the Exchange Act, any federal or state or foreign securities law or any rule or regulation promulgated under the Securities Act, the Exchange Act or other applicable securities law in connection with the offering covered by such registration statement; and the Company will reimburse the Investors, and their respective partners, officers, directors, employees, legal counsel or controlling Person for any legal or other expenses reasonably incurred by them, as incurred, in connection with investigating or defending any such loss, claim, damage, liability or action; provided, however, that the indemnity agreement contained in this Section 2.9(a) shall not apply to amounts paid in

settlement of any such loss, claim, damage, liability or action if such settlement is effected without the consent of the Company (which consent shall not be unreasonably withheld), nor shall the Company be liable in any such case for any such loss, claim, damage, liability or action to the extent that it arises out of or is based upon a Violation which occurs in reliance upon and in conformity with written information furnished expressly for use in connection with such registration by an Investor, underwriter or controlling Person of an Investor.

(b) By Investors. To the extent permitted by law, each Investor will indemnify and hold harmless the Company and the partners, officers, Directors, employees, trustees and legal counsel of the Company and each Person, if any, who controls the Company within the meaning of Section 15 of the Securities Act, and any other Shareholder selling Shares under such registration statement or any of such other Shareholder's partners, directors, officers, employees, trustees and legal counsel of such Shareholder and each Person, if any, who controls such Shareholder within the meaning of Section 15 of the Securities Act, against any expenses, losses, claims, damages or liabilities (joint or several) (or actions in respect thereof) to which the Company or any such director, officer, employee, trustee, legal counsel, controlling Person or other such Shareholder, partner or director, officer, employee or controlling Person of such other Shareholder may become subject under the Securities Act, the Exchange Act or other applicable law, insofar as such expenses, losses, claims, damages or liabilities (or actions in respect thereto) arise out of or are based upon any Violation, in each case to the extent (and only to the extent) that such Violation occurs in reliance upon and in conformity with written information furnished by such Investor to the Company expressly for inclusion in the registration statement or Prospectus or amendment or supplement thereto, which constituted by the Investor an untrue statement of a material fact or any omission of a material fact required to be stated in the registration statement or Prospectus or preliminary prospectus or amendment or supplement thereto or necessary to make the statements therein not misleading: and such Investor will reimburse any legal or other expenses reasonably incurred by the Company or any such Director, officer, employee, controlling Person or other Shareholder, partner, officer, employee, director or controlling Person of such other Shareholder in connection with investigating or defending any such loss, claim, damage, liability or action: provided, however, that the indemnity agreement contained in this Section 2.9(b) shall not apply to amounts paid in settlement of any such loss, claim, damage, liability or action if such settlement is effected without the consent of such Investor, which consent shall not be unreasonably withheld; and provided, further that the total amounts payable in indemnity by such Investor under this Section 2.9(b) plus any amount under Section 2.9(d) in respect of any Violation shall not exceed the net proceeds received by such Investor in the registered offering out of which such Violation arises. For the avoidance of doubt, the Investors indemnification obligations pursuant to this Section are several and not joint.

(c) Notice. Promptly after receipt by an indemnified party under this Section 2.9 of notice of the commencement of any claim or action (including any governmental action), such indemnified party will, if a claim in respect thereof is to be made against any indemnifying party under this Section 2.9, deliver to the indemnifying party a written notice of the commencement thereof (a "*Claim Notice*") and the indemnifying party shall have the right to participate in, and, to the extent the indemnifying party so desires, jointly with any other indemnifying party similarly noticed, to assume the defense thereof with counsel mutually satisfactory to the parties; provided, however, that an indemnified party shall have the right to retain its own counsel, with the reasonable fees and expenses to be paid by the indemnifying party

(i) during the period from the delivery of a Claim Notice until retention of counsel by the indemnifying party; and (ii) if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate due to conflict of interests between such indemnified party and any other party represented by such counsel in such proceeding. The failure to deliver written notice to the indemnifying party within a reasonable time of the commencement of any such action shall relieve such indemnifying party of liability to the indemnified party under this Section 2.9 to the extent the indemnifying party is prejudiced as a result thereof, but the omission so to deliver written notice to the indemnifying party will not relieve it of any liability that it may have to any indemnified party otherwise than under this Section 2.9.

(d) Contribution. In order to provide for just and equitable contribution to joint liability under the Securities Act in any case in which either (i) an Investor exercising rights under this Agreement, or any controlling Person of any Investor, makes a claim for indemnification pursuant to this Section 2.9 but it is judicially determined (by the entry of a final judgment or decree by a court of competent jurisdiction and the expiration of time to appeal or the denial of the last right of appeal) that such indemnification may not be enforced in such case notwithstanding the fact that this Section 2.9 provides for indemnification in such case, or (ii) contribution under the Securities Act may be required on the part of any Investor or any such controlling Person in circumstances for which indemnification is provided under this Section 2.9; then, and in each such case, the Company and the Investors will contribute to the aggregate losses, claims, damages or liabilities to which they may be subject (after contribution from others) in such proportion so that each Investor is responsible for the portion represented by the percentage that the public offering price of its Registrable Securities offered by and sold under the registration statement bears to the public offering price of all Securities offered by and sold under such registration statement, and the Company and any other selling Shareholders are responsible for the remaining portion; provided, however, that, in any such case: (A) no Investor will be required to contribute any amount in excess of the net proceeds received by such Investor from the public offering price of all such Registrable Securities offered and sold by such Investor pursuant to such registration statement; and (B) no Person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) will be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation.

(e) Survival. The obligations of the Company and the Investors under this Section 2.9 shall survive until the fifth (5th) anniversary of the completion of any offering of Registrable Securities pursuant to a registration statement, regardless of the expiration of any statutes of limitation or extensions of such statutes.

Section 2.10 Rule 144 Reporting.

With a view to making available to the Investors the benefits of certain rules and regulations of the Commission which may permit the sale of the Restricted Securities to the public without registration, the Company agrees to use its commercially reasonable best efforts to:

(a) Make and keep public information available, as those terms are understood and defined in Rule 144 or any similar or analogous rule promulgated under the Securities Act, at all times after the effective date of the first registration filed by the Company for an offering of its Securities to the general public;

(b) File with the Commission, in a timely manner, all reports and other documents required of the Company under the Securities Act or the Exchange Act, at all times after the effective date of the first registration under the Securities Act filed by the Company; and

(c) So long as an Investor owns any Restricted Securities, furnish to such Investor forthwith upon request, (i) a written statement by the Company as to its compliance with the reporting requirements of said Rule 144, and of the Exchange Act (at any time after it has become subject to such reporting requirements), (ii) a copy of the most recent annual, interim, quarterly or other report of the Company, and (iii) such other reports and documents as such Investor may reasonably request in availing itself of any rule or regulation of the Commission allowing it to sell any such Securities without registration.

ARTICLE III
GENERAL PROVISIONS

Section 3.1 Confidentiality. Each party hereto hereby agrees that it will, and will cause its respective Affiliates and its and their respective representatives to, hold in strict confidence any non-public records, books, contracts, instruments, computer data and other data and information concerning the other parties hereto, whether in written, verbal, graphic, electronic or any other form provided by any party hereto (except to the extent that such information has been (a) previously known by such party on a non-confidential basis from a source other than the other parties hereto or its representatives, provided that, to such party's knowledge, such source is not prohibited from disclosing such information to such party or its representatives by a contractual, legal or fiduciary obligation to the other parties hereto or its representatives, (b) in the public domain through no breach of this Agreement by such party, (c) independently developed by such party or on its behalf as evidenced by contemporaneous documentation, or (d) later lawfully acquired from other sources) (the "*Confidential Information*"). In the event that a party hereto is requested or required by law, governmental authority, rules of stock exchanges, or other applicable judicial or governmental order to disclose any Confidential Information concerning any of the other parties hereto, such party shall, to the extent legally permissible, notify the other party prior to making any such disclosure by providing the other party with the text of the disclosure requirement and draft disclosure at least 24 hours prior to making any such disclosure, and, if requested by another party, assist such other party to limit or minimize such disclosure. For the avoidance of doubt, nothing in this Section 3.1 shall prevent the use of information expressly provided for inclusion in the Registration Statement to be included in any registration statement required to be filed under this Registration Rights Agreement.

Section 3.2 Termination. Unless expressly provided otherwise herein, in addition to the other termination provisions in this Agreement, this Agreement shall terminate, and have no further force and effect, upon the earliest of: (a) a written agreement to that effect, signed by all parties hereto, and (b) the date following the Closing on which the Investors no longer hold any shares of the Common Stock of the Company; provided that, notwithstanding the foregoing, Article II shall survive any termination of this Agreement until the specific provisions thereof terminate in accordance with their express terms.

Section 3.3 Notices. All notices, requests and other communications to any party hereunder shall be in writing (including facsimile transmission and electronic mail transmission ("*Email*"), so long as a receipt of such Email is requested and received) and shall be given:

If to the Company:

Athenex, Inc.
Conventus Building
1001 Main Street, Suite 600
Buffalo, NY 14203
Attn: Teresa Bair, Vice President, Legal Affairs & Corporate Development
Email: tbair@athenex.com
Facsimile: 716-800-6818

with a copy to:

Harter Secrest & Emery LLP
1600 Bausch & Lomb Place
Rochester, New York 14604
Attn: Alexander R. McClean
Facsimile: 585-232-6500
E-mail: amcclean@hselaw.com

If to any Investor, to its address set forth on Schedule 3.3.

A party may change or supplement the addresses given above, or designate additional addresses, for the purposes of this Section 3.3 by giving the other parties written notice of the new address in the manner set forth above.

Section 3.4 Entire Agreement. This Agreement and the other Transaction Documents, together with all the schedules and exhibits hereto and thereto and the certificates and other written instruments delivered in connection therewith from time to time on and following the date hereof, constitute and contain the entire agreement and understanding of the parties with respect to the subject matter hereof and thereof, and supersedes any and all prior negotiations, correspondence, agreements, understandings, duties or obligations between the parties respecting the subject matter hereof and thereof. Each party expressly represents and warrants that it is not relying on any oral or written representations, warranties, covenants or agreements outside of this Agreement and the other Transaction Documents.

Section 3.5 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of New York, without regard to conflict of law principles.

Section 3.6 Dispute Resolution. Each of the parties hereto irrevocably submits to the exclusive jurisdiction of the courts of the State of New York located in New York County and the United States District Court for the Southern District of New York for the purpose of any suit, action, proceeding or judgment relating to or arising out of this Agreement

and the transactions contemplated hereby. Service of process in connection with any such suit, action or proceeding may be served on each party hereto anywhere in the world by the same methods as are specified for the giving of notices under this Agreement. Each of the parties hereto irrevocably consents to the jurisdiction of any such court in any such suit, action or proceeding and to the laying of venue in such court. Each party hereto irrevocably waives any objection to the laying of venue of any such suit, action or proceeding brought in such courts and irrevocably waives any claim that any such suit, action or proceeding brought in any such court has been brought in an inconvenient forum. To the extent that the Company has or hereafter may acquire any immunity (on the grounds of sovereignty or otherwise) from the jurisdiction of any court or from any legal process with respect to itself or its property, the Company irrevocably waives, to the fullest extent permitted by law, such immunity in respect of any such suit, action or proceeding. EACH OF THE PARTIES HERETO HEREBY IRREVOCABLY WAIVES ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATED TO THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY.

Section 3.7 Severability. If any provision of this Agreement is found to be invalid or unenforceable, then such provision shall be construed, to the extent feasible, so as to render the provision enforceable and to provide for the consummation of the transactions contemplated hereby on substantially the same terms as originally set forth herein, and if no feasible interpretation would save such provision, it shall be severed from the remainder of this Agreement, which shall remain in full force and effect unless the severed provision is essential to the rights or benefits intended by the parties. In such event, the parties shall use commercially reasonable efforts to negotiate, in good faith, a substitute, valid and enforceable provision or agreement, which most nearly effects the parties' intent in entering into this Agreement.

Section 3.8 Assignments and Transfers; No Third Party Beneficiaries. Except as otherwise provided herein, this Agreement and the rights and obligations of the Company and the Investors hereunder shall inure to the benefit of, and be binding upon, their respective successors and permitted assigns and legal representatives, but shall not otherwise be for the benefit of any third party. Except in the case of a Permitted Transfer effected in accordance with Section 2.3, no Investor may assign any of its rights under this Agreement without the prior written consent of the Company; provided, however, that it shall be a condition precedent to the assignment of any of the aforementioned rights of the Investors that any transferee in a Permitted Transfer or any other Person to which the Company has consented to the transfer of such rights shall execute and deliver to the Company and such Investor a Deed of Adherence (in the same form and substance as set out in Exhibit B hereto); and provided further, such transfer shall be subject to any additional requirements of applicable law or otherwise contained herein.

Section 3.9 Construction. Each of the parties hereto has participated in the drafting and negotiation of this Agreement. If an ambiguity or question of intent or interpretation arises, this Agreement must be construed as if it is drafted by all the parties hereto and no presumption or burden of proof shall arise favoring or disfavoring any party by virtue of authorship of any of the provisions of this Agreement.

Section 3.10 Counterparts. This Agreement may be executed in two or more identical counterparts, all of which shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to the other parties hereto. A facsimile or "PDF" signature shall be considered due execution and shall be binding upon the signatory thereto with the same force and effect as if the signature were an original.

Section 3.11 Aggregation of Shares. All Securities held or acquired by an Investor and/or its Permitted Transferees shall be aggregated together for the purpose of determining the availability of any rights of such Investor under this Agreement.

Section 3.12 Specific Performance. The parties hereto acknowledge and agree irreparable harm may occur for which money damages would not be an adequate remedy in the event that any of the provisions of this Agreement were not performed in accordance with their specific terms or were otherwise breached. It is accordingly agreed that, in addition to any other remedies at law or in equity, the parties to this Agreement shall be entitled to injunction to prevent breaches of this Agreement and to enforce specifically the terms and provisions of this Agreement without posting any bond or other undertaking.

Section 3.13 Amendment; Waiver. This Agreement may be amended, modified or supplemented only by a written instrument duly executed by all the parties hereto. The observance of any provision in this Agreement may be waived (either generally or in a particular instance and either retroactively or prospectively) only by the written consent of the party against whom such waiver is to be effective. Any amendment or waiver effected in accordance with this Section 3.13 shall be binding upon the parties hereto and their respective successors and assigns. It is agreed that no delay or omission to exercise any right, power or remedy accruing to any party, upon any breach, default or noncompliance by another party under this Agreement, shall impair any such right, power or remedy, nor shall it be construed to be a waiver of any such breach, default or noncompliance, or any acquiescence therein, or of or in any similar breach, default or noncompliance thereafter occurring.

Section 3.14 Public Announcements. Without limiting any other provision of this Agreement, the parties hereto, to the extent permitted by applicable law, will consult with each other before issuance, and provide each other the opportunity to review, comment upon and agree on any press release or public statement with respect to this Agreement, the other Transaction Documents and the transactions contemplated hereby and thereby and the ongoing business relationship among the parties. The parties hereto will not issue any such press release or make any such public statement without the prior written consent of the other party, except as may be required by law or any listing agreement with or requirement of the Nasdaq or any other applicable securities exchange, provided that the disclosing party shall, to the extent permitted by applicable law or any listing agreement with or requirement of the Nasdaq or any other applicable securities exchange, and if reasonably practicable, inform the other parties about the disclosure to be made pursuant to such requirements prior to the disclosure.

[*Signature Pages Follow*]

IN WITNESS WHEREOF, the parties have caused their respective duly authorized representatives to execute this Agreement as of the date and year first above written.

ATHENEX, INC.

By: /s/ Johnson Y.N. Lau
Name: Johnson Y.N. Lau
Title: Chief Executive Officer and Board Chairman

[Signature Page to Registration Rights Agreement]

IN WITNESS WHEREOF, the parties have caused their respective duly authorized representatives to execute this Agreement as of the date and year first above written.

M. KINGDON OFFSHORE MASTER FUND, LP
By: Kingdon Capital Management, LLC, as agent and investment adviser

By: /s/ William Walsh
Name: William Walsh
Title: Chief Financial Officer

SCHONFELD STRATEGIC 460 FUND LLC

By: /s/ Trina Geatz
Name: Trina Geatz
Title: Global Director of Operations

POINT72 ASSOCIATES, LLC

By: /s/ Kevin J. O'Connor
Name: Kevin J. O'Connor
Title: Authorized Signatory

J. GOLDMAN MASTER FUND, L.P.
By: J. Goldman & Co., L.P. as investment adviser

By: /s/ Sagan Weiss
Name: Sagan Weiss
Title: Chief Compliance Officer

AVORO LIFE SCIENCES FUND LLC

By: /s/ Scott Epstein
Name: Scott Epstein
Title: Chief Financial Officer and Chief Compliance Officer

[Signature Page to Registration Rights Agreement]

SCHEDULE I

INVESTORS

Name of Investor	Purchased Shares	Aggregate Purchase Price
M. Kingdon Offshore Master Fund, LP	2,600,000	$39,780,000.00
Schonfeld Strategic 460 Fund LLC	457,516	$ 6,999,994.80
Point72 Associates, LLC	326,797	$ 4,999,994.10
J. Goldman Master Fund, L.P.	300,000	$ 4,590,000.00
Avoro Life Sciences Fund LLC	261,437	$ 3,999,986.10
Total	**3,945,750**	**$60,369,975.00**

SCHEDULE 3.3

ADDRESSES FOR NOTICES TO INVESTORS

(a) Notices to M. Kingdon Offshore Master Fund:

c/o Kingdon Capital Management, LLC
152 W. 57th Street, 50th Floor
New York, NY 10019
Attention: [*]
email: [*]

(b) Notices to Schonfeld Strategic 460 Fund LLC:

Schonfeld Strategic 460 Fund LLC
460 Park Avenue, 10th Floor
New York, NY 10022
Attention [*]
[*]

(c) Notices to Point72 Associates, LLC:

Point72 Associates, LLC
c/o Point72, L.P.
72 Cummings Point Road
Stamford, CT 06902
Attn: Legal Department

(d) Notices to J. Goldman Master Fund, L.P.:

J. Goldman & Co., L.P.
510 Madison Avenue, 26th Floor
New York, NY 10022
Attention: [*]
Email: [*]

(e) Notices to Avoro Life Sciences Fund LLC:

Avoro Life Sciences Fund LLC
110 Greene Street, Suite 800
New York, NY 10012
Attn: [*]
E-mail: [*]

Exhibit A

Plan of Distribution

The selling stockholders, which as used herein includes donees, pledgees, transferees or othersuccessors-in-interest selling shares of common stock or interests in shares of common stock received after the date of this prospectus from a selling stockholder as a gift, pledge, partnership distribution or other transfer, may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock or interests in shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices.

The selling stockholders may use any one or more of the following methods when disposing of shares or interests therein:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales effected after the date the registration statement of which this Prospectus is a part is declared effective by the Commission;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;
- the in-kind distribution of the Shares by an investment fund to its limited partners, members or other equity holders;
- a combination of any such methods of sale; and

- any other method permitted by applicable law.

The selling stockholders may, from time to time, pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock, from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of selling stockholders to include the pledgee, transferee or other successors in interest as selling stockholders under this prospectus. The selling stockholders also may transfer the shares of common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

In connection with the sale of our common stock or interests therein, the selling stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the common stock in the course of hedging the positions they assume. To the extent permitted by applicable securities laws, the selling stockholders may also sell shares of our common stock short and deliver these securities to close out their short positions, or loan or pledge the common stock to broker-dealers that in turn may sell these securities. The selling stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The aggregate proceeds to the selling stockholders from the sale of the common stock offered by them will be the purchase price of the common stock less discounts or commissions, if any. Each of the selling stockholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of common stock to be made directly or through agents. We will not receive any of the proceeds from this offering. Upon any exercise of the warrants by payment of cash, however, we will receive the exercise price of the warrants.

The selling stockholders also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act, provided that they meet the criteria and conform to the requirements of that rule.

The selling stockholders and any underwriters, broker-dealers or agents that participate in the sale of the common stock or interests therein may be "underwriters" within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. Selling stockholders who are "underwriters" within the meaning of Section 2(11) of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act.

To the extent required, the shares of our common stock to be sold, the names of the selling stockholders, the respective purchase prices and public offering prices, the names of any agents, dealer or underwriter, any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

In order to comply with the securities laws of some states, if applicable, the common stock may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the common stock may not be sold unless it has been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

We have advised the selling stockholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling stockholders and their affiliates. In addition, to the extent applicable we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling stockholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling stockholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

We have agreed to indemnify the selling stockholders against liabilities, including liabilities under the Securities Act and state securities laws, relating to the registration of the shares offered by this prospectus.

We have agreed with the selling stockholders to keep the registration statement of which this prospectus constitutes a part effective until the earlier of (1) such time as all of the shares covered by this prospectus have been disposed of pursuant to and in accordance with the registration statement or (2) the date on which all of the shares may be sold without restriction pursuant to Rule 144 of the Securities Act, include sales by persons deemed to be “affiliates” of the Company at the time of the sale or within the three month period prior to such sale.

EXHIBIT B
FORM OF DEED OF ADHERENCE

THIS DEED is made the day of 20[ ] by [ ] of [ ] (the "**Permitted Transferee**") and is supplemental to the Registration Rights Agreement dated [●], 2019 made among Athenex, Inc. (the "**Company**"), and certain Investors (such agreement as amended, restated or supplemented from time to time, the "**Registration Rights Agreement**").

WITNESSETH as follows:

The Permitted Transferee confirms that it has been provided with a copy of the Registration Rights Agreement and all amendments, restatements and supplements thereto and hereby covenants with each of the parties to the Registration Rights Agreement from time to time to observe, perform and be bound by all the terms and conditions of the Registration Rights Agreement which are capable of applying to the Permitted Transferee to the intent and effect that the Permitted Transferee shall be deemed as and with effect from the date hereof to be a party to the Registration Rights Agreement and to be subject to the obligations thereof.

The address and facsimile number at which notices are to be served on the Permitted Transferee under the Registration Rights Agreement and the person for whose attention notices are to be addressed are as follows:

[*to insert contact details*]

Words and expressions defined in the Registration Rights Agreement shall have the same meaning in this Deed. This Deed shall be governed by and construed in accordance with the laws of the State of New York.

This Deed shall take effect as a deed poll for the benefit of the Company, the Investors (as defined in the Registration Rights Agreement), and any other parties to the Registration Rights Agreement.

IN WITNESS whereof the Permitted Transferee has executed this Deed the day and year first above written.

THE COMMON SEAL of [ ].

was hereunto affixed)

in the presence of:)

_____

(Director)

_____

(Director/Secretary)

Exhibit 5.1

January 27, 2020

Athenex, Inc.
1001 Main Street, Suite 600
Buffalo, New York 14203

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to Athenex, Inc., a Delaware corporation (the "***Company***"), in connection with its filing of a Registration Statement on Form S-3 (the "***Registration Statement***") with the Securities and Exchange Commission pursuant to the Securities Act of 1933, as amended (the "***Securities Act***") registering the resale by selling stockholders of up to 3,945,750 shares (the "***Resale Shares***") of the Company's common stock, par value $0.001 per share ("***Common Stock***").

In connection with the foregoing, we have examined originals or copies of such corporate records of the Company, certificates and other communications of public officials, certificates of officers of the Company and such other documents as we have deemed relevant or necessary for the purpose of rendering the opinions expressed herein. As to questions of fact material to those opinions, we have, to the extent we deemed appropriate, relied on certificates of officers of the Company and on certificates and other communications of public officials. We have assumed the genuineness of all signatures on, and the authenticity of, all documents submitted to us as originals, the conformity to authentic original documents of all documents submitted to us as copies thereof, the due authorization, execution and delivery by the parties thereto other than the Company of all documents examined by us, and the legal capacity of each individual who signed any of those documents.

Based upon the foregoing, and subject to the additional qualifications set forth below, we are of the opinion that the Resale Shares were validly issued, fully paid and are non-assessable.

The opinions expressed herein are limited exclusively to the applicable provisions of the Delaware General Corporation Law as currently in effect, and we are expressing no opinion as to the effect of the laws of any other jurisdiction.

This opinion letter has been prepared in accordance with the customary practice of lawyers who regularly give, and lawyers who regularly advise opinion recipients concerning, opinions of the type contained herein.

This opinion letter deals only with the specified legal issues expressly addressed herein, and you should not infer any opinion that is not explicitly addressed herein from any matter stated in this letter.

We consent to the use of this opinion as an exhibit to the Registration Statement and the reference to this firm under the caption “Legal Matters” in the prospectus. In giving such consent, we do not hereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act and the rules and regulations thereunder. This opinion is rendered to you as of the date hereof and we assume no obligation to advise you or any other person hereafter with regard to any change after the date hereof in the circumstances or the law that may bear on the matters set forth herein even though the changes may affect the legal analysis or legal conclusion or other matters in this letter.

Very truly yours,

/s/ Harter Secrest & Emery LLP

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on FormS-3 of our report dated March 11, 2019 relating to the consolidated financial statements and consolidated financial statement schedule of Athenex, Inc. and subsidiaries (the "Company") (which report expresses an unqualified opinion and includes an explanatory paragraph regarding a going concern uncertainty) appearing in the Annual Report on Form 10-K of Athenex, Inc. and subsidiaries for the year ended December 31, 2018. We also consent to the reference to us under the heading "Experts" in the Prospectus, which is part of this Registration Statement.

/s/ Deloitte & Touche LLP

Williamsville, New York
January 27, 2020