Actinium Pharmaceuticals, Inc.
Form 424B5
April 17, 2019

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

Filed Pursuant to Rule 424(b)(5)
Registration No. 333- 216748

SUBJECT TO COMPLETION, DATED April 17, 2019

Preliminary Prospectus Supplement

(To Prospectus Dated October 24, 2017)

Shares Common Stock

Warrants to Purchase Shares Common Stock

We are offering shares of our common stock and warrants to purchase up to shares of our common stock. Each share of our common stock is being sold together with a warrant to purchase of a share of our common stock. Each full warrant will have an exercise price of $ per share and will be exercisable during the period commencing on April , 2019 and ending on April , 2021. The shares of our common stock and warrants are immediately separable and will be issued separately, but will be purchased together in this offering. The shares of our common stock issuable from time to time upon exercise of the warrants are also being offered pursuant to this prospectus supplement and the accompanying prospectus.

Our common stock is presently traded on the NYSE American under the symbol “ATNM.” On April 17, 2019, the last reported sale price of our common stock was $0.50 per share. There is no established trading market for the warrants and we do not expect a market to develop. In addition, we do not intend to apply for the listing of the warrants on any national securities exchange or other trading market. Without an active trading market, the liquidity of the warrants will be limited.

Investing in the common stock involves risks. See “Risk Factors” beginning on page S-7 of this prospectus supplement.

	Per Share and Related Warrant	Total

Public offering price	$	$

Underwriting discounts and commissions(1)	$	$

Proceeds, before expenses, to us	$	$

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(1) We have agreed to reimburse the underwriters for certain expenses. See “Underwriting.”

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

The underwriters expect to deliver the securities against payment on or about April , 2019.

Sole Book-Running Manager

William Blair

The date of this prospectus supplement is April , 2019

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About this Prospectus Supplement

This prospectus supplement and the accompanying prospectus form a part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission utilizing a "shelf" registration process. This document is in two parts. The first part is the prospectus supplement, which describes the specific terms of this offering. The second part, the accompanying prospectus, provides more general information about the securities we may offer from time to time, some of which may not apply to the securities offered by this prospectus supplement. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. Before you invest, you should carefully read this prospectus supplement, the accompanying prospectus, all information incorporated by reference herein and therein, and the additional information described under "Where You Can Find More Information" on page S-21 of this prospectus supplement. These documents contain information you should consider when making your investment decision. This prospectus supplement may add, update or change information contained in the accompanying prospectus. To the extent that any statement that we make in this prospectus supplement is inconsistent with statements made in the accompanying prospectus or any documents incorporated by reference therein, the statements made in this prospectus supplement will be deemed to modify or supersede those made in the accompanying prospectus and such documents incorporated by reference therein.

Neither we nor the underwriters have authorized any other person to provide you with any information that is different. We are offering to sell, and seeking offers to buy, our securities only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the accompanying prospectus and the offering of the securities in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement and/or the accompanying prospectus must inform themselves about, and observe any restrictions relating to, the offering of the securities and the distribution of this prospectus supplement and/or the accompanying prospectus outside the United States. This prospectus supplement and the accompanying prospectus do not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement and the accompanying prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference in the accompanying prospectus were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

Unless the context otherwise requires, references in this prospectus supplement to “we”, “us” and “our” refer to Actinium Pharmaceuticals, Inc.

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Prospectus Supplement Summary

This summary highlights selected information about our company, this offering and information appearing elsewhere in this prospectus supplement, in the accompanying prospectus, in the documents we incorporate by reference and in any free writing prospectus that we have authorized for use in connection with this offering. This summary is not complete and does not contain all the information that you should consider before investing in our securities. You should read this entire prospectus supplement and the accompanying prospectus carefully, including the “Risk Factors” contained in this prospectus supplement, the accompanying prospectus and the financial statements and the notes thereto incorporated by reference in this prospectus supplement and the accompanying prospectus and any free writing prospectus that we have authorized for use in connection with this offering, before making an investment decision. This prospectus supplement may add to, update or change information in the accompanying prospectus.

Business Overview

Actinium Pharmaceuticals Inc. is a clinical-stage, biopharmaceutical company focused on developing and potentially commercializing therapies for targeted conditioning prior to cell therapies such as a Bone Marrow Transplant, or BMT, or CAR-T, a type of cellular therapy that genetically alters a patient's own T cells to target and kill their cancer cells, and for other adoptive cell therapies. In addition, we are also developing potential therapies for targeting and killing cancer cells either as single agents or in combination with other drugs. Our targeted therapies are Antibody Radiation-Conjugates, or ARC's, that combine the targeting ability of a monoclonal antibody, or mAb, with the cell-killing ability of a radioisotope to deliver radiation internally in a precise manner to potentially generate more potent efficacy and with less toxicity than radiation that is delivered externally. We are developing two clinical stage ARC programs that target the antigens CD45 and CD33, respectively, which are currently being studied in several hematologic indications. We employ our ARC's at higher doses of radioisotope intensity for targeted conditioning prior to a BMT and at lower doses for targeted conditioning, which is also known as lymphodepletion, prior to CAR-T and other adoptive cell therapies. In addition, we are pursuing development of our ARC's at low doses in combination with other therapeutic modalities such as chemotherapy, targeted agents or immunotherapy and as a monotherapy. Our ARC-based clinical programs are underpinned by our AWE or Antibody Warhead Enabling technology platform where we have data in both liquid and solid tumors, intellectual property and know-how that we intend to use to create additional ARC's targeting new antigens with multiple radioisotopes such as actinium-225, or Ac-225, and iodine-131, or I-131. Our AWE technology platform is currently being utilized in a research collaboration with Astellas Pharma, Inc. centered on our technology for Ac-225.

Targeted Conditioning Pipeline

Our lead targeted conditioning product candidate is Iomab-B, an ARC that is comprised of the anti-CD45 mAb known as apamistamab or BC8 and the radioisotope I-131. CD45 is expressed on leukemia, lymphoma and nucleated immune cells with an average of 200,000 copies per cell but with minimal expression outside of the hematopoietic system. Iomab-B is currently being studied in the pivotal Phase 3 Study of Iomab-B in Elderly Relapsed or Refractory AML, or SIERRA, clinical trial for targeted conditioning prior to a BMT for patients with active, relapsed or refractory (r/r) Acute Myeloid Leukemia, or AML, who are over age 55. The SIERRA trial will compare outcomes of patients randomized to receive Iomab-B and a BMT (the study arm) to those patients randomized to receive physician's choice of salvage chemotherapy (the control arm). Salvage chemotherapy is also defined as conventional care, as no standard of care exists for this patient population. Patients who fail to achieve a CR or Complete Response on the control arm are ineligible to proceed to a BMT but the trial design permits these patients to cross over to the study arm if they meet the eligibility criteria. The primary endpoint of the SIERRA trial is durable Complete Remission, or dCR, of six months and the secondary endpoint is one-year Overall Survival, or OS. The SIERRA trial is currently active at 18 sites in the United States and Canada, which includes many of the leading BMT sites based on volume. We expect to complete enrollment of the SIERRA trial and have topline data that we believe will support the submission of a Biologics License Application, or BLA, with the FDA in 2020. If approved, we expect to launch Iomab-B commercially in the United States in 2020 or 2021. Our initial commercial launch would target the leading 50-100 BMT and medical centers that perform the vast majority of BMT's today.

Safety and feasibility data from the first 38 patients enrolled on the SIERRA trial, which represents 25% of the total of 150 patients to be enrolled in the trial, was presented in an oral presentation at the American Society

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of Hematology, or ASH, Annual Meeting in December 2018. It was reported that all patients initially randomized to the study arm that received a therapeutic dose of Iomab-B (18/18) received a BMT, with a median time to BMT of 28 days, and all patients achieved engraftment in a median time of 16 days despite a high median blast count of 30%. On the control arm, 4/19 patients received a BMT after receiving conventional care with a median time to BMT of 67 days and median blast count of 26%. Of the patients failing to achieve a CR with conventional care (15/19), 10 patients were eligible to cross over to the study arm. All cross over patients (10/10) received a BMT after receiving Iomab-B, with a median time to BMT of 66 days and all patients achieved engraftment in a median time of 17 days despite high median blast count of 45% at time of cross over. There was no (0/18) 100-day non-relapse mortality reported in the study arm, while 1 of 4 patients in the control arm and 1 of 10 cross over patients experienced 100-day non-relapse mortality.

Actimab-MDS is our second pivotal program for targeted conditioning. Actimab-MDS is an ARC comprised of the anti-CD33 mAb lintuzumab linked to the radioisotope Ac-225. CD33 is expressed in a majority of patients with MDS. Actimab-MDS is informed by prior experience with our CD33 ARC in multiple trials for patients with AML, MDS and for patients that have progressed from MDS to AML, which is also known as secondary AML. Data from these trials showed that our CD33 ARC had single-agent activity capable of producing CRs in certain patients at varying dose levels with minimal extramedullary toxicities. However, dose dependent myelosuppression was seen in many of these patients. Given this safety and efficacy profile, it was decided to pursue a trial in targeted conditioning in high-risk MDS patients with this ARC in combination with Reduced Intensity Conditioning, or RIC, regimens. RIC regimens are comprised of low doses of highly toxic chemotherapies such as fludarabine, cytarabine, busulfan and melphalan. Actimab-MDS is intended to enable targeted conditioning prior to a BMT in patients with MDS or Myelodysplastic Syndrome with poor or very poor cytogenetics, which is defined as having three or more chromosomal abnormalities. A BMT is the only curative treatment option for these patients. However, these patients have poor outcomes due to high relapse rates following a BMT. Based on our interactions with FDA to date, we believe that we will need to conduct a Phase 1 dose finding clinical trial that will be followed by a randomized trial that depending on the results observed may potentially serve as a pivotal trial to support the submission of a BLA. We are currently finalizing the protocol for the Phase 1 trial with the FDA, as well as the pathway to a pivotal trial. Subject to feedback from the FDA, we expect to initiate the Phase 1, single-arm trial in the first half of 2019 that is anticipated to enroll 7–18 patients, and expect to be able to initiate the randomized trial in the first half of 2020.

Our Iomab-ACT construct is a lower dose of Iomab-B (CD45 – I-131) that we are developing as a targeted conditioning or lymphodepletion agent prior to CAR-T and adoptive cell therapies. CD45 is an antigen expressed on many cells that are relevant to the mechanism of CAR-T therapies including lymphocytes, regulatory T cells and macrophages that have been associated with clinical responses that limit the safety and efficacy of these CAR-T therapies including Cytokine Release Syndrome, or CRS, neurotoxicity and durability of response. Some of these limitations may be attributable to the chemotherapy-based conditioning agents that are being used currently prior to CAR-T therapies. Actinium's Iomab-ACT program is highly differentiated when compared to Fludarabine and Cyclophosphamide or Flu/Cy or other chemotherapy-based regimens that are used as the standard of practice today for lymphodepletion prior to CAR-T. Unlike chemotherapy, Iomab-ACT is targeted in nature and due to this targeted effect, we expect can improve CAR-T cell expansion more efficiently, potentially resulting in responses that are more durable and also with reduced CAR-T related toxicities. Importantly, the Iomab-ACT program construct enables lymphodepletion through a single-dose, outpatient administration versus Flu/Cy or other chemotherapy-based lymphodepletion regimens that can require multiple infusions in an inpatient setting over several days. Because of this potentially superior profile, the Iomab-ACT construct could result in improved access to CAR-T therapy and better outcomes. Preclinical data from our Iomab-ACT program was accepted for poster presentation at the Transplantation and Cellular Therapy Meetings.

CD33 ARC Therapeutics and Combinations

We are applying our CD33-targeting ARC product candidate lintuzumab-Ac-225 to multiple hematologic indications, as CD33 is an antigen that has been found to be expressed in a majority of patients with AML and MDS and 25–35% of patients with Multiple Myeloma, or MM. Our CD33 development program is examining the construct at various dose levels and dosing regimens either alone or in combination in these various disease indications. We currently have multiple clinical trials ongoing, in startup phase, or in planning, to use our CD33 ARC in combination with other therapeutic modalities such as chemotherapy, targeted agents

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or immunotherapy. We believe that radiation can be synergistic when used in combination with these modalities based on our own clinical data, preclinical research and supporting scientific evidence in the literature. We are also studying our CD33 ARC as a monotherapy in the case of MM. The construct has been designated as Actimab and we add a suffix to clarify the trial for the disease area and, if needed, the combination. For example, in AML, our recently concluded Phase 2 trial as a single agent named Actimab-A (A for AML) and our ongoing trial in AML in combination with venetoclax is called the Actimab-A: Ven trial. Our CD33 ARC development program encompasses the following ongoing and planned trials:

Combination Trials:

• Phase 1 Actimab-A: Ven combination trial with the BCL-2 inhibitor Venetoclax (Abbvie/Genentech) for patients with relapsed or refractory AML at the UCLA Medical Center. This trial has been initiated.

• Phase 1 Actimab-A: CLAG-M combination trial with the salvage chemotherapy regimen CLAG-M (cladribine, cytarabine, filgrastim and mitoxantrone) for patients with relapsed or refractory AML at the Medical College of Wisconsin. We initiated the second dosing cohort of this trial in February 2019. In the first dose cohort, patients received 0.25 uCi/kg of Actimab-A. This combination trial is designed as a 3+3 dose escalation study. No dose limiting toxicities, or DLTs, were reported in the first patient cohort. As a result, and per the study protocol, the Institutional Review Board at MCW has authorized the initiation of the second dosing cohort, in which patients will receive 0.50 uCi/kg of Actimab-A. Assuming no DLTs are observed in the second cohort, three patients will be treated and the study will progress to the third and final cohort that will study Actimab-A at a dose of 0.75 uCi/kg. We expect to complete this trial by the end of 2019.

• Phase 1 Actimab-A: Ven+HMA Combination trial with the BCL-2 inhibitor Venetoclax (Abbvie/Genentech) and a hypomethylating Agent (HMA) for patients with relapsed or refractory AML planned at the MD Anderson Cancer center. We are currently planning and preparing to initiate this clinical trial in the first half of 2019.

Monotherapy Trials:

• Multi-center Phase 1 Actimab-M trial for patients with penta refractory MM. The Actimab-M trial is currently active at three trial sites in the United States. We expect to have initial proof of concept data from this trial in 2019.

• Planned Phase 1 trial of Actimab-A: MRD for post-remission AML patients with positive MRD or Minimal Residual Disease. We are currently planning and preparing to initiate this clinical trial in the first half of 2019.

Antibody Warhead Enabling Technology Platform

Our proprietary Antibody Warhead Enabling, or AWE, Technology Platform is supported by intellectual property, know-how and trade secrets that cover the generation, development, methods of use and manufacture of ARC‘s and certain of their components. Our AWE technology patent portfolio includes 27 patent families comprised of 110 issued and pending patent applications, of which 11 are issued and 18 pending in the United States, and 81 are issued and pending internationally the useful life of which ranges from 2019 to 2039. Our proprietary technology enables the direct labeling, or conjugation and labeling, of a biomolecular targeting agent to a radionuclide warhead and its development and use as a therapeutic regimen for the treatment of diseases such as cancer. Our intellectual property covers ARC compositions of matter, formulations, methods of administration, and radionuclide production. Further, our AWE intellectual property covers various methods of use for ARC’s in multiple diseases, including indication, dose and scheduling, radionuclide warhead, and therapeutic combinations. In addition, due to the renewed focus on research and technology development in 2017 and 2018, we expect the useful life of new intellectual property filed by us, if granted, to extend well beyond the current dates in several key areas including for next generation ARC’s, combination treatments and targeted radiation approaches using the isotopes Ac-225 and I-131.

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Our proprietary technology includes methods of conjugation, labeling and use of the radionuclides Ac-225 and I-131. Our technology covers the use of the "gold standard" chelator, tetracarboxylic acid, an organic compound used to attach, or conjugate, the radionuclide Ac-225 to monoclonal antibodies and any conceivable derivative thereof. Additionally, we possess intellectual property protection, know-how and trade secrets covering efficient methods of chelation and labeling of the targeting agent with Ac-225 as well as newer next-generation methods of chelation or labeling. We are conducting preclinical research with our AWE Technology Platform to demonstrate proof of concept in liquid and solid tumors for various indications including targeted conditioning, lymphodepletion, combinations of ARC's with other modalities and as monotherapies to enable research collaborations, partnerships and expand our development pipeline. In March 2018, we entered into a collaborative research agreement with Astellas Pharma, Inc., or Astellas, that is utilizing our AWE technology platform to create ARC's using the Ac-225 isotope and select targeting agents owned by Astellas. In January 2019, we initiated the second module of our research collaboration with Astellas.

Corporate and Other Information

We were organized in the State of Nevada in October 1997 and reorganized in the State of Delaware in March 2013. Our principal executive offices are located at 275 Madison Avenue, 7th Floor, New York, New York 10016. Our telephone number is (646) 677-3870. Our website address is www.actiniumpharmaceuticals.com. Information accessed through our website is not incorporated into this prospectus supplement and is not a part of this prospectus supplement or the accompanying prospectus.

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The Offering

Issuer	Actinium Pharmaceuticals, Inc.

Common Stock Offered by Us	shares of common stock.

Warrants Offered by Us	Warrants to purchase up to shares of common stock. Each share of our common stock is being sold together with a warrant to purchase of a share of our common stock. Each full warrant will have an exercise price of $ per share, and will be exercisable during the period commencing on April , 2019 and ending on April , 2021.

This prospectus supplement also relates to the offering of the shares of common stock issuable upon exercise of the warrants. The exercise price of the warrants and the number of shares into which the warrants may be exercised are subject to adjustment in certain circumstances.

Common Stock to be Outstanding Immediately After this Offering	shares.

Use of Proceeds	We currently intend to use the net proceeds from the sale of securities offered by this prospectus supplement to complete our ongoing pivotal, Phase 3 SIERRA trial for our lead product candidate Iomab-B and progress Phase 1 trials from our refocused CD33 program to the proof of concept stage. We will also use the proceeds to support our AWE Technology Platform including our Iomab-ACT program, research and development and general working capital needs. See the section entitled “Use of Proceeds” below.

Risk Factors	Investing in our common shares and warrants involves a high degree of risk. For a discussion of factors that you should consider before buying our securities, see the information under "Risk Factors" in this prospectus supplement and under similar headings in the documents incorporated by reference into this prospectus supplement.

NYSE American symbol	“ATNM.”

There is no established trading market for the warrants and we do not expect a market to develop. In addition, we do not intend to apply for the listing of the warrants on any national securities exchange or other trading market. Without an active trading market, the liquidity of the warrants will be limited.

The number of shares of our common stock that will be outstanding immediately after the offering is based on 119,136,036 shares outstanding as of March 31, 2019. Unless we specifically state otherwise, the share information in this prospectus supplement excludes:

• 7,783,301 shares of common stock issuable upon the exercise of stock options outstanding as of March 31, 2019 under our equity incentive plans, with a weighted average exercise price of $1.65 per share;

• 15,365,035 shares of common stock available for future grants under our equity incentive plans as of March 31, 2019;

• 252,598 shares of restricted stock reserved for issuance as of March 31, 2019;

• 43,473,269 shares of common stock issuable upon the exercise of warrants outstanding as of March 31, 2019, with a weighted average exercise price of $0.88 per share; and

• shares of common stock issuable upon the exercise of the warrants offered hereby.

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An investment in our securities involves a high degree of risk. Prior to making a decision about investing in our securities, you should carefully consider the specific factors discussed below, together with all of the other information contained or incorporated by reference in this prospectus supplement and the accompanying prospectus, including in our Annual Report on Form 10-K and any updates described in our Quarterly Reports on Form 10-Q or other documents filed by us with the SEC. It is not possible to predict or identify all such risks. Consequently, we could also be affected by additional factors that are not presently known to us or that we currently consider to be immaterial to our operations.

Additional Risks Relating to this Offering

Recurring losses and negative cash flows from operations raise substantial doubt about our ability to continue as a going concern and we may not be able to continue as a going concern.

Our recurring losses from operations and negative cash flows from operations raise substantial doubt about our ability to continue as a going concern and as a result, our independent registered public accounting firm included an explanatory paragraph in its report on our consolidated financial statements for the year ended December 31, 2018 with respect to this uncertainty. Substantial doubt about our ability to continue as a going concern may create negative reactions to the price of the common shares of our stock and we may have a more difficult time obtaining financing.

We have prepared our financial statements on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities and commitments in the normal course of business. The financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or amounts of liabilities that might be necessary should we be unable to continue in existence.

As of the date of this prospectus supplement, we expect that our existing resources will be sufficient to fund our planned operations into the fourth quarter of 2019; however, additional capital resources will be needed to fund operations longer-term. If we are unsuccessful in accomplishing our plans, we may have to delay or terminate existing and/or planned clinical trials and other related activity, which could have a material adverse impact on our business.

Our management team may invest or spend the proceeds of this offering in ways with which you may not agree or in ways which may not yield a significant return.

Our management will have broad discretion over the use of proceeds from this offering. We currently intend to use the net proceeds from the sale of securities offered by this prospectus to fund our ongoing pivotal, Phase 3 SIERRA trial for our lead product candidate Iomab-B and progress Phase 1 trials from our refocused CD33 program to the proof of concept stage. We will also use the proceeds to support our AWE Technology Platform including our Iomab-ACT program, research and development and general working capital needs. However, our management will have broad discretion in the application of the net proceeds from this offering and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common stock. The failure by management to apply these funds effectively could result in financial losses that could have a material adverse effect on our business, cause the price of our common stock to decline and delay the development of our product candidates.

Purchasers in this offering will likely experience immediate and substantial dilution in the book value of their investment.

Because the combined public offering price per share and related warrant is substantially higher than the book value per share of our common stock, you will suffer substantial dilution in the net tangible book value of the common stock you purchase in this offering. After giving effect to the sale by us of shares of our common stock and warrants at a combined public offering price of $ per share and related warrant, and after deducting the underwriting discount and estimated offering expenses payable by us and attributing no value to the warrants sold in this offering, you will suffer immediate and substantial dilution of $ per share in the net tangible book value of the common stock you purchase in this offering. See “Dilution” on page S-11 for a more

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detailed discussion of the dilution you will incur in connection with this offering. To the extent outstanding stock options or warrants are exercised, there will be further dilution to new investors. In addition, to the extent we need to raise additional capital in the future and we issue additional equity or convertible debt securities, our then existing stockholders may experience further dilution.

Sales of a substantial number of shares of our common stock, or the perception that such sales may occur, may adversely impact the price of our common stock.

Sales of a substantial number of shares of our common stock in the public market could occur at any time. These sales, or the perception that such sales may occur, may adversely impact the price of our common stock, even if there is no relationship between such sales and the performance of our business.

As of March 31, 2019, we have 119,136,036 shares of common stock outstanding, as well as outstanding options to purchase an aggregate of 7,783,301 shares of our common stock at a weighted average exercise price of $1.65 per share and outstanding warrants to purchase an aggregate of 43,473,269 shares of our common stock at a weighted average exercise price of $0.88 per share. The exercise of such outstanding options and warrants may result in further dilution of your investment.

There is no public market for the warrants being offered by this prospectus supplement and the accompanying prospectus, and we do not anticipate such a market ever developing in the future.

There is no established public trading market for the warrants being offered by this prospectus supplement and the accompanying prospectus and we do not intend to have the warrants listed on a national securities exchange or any other recognized trading system in the future. Without an active market, the liquidity of any warrants sold by means of this prospectus supplement and the accompanying prospectus will be limited.

The warrants being offered by means of this prospectus supplement and the accompanying prospectus may not have any value.

In the event that the market price of our common stock does not exceed the exercise price of the warrants sold in this offering during the period when the warrants are exercisable, the warrants may not have any value.

Holders of the warrants sold by means of this prospectus supplement and the accompanying prospectus will have no rights as shareholders until they acquire shares of our common stock, if ever.

If you acquire warrants to purchase shares of our common stock in this offering, you will have no rights with respect to our common stock until you acquire shares of such common stock upon exercise of your warrants. Upon exercise of your warrants, you will be entitled to exercise the rights of a common shareholder only as to matters for which the record date occurs after the exercise date.

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Special Note Regarding Forward-Looking Statements

This prospectus supplement and accompanying prospectus and the information incorporated by reference in this prospectus supplement and accompanying prospectus contain “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), which include information relating to future events, future financial performance, strategies, expectations, competitive environment and regulation. Words such as “may,” “should,” “could,” “would,” “predicts,” “potential,” “continue,” “expects,” “anticipates,” “future,” “intends,” “plans,” “believes,” “estimates,” and similar expressions, statements in future tense, identify forward-looking statements. Forward-looking statements should not be read as a guarantee of future performance or results and will probably not be accurate indications of when such performance or results will be achieved. Forward-looking statements are based on information we have when those statements are made or our management’s good faith belief as of that time with respect to future events, and are subject to risks and uncertainties that could cause actual performance or results to differ materially from those expressed in or suggested by the forward-looking statements. Important factors that could cause such differences include, but are not limited to:

• our history of recurring losses and negative cash flows from operating activities, significant future commitments and the uncertainty regarding the adequacy of our liquidity to pursue our complete business objectives;

• our ability to complete clinical trials as anticipated and obtain and maintain regulatory approvals for our products;

• our ability to adequately protect our intellectual property;

• disputes over ownership of intellectual property;

• our dependence on a single manufacturing facility and our ability to comply with stringent manufacturing quality standards and to increase production as necessary;

• the risk that the data collected from our current and planned clinical trials may not be sufficient to demonstrate that our products are an attractive alternative to other procedures and products;

• intense competition in our industry, with competitors having substantially greater financial, technological, research and development, regulatory and clinical, manufacturing, marketing and sales, distribution and personnel resources than we do;

• entry of new competitors and products and potential technological obsolescence of our products;

• loss of a key customer or supplier;

• adverse economic conditions;

• adverse federal, state and local government regulation, in the United States;

• price increases for supplies and components;

• inability to carry out research, development and commercialization plans; and

• loss or retirement of key executives and research scientists.

Although we believe that the forward-looking statements contained herein are reasonable, we can give no assurance that our expectations will be met. All forward-looking statements contained herein are expressly qualified in their entirety by this cautionary statement and the risk factors beginning on page S-7 of this prospectus supplement.

You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this prospectus supplement. Except to the extent required by applicable laws and regulations, we undertake no obligation to update these forward-looking statements to reflect events or circumstances after the date of this prospectus or to reflect the occurrence of unanticipated events.

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Use of Proceeds

We estimate the net proceeds from this offering will be approximately $ million after deducting the underwriting discount and commissions and our estimated offering expenses.

We currently intend to use the net proceeds from the sale of securities offered by this prospectus to fund our ongoing pivotal, Phase 3 SIERRA trial for our lead product candidate Iomab-B and progress Phase 1 trials from our refocused CD33 program to the proof of concept stage. We will also use the proceeds to support our AWE Technology Platform including our Iomab-ACT program, research and development and general working capital needs.

Investors are cautioned, however, that expenditures may vary substantially from these uses. Investors will be relying on the judgment of our management, who will have broad discretion regarding the application of the proceeds of this offering. The amounts and timing of our actual expenditures will depend upon numerous factors, including the amount of cash generated by our operations, the amount of competition and other operational factors. We may find it necessary or advisable to use portions of the proceeds from this offering for other purposes.

From time to time, we evaluate these and other factors and we anticipate continuing to make such evaluations to determine if the existing allocation of resources, including the proceeds of this offering, is being optimized. Circumstances that may give rise to a change in the use of proceeds include:

• a change in development plan or strategy;

• the addition of new products or applications;

• technical delays;

• delays or difficulties with our clinical trials;

• negative results from our clinical trials;

• difficulty obtaining U.S. Food and Drug Administration approval;

• failure to achieve sales as anticipated; and

• the availability of other sources of cash including cash flow from operations and new bank debt financing arrangements, if any.

Pending other uses, we intend to invest the proceeds to us in investment-grade, interest-bearing securities such as money market funds, certificates of deposit or direct or guaranteed obligations of the U.S. government, or hold as cash. We cannot predict whether the proceeds invested will yield a favorable, or any, return.

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Dilution

If you purchase shares of our common stock and related warrant in this offering, you will experience dilution to the extent of the difference between the combined public offering price per share and related warrant in this offering and our as adjusted net tangible book value per share immediately after this offering assuming no value is attributed to the warrants, and such warrants are accounted for and classified as equity. Net tangible book value is total assets minus the sum of liabilities and intangible assets. Net tangible book value per share is net tangible book value divided by the total number of shares of common stock outstanding. As of December 31, 2018, our net tangible book value was $ million, or approximately $ per share.

After giving effect to the sale by us of shares of common stock and warrants to purchase shares of our common stock in this offering at a combined public offering price of $ per share and related warrant, and after deducting the underwriting discount and estimated offering expenses payable by us, our as adjusted net tangible book value as of December 31, 2018 would have been approximately $ million, or approximately $ per share. This amount represents an immediate increase in net tangible book value of $ per share to existing stockholders and an immediate dilution in net tangible book value of $ per share to purchasers of our common stock in this offering.

The following table illustrates the dilution in net tangible book value per share and related warrant to new investors:

Combined public offering price per share and related warrant: $

Net tangible book value per share as of December 31, 2018 $

Increase in net tangible book value per share after this offering $

Net tangible book value per share after this offering $

Dilution per share to new investors	$

The foregoing discussion and table do not take into account further dilution to new investors that could occur upon the exercise of outstanding options or warrants having a per share exercise price less than the combined public offering price in this offering. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the issuance of those securities could result in further dilution to our stockholders.

The number of shares of our common stock that will be outstanding immediately after the offering is based on 119,136,036 shares outstanding as of March 31, 2019, and excludes:

• 7,783,301 shares of common stock issuable upon the exercise of stock options outstanding as of March 31, 2019 under our equity incentive plans, with a weighted average exercise price of $1.65 per share;

• 15,365,035 shares of common stock available for future grants under our equity incentive plans as of March 31, 2019;

• 252,598 shares of restricted stock reserved for issuance as of March 31, 2019;

• 43,473,269 shares of common stock issuable upon the exercise of warrants outstanding as of March 31, 2019, with a weighted average exercise price of $0.88 per share; and

• shares of common stock issuable upon the exercise of the warrants offered hereby.

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Description of Securities we are Offering

Common stock

The material terms and provisions of our common stock are described under the caption “Description of Capital Stock” in the accompanying prospectus beginning on page 12. As of March 31, 2019, we had 119,136,036 shares of our common stock outstanding. Our common stock is listed on the NYSE American under the symbol “ATNM”.

Warrants

Duration and Exercise Price: By means of this prospectus supplement, we are offering warrants to purchase up to shares of our common stock. Each warrant has an exercise price of $ per share, exercisable on April , 2019 and will expire on April , 2021.

Right to Call: We may redeem the warrants for $0.001 per warrant if our common stock closes above $ per share for ten consecutive trading days.

Exercisability: The warrants may be exercised, in whole or in part, by delivering to the Company a written notice of election to exercise the warrant and delivering to the Company cash payment of the exercise price, if applicable. The exercise price and the number of shares of our common stock issuable upon exercise of the warrants is subject to adjustment in the event of certain subdivisions and combinations, including by any stock split or reverse stock split, stock dividend, recapitalization or otherwise. In addition, the Company has the right at any time during the term of the warrants to reduce the then-existing exercise price to any amount and for any period of time deemed appropriate by our board of directors.

Cashless Exercise: If, at any time during the term of the warrants, the issuance of shares of our common stock upon exercise of the warrants is not covered by an effective registration statement, the holder is permitted to effect a cashless exercise of the warrants (in whole or in part) in which case the holder would receive upon such exercise the net number of shares of common stock determined according to the formula set forth in the warrant. Shares issued pursuant to a cashless exercise would be issued pursuant to the exemption from registration provided by Section 3(a)(9) of the Securities Act, and thus the shares of common stock issued upon such cashless exercise would take on the characteristics of the warrants being exercised, including, for purposes of Rule 144(d) promulgated under the Securities Act, a holding period beginning from the original issuance date of the warrants.

Transferability: Subject to applicable laws, the warrants may be offered for sale, sold, transferred or assigned without our consent. However, as of the date of this prospectus supplement there is no established trading market for the warrants and it is not expected that a trading market for the warrants will develop in the future.

Listing: We will not apply to list the warrants on NYSE American. We do not intend to list the warrants on any securities exchange or other quotation system.

Rights as a stockholder: Except as set forth in the warrants or by virtue of such holders' ownership of shares of our common stock, the holders of the warrants do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise the warrants.

Limitations on Exercise: The exercise of the warrants may be limited in certain circumstances if, after giving effect to such exercise, the holder or any of its affiliates would beneficially own (as determined in accordance with the terms of the warrants) more than 4.99% (or, at the election of the holder, 9.99%) of our outstanding common stock immediately after giving effect to the exercise.

Fundamental Transactions: In the event of a fundamental transaction, as described in the warrants and generally including any merger or consolidation by the Company with or into another entity, or the sale of all or substantially all of the Company's assets, the warrants shall remain outstanding according to their terms and be exercisable by the holders of the warrants in exchange for shares of common stock of the surviving entity of such fundamental transaction and any additional consideration payable to holders of common stock of the Company in connection with such fundamental transaction. In connection with certain fundamental transactions involving solely

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cash consideration paid to the holders of common stock of the Company, the holders of the warrants shall exercise, or be deemed to exercise in accordance with the terms of the warrants, the warrants immediately prior to the closing of such fundamental transaction.

Dividends and Other Distributions: If we declare or make any dividend or other distribution of our assets to holders of shares of our common stock (including any distribution of cash, stock or other securities, property, options, evidence of indebtedness or any other assets), then, subject to certain limitation on exercise described in the warrants, each holder of a warrant shall receive the distributed assets that such holder would have been entitled to receive in the distribution had the holder exercised the warrant immediately prior to the record date for the distribution.

The foregoing summary of certain terms and provisions of the warrants that are being offered hereby is not complete and is subject to, and is qualified in its entirety by the provisions of the warrant agreements governing the terms of the warrants, the forms of which will be filed as exhibits to a Current Report on Form 8-K that we will file in connection with this offering. Prospective investors should carefully review the terms and provisions of the warrant agreements and forms of the warrants for a complete description of the terms and conditions of the warrants.

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Underwriting

William Blair & Company, L.L.C. is acting as representative of the underwriters named below. Subject to the terms and conditions set forth in an underwriting agreement among us and the underwriters, we have agreed to sell to the underwriters, and each of the underwriters has agreed, severally and not jointly, to purchase from us, the number of shares of our common stock and related warrants set forth opposite its name below.

Name	Number of Shares	Number of Warrants

William Blair & Company, L.L.C.

Total

The underwriters have agreed, severally and not jointly, to purchase all of the shares and the related warrants sold under the underwriting agreement if any of these shares and the related warrants are purchased. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the nondefaulting underwriters may be increased or the underwriting agreement may be terminated.

We have agreed to indemnify the several underwriters against certain liabilities, including liabilities under the Securities Act relating to losses or claims resulting from material misstatements in or omissions from this prospectus supplement, the registration statement of which this prospectus supplement is a part, certain free writing prospectuses that may be used in the offering and in any marketing materials used in connection with this offering and to contribute to payments the underwriters may be required to make in respect of those liabilities.

Commissions and Discounts

The representatives have advised us that the underwriters propose initially to offer the shares and related warrants to the public at the combined public offering price set forth on the cover page of this prospectus supplement and to dealers at that price less a concession not in excess of $ per share. After the public offering, the combined public offering price, concession or any other term of this offering may be changed.

The following table shows the combined public offering price, underwriting discount and proceeds before expenses to us.

	Per Share and Related Warrant	Total

Combined public offering price	$	$

Underwriting discount

Proceeds, before expenses, to us

The underwriting agreement provides that the obligations of the several underwriters to pay for and accept delivery of the shares of common stock and related warrants offered by this prospectus supplement are subject to the approval of certain legal matters by their counsel and to certain other conditions. The underwriters are obligated to take and pay for all of the shares of common stock and related warrants offered by this prospectus supplement if any such shares and related warrants are taken. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the non-defaulting underwriters may be increased. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

The estimated offering expenses payable by us, exclusive of the underwriting discounts and commissions, are approximately $ million, which includes legal, accounting and printing costs and various other fees associated with the registration and listing of our common stock.

No Sales of Similar Securities

We have agreed with the underwriters, subject to specified exceptions not to (i) offer, sell, contract to sell, pledge, grant any option to purchase, make any short sale or otherwise transfer or dispose of, directly or indirectly, or file with the SEC a registration statement under the Act relating to, any shares of our common stock

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or any securities that are substantially similar to our common stock, including but not limited to any options or warrants to purchase shares of our common stock or any securities that are convertible into or exchangeable for, or that represent the right to receive, common stock or any such substantially similar securities, or publicly disclose the intention to make any offer, sale, pledge, disposition or filing or (ii) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of our common stock, or any such other securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of our common stock or such other securities, in cash or otherwise, without the prior written consent of the representatives.

Our directors and executive officers have agreed with the underwriters, subject to specified exceptions, not to (i) offer, pledge, announce the intention to sell, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, make any short sale or otherwise transfer or dispose of, directly or indirectly, any shares of our common stock or any securities convertible into, exercisable or exchangeable for or that represent the right to receive our common stock (including without limitation, our common stock which may be deemed to be beneficially owned in accordance with the rules and regulations of the SEC and securities which may be issued upon exercise of a stock option or warrant), whether now owned or hereafter acquired, or (ii) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of our common stock, whether any such transaction is to be settled by delivery of our common stock or such other securities, in cash or otherwise. These restrictions will apply through and including the date that is 90 days after the date of this prospectus supplement.

Listing

Our common stock is listed on the NYSE American under the symbol “ATNM.”

Price Stabilization, Short Positions and Penalty Bids

Until the distribution of the shares is completed, SEC rules may limit underwriters and selling group members from bidding for and purchasing shares of our common stock. However, the representatives may engage in transactions that stabilize the price of our common stock, such as bids or purchases to peg, fix or maintain that price.

In connection with this offering, the underwriters may purchase and sell shares of our common stock in the open market. These transactions may include short sales, purchases on the open market to cover positions created by short sales and stabilizing transactions. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in this offering. The underwriters must close out any short position by purchasing shares in the open market. A short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of our common stock in the open market after pricing that could adversely affect investors who purchase in this offering. Stabilizing transactions consist of various bids for or purchases of shares of our common stock made by the underwriters in the open market prior to the closing of this offering.

The underwriters may also impose penalty bids. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the representatives have repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

Similar to other purchase transactions, the underwriters' purchases to cover the syndicate short sales may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market. The underwriters may conduct these transactions on the Nasdaq Global Market, in the over-the-counter market or otherwise.

Neither we nor any of the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our common stock. In addition, neither we nor any of the underwriters make any representation that the representatives will engage in these transactions or that these transactions, once commenced, will not be discontinued without notice.

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Electronic Offer, Sale and Distribution of Shares

In connection with this offering, certain of the underwriters or securities dealers may distribute prospectuses by electronic means, such as e-mail. In addition, one or more of the underwriters may facilitate Internet distribution for this offering to certain of their Internet subscription customers. Any such underwriter may allocate a limited number of shares for sale to its online brokerage customers. An electronic prospectus is available on the Internet websites maintained by any such underwriter. Other than the prospectus in electronic format, the information on the websites of any such underwriter is not part of this prospectus.

Other Relationships

The underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. Certain of the underwriters and their affiliates may engage in from time to time in the future certain investment banking and other commercial dealings in the ordinary course of business with us or our affiliates, for which they have received and may continue to receive customary fees and commissions.

In the ordinary course of their various business activities, the underwriters and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers, and such investment and securities activities may involve securities and/or instruments of the issuer. The underwriters and their respective affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Selling Restrictions

Canada

Resale Restrictions

The distribution of shares of our common stock in Canada is being made only in the provinces of Ontario, Quebec, Alberta and British Columbia on a private placement basis exempt from the requirement that we prepare and file a prospectus with the securities regulatory authorities in each province where trades of these securities are made. Any resale of shares of our common stock in Canada must be made under applicable securities laws which may vary depending on the relevant jurisdiction, and which may require resales to be made under available statutory exemptions or under a discretionary exemption granted by the applicable Canadian securities regulatory authority. Purchasers are advised to seek legal advice prior to any resale of the securities.

Representations of Canadian Purchasers

By purchasing shares of our common stock in Canada and accepting delivery of a purchase confirmation, a purchaser is representing to us and the dealer from whom the purchase confirmation is received that:

• the purchaser is entitled under applicable provincial securities laws to purchase the shares of common stock without the benefit of a prospectus qualified under those securities laws as it is an “accredited investor” as defined under National Instrument 45-106—Prospectus Exemptions,

• the purchaser is a “permitted client” as defined in National Instrument 31-103—Registration Requirements, Exemptions and Ongoing Registrant Obligations,

• where required by law, the purchaser is purchasing as principal and not as agent, and

• the purchaser has reviewed the text above under Resale Restrictions.

Conflicts of Interest

Canadian purchasers are hereby notified that the underwriters are relying on the exemption set out in section 3A.3 or 3A.4, if applicable, of National Instrument 33-105 — Underwriting Conflicts from having to provide certain conflict of interest disclosure in this document.

Statutory Rights of Action

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if the offering memorandum (including any amendment thereto) such as this document contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser of these securities in Canada should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Enforcement of Legal Rights

All of our directors and officers as well as the experts named herein may be located outside of Canada and, as a result, it may not be possible for Canadian purchasers to effect service of process within Canada upon us or those persons. All or a substantial portion of our assets and the assets of those persons may be located outside of Canada and, as a result, it may not be possible to satisfy a judgment against us or those persons in Canada or to enforce a judgment obtained in Canadian courts against us or those persons outside of Canada.

Taxation and Eligibility for Investment

Canadian purchasers of shares of our common stock should consult their own legal and tax advisors with respect to the tax consequences of an investment in the shares of common stock in their particular circumstances and about the eligibility of shares of our common stock for investment by the purchaser under relevant Canadian legislation.

European Economic Area

In relation to each Member State of the European Economic Area that has implemented the Prospectus Directive, each referred to as a Relevant Member State, an offer to the public of any shares of our common stock may not be made in that Relevant Member State, except that an offer to the public in that Relevant Member State of any shares of our common stock may be made at any time under the following exemptions under the Prospectus Directive, if they have been implemented in that Relevant Member State:

(a) to any legal entity which is a “qualified investor” as defined in the Prospectus Directive;

(b) to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), subject to obtaining the prior consent of the underwriters for any such offer; or

(c) in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of shares of our common stock shall result in a requirement for the publication by us or any underwriter of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an “offer to the public” in relation to any shares of our common stock in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares of our common stock to be offered so as to enable an investor to decide to purchase any shares of our common stock, as the same may be varied in that Relevant Member State by any measure implementing the Prospectus Directive in that Relevant Member State and the expression ‘‘Prospectus Directive’’ means Directive 2003/71/EC (and amendments thereto, including by Directive 2010/73/EU) and includes any relevant implementing measure in each Relevant Member State.

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United Kingdom

Each underwriter has represented and agreed that:

(a) it has not made or will not make an offer of shares of our common stock to the public in the United Kingdom within the meaning of section 102B of the Financial Services and Markets Act 2000 (as amended) (FSMA) except to legal entities which are authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities or otherwise in circumstances which do not require the publication by us of a prospectus pursuant to the Prospectus Rules of the Financial Services Authority;

(b) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of section 21 of FSMA) to persons who have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 or in circumstances in which section 21 of FSMA does not apply to us; and

(c) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the securities in, from or otherwise involving the United Kingdom.

Hong Kong

No securities have been offered or sold, and no securities may be offered or sold, in Hong Kong, by means of any document, other than to persons whose ordinary business is to buy or sell shares or debentures, whether as principal or agent; or to ‘‘professional investors’’ as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance; or in other circumstances which do not result in the document being a ‘‘prospectus’’ as defined in the Companies Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap. 32) of Hong Kong. No document, invitation or advertisement relating to the securities has been issued or may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted under the securities laws of Hong Kong) other than with respect to securities which are or are intended to be disposed of only to persons outside Hong Kong or only to ‘‘professional investors’’ as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance.

This prospectus has not been registered with the Registrar of Companies in Hong Kong. Accordingly, this prospectus may not be issued, circulated or distributed in Hong Kong, and the securities may not be offered for subscription to members of the public in Hong Kong. Each person acquiring the securities will be required, and is deemed by the acquisition of the securities, to confirm that he is aware of the restriction on offers of the securities described in this prospectus and the relevant offering documents and that he is not acquiring, and has not been offered any securities in circumstances that contravene any such restrictions.

Singapore

This prospectus has not been, and will not be, registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares of common stock may not be circulated or distributed, nor may the shares of common stock be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor (as defined in Section 4A of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA")) pursuant to Section 274 of the SFA, (ii) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to compliance with conditions set forth in the SFA.

Where the common stock is subscribed or purchased under Section 275 of the SFA by a relevant person which is:

(a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities (as defined in Section 239(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the common stock pursuant to an offer made under Section 275 of the SFA except:

(a) to an institutional investor pursuant to Section 274 of the SFA or to a relevant person pursuant to Section 275(1) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

(b) where no consideration is or will be given for the transfer;

(c) where the transfer is by operation of law;

(d) as specified in Section 276(7) of the SFA; or

(e) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore.

Switzerland

The shares of common stock may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange, or the SIX, or on any other stock exchange or regulated trading facility in Switzerland. This document has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the shares of common stock or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, or the shares of common stock have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of common stock will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA, and the offer of common stock has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes, or CISA. Accordingly, no public distribution, offering or advertising, as defined in CISA, its implementing ordinances and notices, and no distribution to any non-qualified investor, as defined in CISA, its implementing ordinances and notices, shall be undertaken in or from Switzerland, and the investor protection afforded to acquirers of interests in collective investment schemes under CISA does not extend to acquirers of common stock.

United Arab Emirates

This offering has not been reviewed, approved or licensed by the Central Bank of the United Arab Emirates (the "UAE"), the Emirates Securities and Commodities Authority of the UAE (the "SCA") and/or any other relevant licensing authority in the UAE including any licensing authority incorporated under the laws and regulations of any of the free zones established and operating in the territory of the UAE (the "Free Zones"), in particular the Dubai Financial Services Authority (the "DFSA"), a regulatory authority of the Dubai International Financial Centre the ("DIFC") or the Financial Services Regulatory Authority (the "FSRA"), a regulatory authority of Abu Dhabi Global Market ("ADGM").

This offering is not intended to, and does not, constitute an offer, sale or delivery of shares or other securities under the laws of the UAE. The common stock has not been and will not be registered with or licensed by the SCA or with the UAE Central Bank, the Dubai Financial Market, the Abu Dhabi Securities Exchange or with any other UAE regulatory authority or exchange.

The issue and/or sale of the common stock has not been approved or licensed by the SCA, the UAE Central Bank or any other relevant licensing authority in the UAE, and does not constitute a public offer of securities in the UAE, DIFC, ADGM and/or any other Free Zone in accordance with the Commercial Companies Law, Federal Law No 2 of 2015 (as amended), the Markets Rules of the DFSA, (the "DFSA Markets Rules"), the Markets Rules of the FSRA (the "FSRA Markets Rules") and/or Nasdaq Dubai Listing Rules or under any other law of the UAE. The common stock may not be offered to the public in the UAE and/or any of the Free Zones.

No marketing or promotion of the common stock has been or will be made from within the UAE and no sale of or subscription for the common stock may or will be consummated within the UAE. It should not be assumed that Primo Water Corporation, Primo Water Corporation's advisors, their advisors or any other person is a licensed broker, dealer or investment adviser under the laws of the UAE or that they advise as to the appropriateness of investing in or purchasing or selling securities or other financial products.

This offering is not intended to constitute a financial promotion, an offer, sale or delivery of shares or other securities under the DIFC Markets Law (DIFC Law No. 1 of 2012, as amended) (the "Markets Law"), the DFSA Markets Rules, the Collective Investment Law 2010 (DIFC Law No. 2 of 2010) (the "Collective Investment Law"), the ADGM Financial Services and Markets Regulations 2015 (the "FSMR"), the FSRA Markets Rules, the Funds Rules of the FSRA ("FSRA Funds Rules"), or any other laws and regulations of the DIFC, the DFSA, ADGM or the FSRA.

This offering and the issue or transfer of any securities related to it have not been approved or licensed by the DFSA, and do not constitute an offer of securities in the DIFC in accordance with the Markets Law or the DFSA Markets Rules or the Collective Investment Law or any other laws and regulations of the DIFC or the DFSA. This offering and the issue or transfer of any securities related to it have not been approved or licensed by the FSRA, and do not constitute an offer of securities in ADGM in accordance with the FSMR or the FSRA Markets Rules or the FSRA Funds Rules or any other laws and regulations of ADGM or the FSRA.

Notice to Prospective Investors in Israel

The securities offered by this prospectus supplement and the accompanying prospectus have not been approved or disapproved by the Israeli Securities Authority (the ‘‘ISA’’), nor have such securities been registered for sale in Israel. The ISA has not issued permits, approvals or licenses in connection with the offering or publishing this prospectus supplement and the accompanying prospectus; nor has it authenticated the details included herein, confirmed their reliability or completeness, or rendered an opinion as to the quality of the securities being offered. The ordinary shares will not be offered or sold, directly or indirectly, to the public in Israel, except that the underwriter may offer and sell such shares to Israeli investors who qualify, in accordance with the Israeli Securities Law as ‘‘qualified investors’’ (as defined in the First Appendix to the Israeli Securities Law) and completed and signed a questionnaire regarding such qualification and delivered it to the underwriter. Any resale in Israel, directly or indirectly, to the public of the securities offered by this prospectus supplement and the accompanying prospectus is subject to restrictions on transferability and must be effected only in compliance with the Israeli securities laws and regulations.

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Legal Matters

The validity of the securities offered by this prospectus will be passed upon for us by The Matt Law Firm, PLLC, Utica, New York. Certain legal matters will be passed upon for the underwriters by Latham & Watkins LLP, Chicago, Illinois.

Experts

The financial statements incorporated in this prospectus supplement by reference to the Annual Report on Form 10-K for the fiscal years ended December 31, 2018 and 2017 have been so incorporated in reliance on the report of Marcum LLP and GBH CPAs PC, respectively, each an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

Where You Can Find More Information

We are subject to the informational requirements of the Securities Exchange Act of 1934, as amended, and in accordance therewith file annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission. The Securities and Exchange Commission maintains a website that contains reports, proxy and information statements and other information regarding registrants that file electronically with the Securities and Exchange Commission. The address of the Securities and Exchange Commission's website is www.sec.gov.

We make available free of charge on or through our website at www.actiniumpharmceuticals.com, our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, as soon as reasonably practicable after we electronically file such material with or otherwise furnish it to the Securities and Exchange Commission.

We have filed with the Securities and Exchange Commission a registration statement under the Securities Act of 1933, as amended, relating to the offering of these securities. The registration statement, including the attached exhibits, contains additional relevant information about us and the securities. This prospectus supplement does not contain all of the information set forth in the registration statement. You can obtain a copy of the registration statement, at prescribed rates, from the Securities and Exchange Commission at the address listed above, or for free at www.sec.gov. The registration statement and the documents referred to below under “Incorporation of Certain Information By Reference” are also available on our website, www.actiniumpharmaceuticals.com.

We have not incorporated by reference into this prospectus supplement the information on our website, and you should not consider it to be a part of this prospectus supplement.

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Incorporation of Certain Information by Reference

The Securities and Exchange Commission allows us to "incorporate by reference" the information we have filed with it, which means that we can disclose important information to you by referring you to those documents. The information we incorporate by reference is an important part of this prospectus supplement, and later information that we file with the Securities and Exchange Commission will automatically update and supersede this information. We incorporate by reference the documents listed below and any future documents (excluding information furnished pursuant to Items 2.02 and 7.01 of Form 8-K) we file with the Securities and Exchange Commission pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, subsequent to the date of this prospectus supplement and prior to the termination of the offering:

• Our Annual Report on Form 10-K for the fiscal year ended December 31, 2018, filed with the Securities and Exchange Commission on March 15, 2019;

• Our Current Reports on Form 8-K filed with the Securities and Exchange Commission on March 12, 2019 and April __, 2019; and

• The description of our common stock, which is contained in our Form 8-K/A, filed with the Securities and Exchange Commission on January 28, 2013.

All filings filed by us pursuant to the Securities Exchange Act of 1934, as amended, after the date of the initial filing of this registration statement and prior to the effectiveness of such registration statement (excluding information furnished pursuant to Items 2.02 and 7.01 of Form 8-K) shall also be deemed to be incorporated by reference into the prospectus supplement.

You should rely only on the information incorporated by reference or provided in this prospectus supplement. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus supplement is accurate as of any date other than the date of this prospectus supplement or the date of the documents incorporated by reference in this prospectus supplement.

We will provide without charge to each person to whom a copy of this prospectus supplement is delivered, upon written or oral request, a copy of any or all of the information that has been incorporated by reference in this prospectus supplement but not delivered with this prospectus supplement (other than an exhibit to these filings, unless we have specifically incorporated that exhibit by reference in this prospectus supplement). Any such request should be addressed to us at: 275 Madison Avenue, 7th Floor, New York, New York 10016, Attention: Steve O'Loughlin, Vice President, Finance and Corporate Development, or made by phone at (646) 677-3870. You may also access the documents incorporated by reference in this prospectus supplement through our website at www.actiniumpharmaceuticals.com. Except for the specific incorporated documents listed above, no information available on or through our website shall be deemed to be incorporated in this prospectus supplement or the accompanying prospectus.

PROSPECTUS

ACTINIUM PHARMACEUTICALS, INC.

$200,000,000

Common Stock

Preferred Stock

Debt Securities

Warrants

Rights

Purchase Contracts

Units

We may offer and sell from time to time, in one or more series or issuances and on terms that we will determine at the time of the offering, any combination of the securities described in this prospectus, up to an aggregate amount of $200,000,000.

We will provide specific terms of any offering in a supplement to this prospectus. Any prospectus supplement may also add, update or change information contained in this prospectus. You should carefully read this prospectus and the applicable prospectus supplement as well as the documents incorporated or deemed to be incorporated by reference in this prospectus before you purchase any of the securities offered hereby.

These securities may be offered and sold in the same offering or in separate offerings; to or through underwriters, dealers and agents; or directly to purchasers. The names of any underwriters, dealers or agents involved in the sale of our securities, their compensation and any over-allotment options held by them will be described in the applicable prospectus supplement. See “Plan of Distribution.”

Our common stock is presently traded on the NYSE American under the symbol “ATNM.” On October 23, 2017, the last reported sale price of our common stock was $0.72 per share. We recommend that you obtain current market quotations for our common stock prior to making an investment decision. We will provide information in any applicable prospectus supplement regarding any listing of securities other than shares of our common stock on any securities exchange.

You should carefully read this prospectus, any prospectus supplement relating to any specific offering of securities, and all information incorporated by reference herein and therein.

Investing in our securities involves a high degree of risk. These risks are discussed in this prospectus under “Risk Factors” beginning on page 9 and in the documents incorporated by reference into this prospectus.

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

The date of this prospectus is October 24, 2017

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission using a “shelf” registration process. Under this shelf process, we may, from time to time, sell any combination of the securities described in this prospectus in one or more offerings up to a total amount of $200,000,000.

This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add to, update or change information contained in the prospectus and, accordingly, to the extent inconsistent, information in this prospectus is superseded by the information in the prospectus supplement.

The prospectus supplement to be attached to the front of this prospectus may describe, as applicable: the terms of the securities offered; the public offering price; the price paid for the securities; net proceeds; and the other specific terms related to the offering of the securities.

You should only rely on the information contained or incorporated by reference in this prospectus and any prospectus supplement or issuer free writing prospectus relating to a particular offering. No person has been authorized to give any information or make any representations in connection with this offering other than those contained or incorporated by reference in this prospectus, any accompanying prospectus supplement and any related issuer free writing prospectus in connection with the offering described herein and therein, and, if given or made, such information or representations must not be relied upon as having been authorized by us. Neither this prospectus nor any prospectus supplement nor any related issuer free writing prospectus shall constitute an offer to sell or a solicitation of an offer to buy offered securities in any jurisdiction in which it is unlawful for such person to make such an offering or solicitation. This prospectus does not contain all of the information included in the registration statement. For a more complete understanding of the offering of the securities, you should refer to the registration statement, including its exhibits.

You should read the entire prospectus and any prospectus supplement and any related issuer free writing prospectus, as well as the documents incorporated by reference into this prospectus or any prospectus supplement or any related issuer free writing prospectus, before making an investment decision. Neither the delivery of this prospectus or any prospectus supplement or any issuer free writing prospectus nor any sale made hereunder shall under any circumstances imply that the information contained or incorporated by reference herein or in any prospectus supplement or issuer free writing prospectus is correct as of any date subsequent to the date hereof or of such prospectus supplement or issuer free writing prospectus, as applicable. You should assume that the information appearing in this prospectus, any prospectus supplement or any document incorporated by reference is accurate only as of the date of the applicable documents, regardless of the time of delivery of this prospectus or any sale of securities. Our business, financial condition, results of operations and prospects may have changed since that date.

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PROSPECTUS SUMMARY

This summary provides an overview of selected information contained elsewhere or incorporated by reference in this prospectus and does not contain all of the information you should consider before investing in our securities. You should carefully read the prospectus, the information incorporated by reference and the registration statement of which this prospectus is a part in their entirety before investing in our securities, including the information discussed under "Risk Factors" in this prospectus and the documents incorporated by reference and our financial statements and notes thereto that are incorporated by reference in this prospectus. As used in this prospectus, unless the context otherwise indicates, the terms "we," "our," "us," or "the Company" refer to Actinium Pharmaceuticals, Inc., a Delaware corporation, and its subsidiaries taken as a whole.

The Company

Business Overview

We are a clinical-stage biopharmaceutical company focused on developing and commercializing targeted therapies for safer myeloablation and conditioning of the bone marrow prior to a bone marrow transplant, or BMT, and for the targeting and killing of cancer cells. We are currently conducting clinical trials for our three product candidates, Iomab-B, Actimab-A and Actimab-M, as well as performing research on other potential drug candidates utilizing our proprietary alpha-particle technology platform. Our most advanced product candidate, Iomab-B, is comprised of an anti-CD45 monoclonal antibody labeled with iodine-131, or I-131. We are currently conducting a pivotal Phase 3 trial of Iomab-B for myeloablation and conditioning of the bone marrow prior to a BMT for patients with relapsed or refractory acute myeloid leukemia (AML) age 55 and older. A BMT is a potentially curative treatment option for patients with AML and other blood cancers including leukemias, lymphomas and multiple myeloma as well as certain blood disorders. Upon successful completion of our Phase 3 clinical trial for Iomab-B we intend to submit for marketing approval in the United States and European Union. Our most advanced alpha-particle based therapy, Actimab-A, is an anti-CD33 monoclonal antibody conjugated with the alpha-particle actinium-225 (Ac-225). Actimab-A is currently in a Phase 2 clinical trial for patients over the age of 60 who are newly diagnosed with AML and ineligible for standard induction chemotherapy. Actimab-M, our third product candidate, is the same anti-CD33 monoclonal antibody conjugated to Ac-225 but a different dose and dosing regimen. Actimab-M, is being studied in a Phase 1 trial for patients with refractory multiple myeloma. We expect our alpha-particle technology platform will generate additional drug candidates that we will progress in clinical trials ourselves and or out-license. We intend to develop a number of products for numerous types of cancer and derive revenue from partnering relationships worldwide and/or direct sales of our products primarily in the United States.

In December 2015, we announced that the U.S. Food and Drug Administration, or FDA, cleared our IND filing for Iomab-B. In June 2016, we announced the pivotal Phase 3 clinical trial for Iomab-B was initiated, and assuming that the trial meets its end points, it will form the basis for a Biologics Licensing Application (BLA). We established an agreement with the FDA that the path to a BLA submission would include a single, pivotal Phase 3 clinical study if it is successful. The population in this two arm, randomized, controlled, multicenter trial will be patients with relapsed or refractory AML over the age of 55. The trial size was set at 150 patients with 75 patients per arm. The primary endpoint in the pivotal Phase 3 trial is durable complete remission, defined as a complete remission lasting at least six months and the secondary endpoint will be overall survival at one year. We believe there are currently no effective treatments approved by the FDA for AML in this patient population and there is no defined standard of care. Iomab-B has completed several physicians-sponsored clinical trials examining its potential as a myeloconditioning regimen prior to BMT in various blood cancers, including the Phase 1/2 study in relapsed and/or refractory AML patients. The results of these studies in over 300 patients have demonstrated the potential of Iomab-B to create a new treatment paradigm for BMTs by expanding the pool to ineligible patients who do not have any viable treatment options currently; enabling a shorter and safer preparatory interval for BMT; reducing post-transplant complications; and showing a clear survival benefit including curative potential.

In September 2016, we initiated a Phase 2 clinical trial for Actimab-A. This Phase 2 clinical trial is a multicenter, open-label study that will enroll 53 patients. Patients will receive 2.0 μCi/kg/fractionated dose of Actimab-A via two injections given at day 1 and day 7. The Phase 2 trial is designed to evaluate complete response rates at up to day 42 after Actimab-A administration, including complete remission (CR), complete remission with incomplete platelet recovery, CRp, or complete remission with incomplete blood count recovery, or CRi. A

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formal interim analysis is scheduled for 31 patients, which is expected by the end of 2017. The Phase 2 clinical trial includes peripheral blast burden as an inclusion criteria and in patients with high peripheral blast, or PB, burden, the use of Hydroxyurea will be mandated with the goal of bringing peripheral blasts below 200/μL, which we identified from two previously complete Phase 1 clinical trials totaling 38 patients. In addition, the use of granulocyte colony-stimulating factors, or GCSF, will be mandated. Low dose cytarabine has been eliminated from the protocol and the Phase 2 clinical trial will evaluate Actimab-A as a monotherapy. The secondary endpoint of the Phase 2 clinical trial will be overall survival.

In February 2017, we initiated a Phase 1 investigator initiated clinical trial to study Actimab-M in multiple myeloma. Multiple myeloma is a cancer of plasma cells that is currently incurable. The Phase 1 trial will enroll up to 12 patients with relapsed or refractory multiple myeloma who have positive CD33 expression. This Phase 1 study is designed as a dose escalation study intended to assess safety, establish maximum tolerable dose, or MTD, and assess efficacy. Patients will be administered Actimab-M on day 1 at an initial dose of 0.5 μCi/kg and then assessed at day 42 for safety and efficacy. The dose can be increased to 1.0 μCi/kg or reduced to 0.25 μCi/kg based on safety assessment that will evaluate dose limiting toxicities, or DLTs. Patients may receive up to eight cycles of therapy, but in no event will cumulative administration exceed 4.0 μCi/kg of Actimab-M.

Business Strategy

We intend to develop our most advanced clinical stage candidate, Iomab-B, through approval and if these efforts are successful, we may elect to commercialize Iomab-B on our own or with a partner in the United States and/or outside of the United States to out-license the rights to develop and commercialize the product to a strategic partner. We intend to develop Actimab-A and Actimab-M through Phase 2 proof of concept human clinical trial, a trial designed to provide data on the drug's efficacy, and we will most likely seek to enter into strategic partnerships whereby the strategic partner(s) co-fund(s) further human clinical trials of the drug that are needed to obtain regulatory approvals for commercial sale within and outside of the United States. In parallel, we intend to identify and begin initial human trials with additional Ac-225 based product candidates in other cancer indications. We intend to retain marketing rights for our products in the United States whenever possible and out-license marketing rights to our partners for the rest of the world. We may also seek to in-license other applicable opportunities should such technology become available.

Market Opportunity

We compete in the marketplace for cancer treatments estimated to reach over $83 billion in 2016 sales, according to "The Global Use of Medicines: Outlook Through 2016 Report by the IMS Institute for Healthcare Informatics, July 2012." While surgery, radiation and chemotherapy remain staple treatments for cancer, their use is limited by the fact that they often cause substantial damage to normal cells. On the other hand, targeted monoclonal antibody therapies exert most or all of their effect directly on cancer cells, but often lack sufficient killing power to eradicate all cancer cells with just the antibody. A new approach for treating cancer is to combine the precision of antibody-based targeting agents with the killing power of radiation or chemotherapy by attaching powerful killing agents to precise molecular carriers called monoclonal antibodies, or mAb. We use mAbs labeled with radioisotopes to deliver potent doses of radiation directly to cancer cells while sparing healthy tissues. The radioisotopes we use are the alpha emitter Ac-225 and the beta emitter I-131. I-131 is among the best-known and well-characterized radioisotopes. It is used very successfully in treatment of papillary and follicular thyroid cancer as well as other thyroid conditions. It is also attached to a monoclonal antibody in treatment of Non-Hodgkin's Lymphoma, or NHL, and is also used experimentally with different carriers in other cancers. Ac-225 has many unique properties and we believe we are a leader in developing this alpha emitter for clinical applications using our proprietary alpha-particle technology.

Our most advanced products are Iomab-B, I-131 labeled anti-CD45 mAb for myeloablation of relapsed or refractory AML patients prior to a BMT and Actimab-A, Ac-225 conjugated to an anti-CD33 mAb for treatment of newly diagnosed AML, in patients ineligible for currently approved therapies. We recently began clinical development of Actimab-M, Ac-225 conjugated to an anti-CD33 mAb for the treatment of patients with refractory multiple myeloma.Iomab-B offers a potentially curative treatment for these patients, most of whom do not survive beyond one year after being diagnosed with this condition. Iomab-B has also demonstrated efficacy in BMT preparation for other blood cancer indications, including myelodysplastic syndrome, or MDS, acute lymphoblastic

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leukemia, or ALL, Hodgkin’s Lymphoma, multiple myeloma and NHL. These are all follow-on indications for which Iomab-B can be developed and it is our intention to explore these opportunities at a future date. We believe the aggregate worldwide market potential for the treatment of AML, MDS, ALL, Hodgkin’s Lymphoma, multiple myeloma and NHL is approximately $4.1 billion.

In December 2015, we announced that the FDA cleared our IND filing for Iomab-B, and that we proceeded with a pivotal, Phase 3 clinical trial. We anticipate the Phase 3, controlled, randomized, pivotal trial will complete enrollment of patients by 2018 and assuming that the trial meets its endpoints, it will form the basis for a BLA. We, in our recently approved IND filing, established an agreement with the FDA that the path to a BLA submission would include a single, pivotal Phase 3 clinical study if it is successful. The population in this two arm, randomized, controlled, multicenter trial will be refractory and relapsed AML patients over the age of 55. The trial size was set at 150 patients with 75 patients per arm. The primary endpoint in the pivotal Phase 3 trial is durable complete remission, defined as a complete remission lasting at least six months and the secondary endpoint will be overall survival at one year. There are currently no effective treatments approved by the FDA for AML in this patient population and there is no defined standard of care. Iomab-B has completed several physicians sponsored clinical trials examining its potential as a conditioning regimen prior to BMT in various blood cancers, including the Phase 1/2 clinical trial in relapsed and/or refractory AML patients. The results of these clinical trials in over 300 patients have demonstrated the potential of Iomab-B to create a new treatment paradigm for BMTs by: expanding the pool to ineligible patients who do not have any viable treatment options currently; enabling a shorter and safer preparatory interval for BMT; reducing post-transplant complications; and showing a clear survival benefit including curative potential.

Other potential product opportunities in which significant preclinical work is being undertaken include metastatic colorectal cancer, metastatic prostate cancer and antiangiogenesis, which reduces the blood supply to solid tumors. We believe the worldwide market potential for the treatment of metastatic colorectal cancer is approximately $4.8 billion, and we believe the worldwide market potential for the treatment of metastatic prostate cancer is approximately $6.0 billion. We also believe the worldwide market potential for the treatment of Glioblastoma Multiforme, a potential indication based on an antiangiogenesis approach, is approximately $1.1 billion. We estimate the market potential for these indications based on company research, published rates of disease incidence and company calculations based on costs of currently used therapies.

We believe that our biggest market opportunity lies in the applicability of our alpha-particle technology platform to a wide variety of cancer indications. A broad range of solid and blood borne cancers can be potentially targeted by mAbs to enable treatment with the alpha-particle technology. We believe that our alpha-particle technology could potentially be applied to mAbs that are already approved by the FDA to create more efficacious and/or safer drugs (“biobetters”).

In March 2016, the FDA granted orphan drug designation for Iomab-B and in October 2016, the European Medicines Agency, or EMA, granted orphan designation in the European Union, or EU, for Iomab-B. In November 2014, the FDA granted orphan-drug designation for Actimab-A and in May 2017 the EMA granted orphan designation in the EU for Actimab-A. The FDA, through its Office of Orphan Products Development, grants orphan status to drugs and biologic products that are intended for the safe and effective treatment, diagnosis or prevention of rare diseases or disorders that affect fewer than 200,000 people in the United States. Orphan drug designation provides a drug developer with certain benefits and incentives, including a period of marketing exclusivity if regulatory approval is ultimately received for the designated indication; potential tax credits on United States clinical trials; eligibility for orphan drug grants; and waiver of certain administrative fees. The EMA, through its Committee for Orphan Medicinal Products, or COMP, examines applications for orphan designation. To qualify for orphan designation, the prevalence of the condition must be less than 5 in 10,000, it must be life-threatening or chronically debilitating and there must be no satisfactory method of treating the condition. Sponsors who obtain orphan designation receive numerous incentives including protocol assistance, a reduction or waving of fees and 10 years of market exclusivity should the therapy be approved.

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Clinical Trials

Iomab-B

Iomab-B is our lead product candidate currently in a pivotal Phase 3 multicenter clinical trial. It consists of the anti-CD45 monoclonal antibody BC8 and beta emitting radioisotope iodine 131 (I-131). The indication for that trial is bone marrow conditioning for BMT in patients with relapsed and refractory AML over the age of 55.

Previous Iomab-B clinical trials leading to the Phase 3 trial included:

Indications	N	Key Findings

AML, MDS, ALL (adult)	34	–7/34 patients with median disease free state (DFS) of 17 years.

–18/34 patients in remission at day 80

AML >1st remission (adult)	23	–15/23 in remission at day 28

AML 1st remission (age 16-50)	43	–23/43 DFS from 5-16 years

–30/43 in remission at day 28

–33/43 in remission at day 80

High-risk MDS, advanced AML	68 in dose escalation study	–CR (complete remission) in all patients

(age 50+)	31 treated at MTD	–1 yr survival ~40% for all patients

–1 yr survival ~45% for pts treated at MTD maximum tolerated dose)

High-risk MDS, AML (age 18–50)	14 in dose escalation	All patients achieved full donor chimerism by day 28 post-transplant

High-risk MDS, AML –haploidentical donors (adult)	8 in dose escalation	–6/8 treated patients achieved CR by day 28 –8/8 patients 100% donor chimerism by day 28

Ongoing Iomab-B clinical trials include:

Indications	Phase

Relapsed and refractory Hodgkin Lymphoma and NHL (adult)	Phase 1

Advanced AML, ALL and MDS (adult)	Phase 2

AML 1st remission (age 16-50)	Phase 2

High-risk MDS, advanced AML (age 16-50)	Phase 2

There are additional ongoing clinical trials with BC8 antibody labeled with yttrium 90 (Y-90).

Phase 3 Iomab-B clinical trial:

We obtained FDA's comment and guidance on the Iomab-B Phase 3 clinical trial design, and the FDA identified the following design features as generally acceptable, dependent on the results of the trial:

• Single pivotal study, pending trial results;

• Patient population: refractory AML patients age of 55 and older, where refractory is defined as either primary failure to achieve a complete remission after 2 cycles of induction therapy; relapsed after 6 months in complete remission; second or higher relapse; or relapsed disease not responding to intensive salvage therapy;

• Trial arms: study arm and control arm with physician’s choice of conventional care with curative intent; and

• Trial size: 150 patients total (75 patients per arm).

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Actimab-A

Actimab-A is currently in the Phase 2 portion of a multicenter Phase 1/2 clinical trial in AML. It consists of the anti-CD33 monoclonal antibody Lintuzumab and alpha emitting radioisotope actinium 225 (Ac-225). The indication in the ongoing trial is patients newly diagnosed with AML over the age of 60 that are ineligible for standard induction chemotherapy.

Previous clinical trials leading to this trial included:

• Phase 1 clinical trial with Bismab-A, the first generation product consisting of the same anti-CD33 monoclonal antibody Lintuzumab and Bi-213 alpha emitter, a daughter of Ac-225;

• Phase 1/2 clinical trial with Bismab-A, the first generation product consisting of the same monoclonal antibody Lintuzumab and Bi-213 alpha emitter, a daughter of Ac-225; and

• Dose escalating pilot Phase 1 clinical trial with Actimab-A, the current product consisting of the Lintuzumab monoclonal antibody and Ac-225 alpha emitter.

Completed Actimab-A related clinical trials outcomes:

• The Phase 2 arm of the Bismab-A drug study has shown signs of the drug's efficacy and safety, including reduction in peripheral blast counts and complete responses in some patients. Bi-213 is a daughter, i.e., product of the degradation of Ac-225, with cancer cell killing properties similar to Ac-225 but is less potent. The Phase 1 Actimab-A trial at MSKCC with a single-dose administration of Actimab-A showed elimination of leukemia cells from blood in 67% of all evaluable patients who received a full dose and in 83% of those treated at dose levels above 0.5 microcuries per kilogram (μCi/kg), and eradication of leukemia cells in both blood and bone marrow in 20% of all evaluable patients and 25% of those treated at dose levels above 0.5 μCi/kg. Maximum tolerated single dose in this trial was established at 3 μCi/kg.

High potency means that a relatively low amount of drug is needed to produce a given effect. In preclinical and Phase 1 clinical studies, Actimab-A (225Ac-lintuzumab) has demonstrated at least 500-1000 times higher potency than the first-generation predecessor (213Bi-lintuzumab) upon which it is based. This difference is due to intrinsic physicochemical properties of Actimab-A that were first established in vitro, in which Actimab-A killed multiple cell lines at doses at least 1000 times lower (based on LD50 values) than Bismab-A analogs. Key factors in Actimab-A's higher potency are the yield of 4 alpha-emitting isotopes per 225Ac (compared to 1 alpha decay for bismuth 213) and much longer half-life (10 day for 225Ac vs 46 minutes for 213Bi).

In preclinical animal models, doses in the nanocurie range prolonged survival. In humans, Actimab-A was previously studied in a Phase I monotherapy trial of relapsed or refractory AML patients at MSKCC. Dose levels in that study re-confirmed the substantially higher potency of Actimab-A, as compared to equivalent dosing of the first-generation Bismab-A (213Bi-lintuzumab) construct, which had nevertheless established safety and efficacy in a Phase 1/2 trial in high-risk AML with cytoreduction.

Sources: Jurcic JG. Targeted Alpha-Particle Immunotherapy with Bismuth-213 and Actinium-225 for Acute Myeloid Leukemia. J. Postgrad Med Edu Res 2013, 47(1):14-17; ; JG Jurcic et al, Phase 1 Trial of the Targeted Alpha- Particle Nano-Generator Actinium-225 (225Ac)-Lintuzumab in Acute Myeloid Leukemia (AML) J Clin Oncol 29:2011 (suppl, abstr 6516); McDevitt MR et al, "Tumor Therapy with Targeted Atomic Nanogenerators" Science 2001, 294:1537—1540; Rosenblat TL et al, "Sequential cytarabine and alpha-particle immunotherapy with bismuth-213-lintuzumab (HuM195) for acute myeloid leukemia" Clin Cancer Res. 2010, 16(21):5303-5311; Jurcic JG et al. "Phase I Trial of the Targeted Alpha-Particle Nano-Generator Actinium-225 (225Ac)-Lintuzumab in Acute Myeloid Leukemia (AML)" Blood (ASH Meeting Abstracts) 2012.

Ongoing Actimab-A trial:

We have completed the Phase 1 portion of our first company sponsored Phase 1/2 multi-center trial with fractionated (two) doses of Actimab-A, for the treatment of patients newly diagnosed with AML over the age of 60. Actimab-A consists of an anti-CD33 monoclonal antibody (HuM195, also known as Lintuzumab) and the

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actinium 225 radioactive isotope attached to it. Results from the Phase 1 portion of the trial showed that 28% (5 of 18) of patients had objective responses (2CR, 1CRp and 2 CRi (complete remission with incomplete blood count recovery)) with median response duration of 9.1 months. Mean bone marrow blast reduction amongst evaluable patients (14 of 18) was 67% with 57% of patients having bone marrow blast reduction of 50% or greater and 79% (11 of 14) of patients having bone marrow blast reductions after Cycle 1 of therapy. Maximum tolerated dose (MTD) was not reached in this trial. We have elected to progress to the Phase 2 portion of the trial at 2.0 μCi/kg/fraction, the highest dose level from the Phase 1 portion of the clinical trial.

The Phase 2 portion of the trial will enroll 53 patients and will study Actimab-A as a monotherapy. We received agreement from the FDA for multiple revisions to the protocol for the Phase 2 portion of the clinical trial that include:

• Removing the use of low dose cytarabine from the Phase 2 protocol;

• Stipulating Peripheral blast burden as an inclusion criteria with blasts of 200/ML being the threshold;

• Mandating the use of hydroxyurea in patients with peripheral blast count above 200/ML to lower their peripheral blasts below 200ML/ prior to Actimab-A administration; and

• Mandating the use of granulocyte colony-stimulating factor (GCSF) support.

Bismab-A trials and the Phase 1 Actimab-A trial were focused on relapsed, refractory and other difficult to treat acute myeloid leukemia patients. The current Actimab-A multicenter Phase 1/2 trial is focused on patients newly diagnosed AML who have historically had better outcomes.

Intellectual Property

We have developed or in-licensed numerous patents and patent applications and possess substantial know-how and trade secrets relating to the development and manufacturing of our products. As of October 12, 2017, our patent portfolio includes: 68 issued and pending patent applications, of which 10 are issued in the United States, 15 are pending in the United States, and 53 are issued internationally and pending internationally. Additionally, several non-provisional patent applications are expected to be filed in 2018 based on provisional patent applications filed in 2017. This is part of an ongoing strategy to continue to strengthen our intellectual property position. About one quarter of our patents are in-licensed from third parties and the remainder are Actinium owned. These patents cover key areas of our business, including the use of Ac-225 and other alpha emitting isotopes attached to cancer specific carriers like monoclonal antibodies, methods for manufacturing key components of our product candidates including Ac-225, the alpha emitting radioisotope and carrier antibodies, and methods for manufacturing finished product candidates for use in cancer treatment.

We have licensed the rights to two issued patents in the area of drug preparation for methods of making humanized antibodies for our product Actimab-A, which will expire in 2018 and 2019, respectively. We own three issued patents and one pending patent in the United States and thirty-two patents outside of the United States related to the manufacturing of actinium in a cyclotron that will expire in 2027. We own or have licensed the rights to four issued patents and one pending patent in the United States and twenty-one patents outside of the United States related to the generation of radioimmunoconjugates that will expire in 2021, 2030 and 2032. We own or have licensed the rights to use one issued patent, one pending patent and two provisional patents for methods of treatment with our product Actimab-A, which will expire in 2019. For Iomab-B we own one pending patent for anti-CD45 immunoglobulin composition and one pending patent the administration of a conjugated antibody.

A patent whose claims address methods of treating hematopoietic malignancies with Iomab-B is pending; still, we have developed a proprietary strategy based on trade secret protection and the potential for orphan drug and data exclusivities. The BC8 antibody, cell line and related know-how has been exclusively licensed by us from the Fred Hutchinson Cancer Research Center (FHCRC) in exchange for milestone payments, royalties and research support.

Patents related to the antibody component of Actimab-A have been exclusively licensed by us from AbbVie Biotherapeutics Corp. for use with alpha-emitting radioisotopes in exchange for future development and commercialization milestones, a royalty on net sales for a period of 12.5 years from first commercial sale,

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a negotiation right to be our clinical and/or commercial antibody supplier, a negotiation right to co-promote Actimab-A in the United States on terms to be negotiated, and the grant-back of intellectual property (IP) rights covering improvements to the antibody for use other than with an alpha-emitting isotope. Patents covering Ac-225 conjugated to antibodies have been exclusively licensed by us from MSKCC in exchange for license fees, research support payments, development milestone payments, 2% royalties on net sales for the term of the licensed patents or, if later, 10 years from first commercial sale, and 15% of any sublicense income we may receive. We source Ac-225 under an agreement with the Oak Ridge National Laboratory that expires at the end of 2017. We believe, but cannot guarantee, that we will be able to renew this contract for additional annual periods.

Corporate and Other Information

We were organized in the State of Nevada on October 6, 1997 and reorganized in the State of Delaware on March 20, 2013. Our principal executive offices are located at 275 Madison, 7th Floor, New York, New York 10016. Our telephone number is (646) 677-3870. Our website address is www.actiniumpharma.com. Information accessed through our website is not incorporated into this prospectus and is not a part of this prospectus.

The Securities We May Offer

The descriptions of the securities contained in this prospectus, together with the applicable prospectus supplements, summarize the material terms and provisions of the various types of securities that we may offer. We will describe in the applicable prospectus supplement relating to any securities the particular terms of the securities offered by that prospectus supplement. If we so indicate in the applicable prospectus supplement, the terms of the securities may differ from the terms we have summarized below. We will also include information in the prospectus supplement, where applicable, about material U.S. federal income tax considerations relating to the securities, and the securities exchange, if any, on which the securities will be listed.

We may sell from time to time, in one or more primary offerings, our common stock, preferred stock, debt securities, warrants, rights, purchase contracts or units, or any combination of the foregoing.

In this prospectus, we refer to the common stock, preferred stock, debt securities, warrants, rights, purchase contracts or units, or any combination of the foregoing securities to be sold by us in a primary offering collectively as “securities.” The total dollar amount of all securities that we may issue under this prospectus will not exceed $200,000,000.

This prospectus may not be used to consummate a sale of securities unless it is accompanied by a prospectus supplement.

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RISK FACTORS

An investment in our securities involves a high degree of risk. The prospectus supplement applicable to each offering of our securities will contain a discussion of the risks applicable to an investment in our securities. Before deciding whether to invest in our securities, you should carefully consider the specific factors discussed under the heading "Risk Factors" in the applicable prospectus supplement, together with all of the other information contained or incorporated by reference in the prospectus supplement or appearing or incorporated by reference in this prospectus. You should also consider the risks, uncertainties and assumptions discussed under Item 1A, "Risk Factors," in our Annual Report on Form 10-K for the fiscal year ended December 31, 2016, all of which are incorporated herein by reference, as updated or superseded by the risks and uncertainties described under similar headings in the other documents that are filed after the date hereof and incorporated by reference into this prospectus and any prospectus supplement related to a particular offering. The risks and uncertainties we have described are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our operations. Past financial performance may not be a reliable indicator of future performance, and historical trends should not be used to anticipate results or trends in future periods. If any of these risks actually occurs, our business, business prospects, financial condition or results of operations could be seriously harmed. This could cause the trading price of our common stock to decline, resulting in a loss of all or part of your investment. Please also read carefully the section below entitled "Special Note Regarding Forward-Looking Statements."

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, each prospectus supplement and the information incorporated by reference in this prospectus and each prospectus supplement contain “forward-looking statements,” which include information relating to future events, future financial performance, strategies, expectations, competitive environment and regulation. Words such as “may,” “should,” “could,” “would,” “predicts,” “potential,” “continue,” “expects,” “anticipates,” “future,” “intends,” “plans,” “believe similar expressions, as well as statements in future tense, identify forward-looking statements. Forward-looking statements should not be read as a guarantee of future performance or results and will probably not be accurate indications of when such performance or results will be achieved. Forward-looking statements are based on information we have when those statements are made or our management’s good faith belief as of that time with respect to future events, and are subject to risks and uncertainties that could cause actual performance or results to differ materially from those expressed in or suggested by the forward-looking statements. Important factors that could cause such differences include, but are not limited to:

• our history of recurring losses and negative cash flows from operating activities, significant future commitments and the uncertainty regarding the adequacy of our liquidity to pursue our complete business objectives;

• our ability to complete clinical trials as anticipated and obtain and maintain regulatory approvals for our products;

• our ability to adequately protect our intellectual property;

• disputes over ownership of intellectual property;

• the risk that the data collected from our current and planned clinical trials may not be sufficient to demonstrate that our products is an attractive alternative to other products;

• intense competition in our industry, with competitors having substantially greater financial, technological, research and development, regulatory and clinical, manufacturing, marketing and sales, distribution and personnel resources than we do;

• entry of new competitors and products and potential technological obsolescence of our products;

• loss of a key customer or supplier;

• technical problems with our research and products and potential product liability claims;

• adverse economic conditions;

• adverse federal, state and local government regulation, in the United States;

• price increases for supplies;

• inability to carry out research, development and commercialization plans; and

• loss or retirement of key executives and research scientists.

You should review carefully the section entitled “Risk Factors” beginning on page 9 of this prospectus for a discussion of these and other risks that relate to our business and investing in our securities. The forward-looking statements contained or incorporated by reference in this prospectus or any prospectus supplement are expressly qualified in their entirety by this cautionary statement. We do not undertake any obligation to publicly update any forward-looking statement to reflect events or circumstances after the date on which any such statement is made or to reflect the occurrence of unanticipated events.

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USE OF PROCEEDS

Unless otherwise indicated in the prospectus supplement, we currently intend to use the net proceeds from the sale of securities offered by this prospectus for general corporate purposes, including the advancement of our drug candidates in clinical trials, such as Iomab-B, Actimab-A and Actimab-M, research and development of our alpha-particle technology platform, preclinical trials, and to meet working capital needs.

Investors are cautioned, however, that expenditures may vary substantially from these uses. Investors will be relying on the judgment of our management, who will have broad discretion regarding the application of the proceeds of this offering. The amounts and timing of our actual expenditures will depend upon numerous factors, including the amount of cash generated by our operations, the amount of competition and other operational factors. We may find it necessary or advisable to use portions of the proceeds from this offering for other purposes.

From time to time, we evaluate these and other factors and we anticipate continuing to make such evaluations to determine if the existing allocation of resources, including the proceeds of this offering, is being optimized. Circumstances that may give rise to a change in the use of proceeds include:

• a change in development plan or strategy;

• the addition of new products or applications;

• technical delays;

• delays or difficulties with our clinical trials;

• negative results from our clinical trials;

• difficulty obtaining U.S. Food and Drug Administration approval; and

• the availability of other sources of cash including additional offerings, if any.

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DESCRIPTION OF CAPITAL STOCK

The following description of common stock and preferred stock summarizes the material terms and provisions of the common stock and preferred stock that we may offer under this prospectus, but is not complete. For the complete terms of our common stock and preferred stock, please refer to our certificate of incorporation, as amended and our bylaws, as may be amended from time to time. While the terms we have summarized below will apply generally to any future common stock or preferred stock that we may offer, we will describe the specific terms of any series of preferred stock in more detail in the applicable prospectus supplement. If we so indicate in a prospectus supplement, the terms of any preferred stock we offer under that prospectus supplement may differ from the terms we describe below.

We have authorized 250,000,000 shares of capital stock, par value $0.001 per share, of which 200,000,000 are shares of common stock and 50,000,000 are shares of preferred stock. On October 11, 2017, there were 79,380,158 shares of common stock issued and outstanding and no shares of preferred stock issued and outstanding. The authorized and unissued shares of common stock and the authorized and undesignated shares of preferred stock are available for issuance without further action by our stockholders, unless such action is required by applicable law or the rules of any stock exchange on which our securities may be listed. Unless approval of our stockholders is so required, our board of directors does not intend to seek stockholder approval for the issuance and sale of our common stock or preferred stock.

We also have warrants that are outstanding, which are described below.

Common Stock

The holders of our common stock are entitled to one vote per share. Our certificate of incorporation does not provide for cumulative voting. Our directors are divided into three classes. At each annual meeting of stockholders, directors elected to succeed those directors whose terms expire are elected for a term of office to expire at the third succeeding annual meeting of stockholders after their election. The holders of our common stock are entitled to receive ratably such dividends, if any, as may be declared by our board of directors out of legally available funds; however, the current policy of our board of directors is to retain earnings, if any, for operations and growth. Upon liquidation, dissolution or winding-up, the holders of our common stock are entitled to share ratably in all assets that are legally available for distribution. The holders of our common stock have no preemptive, subscription, redemption or conversion rights. The rights, preferences and privileges of holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of any series of preferred stock, which may be designated solely by action of our board of directors and issued in the future.

Our common stock is listed on the NYSE American under the symbol “ATNM.”

Preferred Stock

The board of directors is authorized, subject to any limitations prescribed by law, without further vote or action by the stockholders, to issue from time to time shares of preferred stock in one or more series. Each such series of preferred stock shall have such number of shares, designations, preferences, voting powers, qualifications, and special or relative rights or privileges as shall be determined by the board of directors, which may include, among others, dividend rights, voting rights, liquidation preferences, conversion rights and preemptive rights. Issuance of preferred stock by our board of directors may result in such shares having dividend and/or liquidation preferences senior to the rights of the holders of our common stock and could dilute the voting rights of the holders of our common stock.

Prior to the issuance of shares of each series of preferred stock, the board of directors is required by the Delaware General Corporation Law and our certificate of incorporation to adopt resolutions and file a certificate of designation with the Secretary of State of the State of Delaware. The certificate of designation fixes for each class or series the designations, powers, preferences, rights, qualifications, limitations and restrictions, including, but not limited to, some or all of the following:

• the number of shares constituting that series and the distinctive designation of that series, which number may be increased or decreased (but not below the number of shares then outstanding) from time to time by action of the board of directors;

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• the dividend rate and the manner and frequency of payment of dividends on the shares of that series, whether dividends will be cumulative, and, if so, from which date;

• whether that series will have voting rights, in addition to any voting rights provided by law, and, if so, the terms of such voting rights;

• whether that series will have conversion privileges, and, if so, the terms and conditions of such conversion, including provision for adjustment of the conversion rate in such events as the board of directors may determine;

• whether or not the shares of that series will be redeemable, and, if so, the terms and conditions of such redemption;

• whether that series will have a sinking fund for the redemption or purchase of shares of that series, and, if so, the terms and amount of such sinking fund;

• whether or not the shares of the series will have priority over or be on a parity with or be junior to the shares of any other series or class in any respect;

• the rights of the shares of that series in the event of voluntary or involuntary liquidation, dissolution or winding up of the corporation, and the relative rights or priority, if any, of payment of shares of that series; and

• any other relative rights, preferences and limitations of that series.

Once designated by our board of directors, each series of preferred stock may have specific financial and other terms that will be described in a prospectus supplement. The description of the preferred stock that is set forth in any prospectus supplement is not complete without reference to the documents that govern the preferred stock. These include our certificate of incorporation and any certificates of designation that our board of directors may adopt.

All shares of preferred stock offered hereby will, when issued, be fully paid and non-assessable, including shares of preferred stock issued upon the exercise of preferred stock warrants or subscription rights, if any.

Although our board of directors has no intention at the present time of doing so, it could authorize the issuance of a series of preferred stock that could, depending on the terms of such series, impede the completion of a merger, tender offer or other takeover attempt.

Warrants

Common Stock Warrants

On December 27, 2013 and January 10, 2014, we issued common stock warrants to certain investors in a private placement of common stock and warrants (the “Common Stock Warrants”). The Common Stock Warrants have a five year term from each closing that occurred on December 27, 2013 and January 10, 2014, and are exercisable for an aggregate of up to 276,529 shares of our common stock at an initial per share exercise price of $9.00, subject to adjustments as set forth below. As of October 11, 2017 we have 193,197 shares of Common Stock Warrants outstanding. We may also call this warrant for redemption upon written notice to all warrant holders at any time the closing price of the common stock exceeds $15.00 (as may be adjusted pursuant to warrant agreement) for 20 consecutive trading days, as reported by Bloomberg, provided at such time there is an effective registration statement covering the resale of the shares underlying the warrants. In the 60 business days following the date the redemption notice is deemed given in accordance with the agreement, investors may choose to exercise this warrant or a portion of the warrant by paying the then applicable exercise price per share for every share exercised. Any shares not exercised on the last day of the exercise period will be redeemed by us at $0.001 per share.

The exercise prices of the Common Stock Warrants are subject to adjustment upon certain events. If we at any time while the warrants remain outstanding and unexpired shall declare a dividend or make a distribution on the outstanding Common Stock payable in shares of its capital stock, or split, subdivide or combine the securities as to which purchase rights under this warrant exist into a different number of securities of the same class, the

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exercise price for such securities shall be proportionately decreased in the case of a dividend, split or subdivision or proportionately increased in the case of a combination.

Series B Warrants

The Series B Warrants have a five year term from December 19, 2012 and are exercisable for an aggregate of up to 1,559,505 shares of our common stock at an initial per share exercise price of $2.48, subject to adjustment as set forth below. As of October 11, 2017, there were 1,317,195 warrants outstanding. These warrants have a cashless exercise provision. We also have a right of first refusal on the holder's sale of the warrant shares. We may also call this warrant for redemption upon written notice to all warrant holders at any time the closing price of the common stock exceeds $1.50 (as may be adjusted pursuant to warrant agreement) for 20 consecutive trading days, as reported by Bloomberg, provided at such time there is an effective registration statement covering the resale of the shares underlying the warrants. In the 60 business days following the date the redemption notice is deemed given in accordance with the agreement, investors may choose to exercise this warrant or a portion of the warrant by paying the then applicable exercise price per share for every share exercised. Any shares not exercised on the last day of the exercise period will be redeemed by us at $0.001 per share.

The exercise price of the Series B Warrants is subject to adjustment upon certain events. If we at any time while the warrants remain outstanding and unexpired shall declare a dividend or make a distribution on the outstanding Common Stock payable in shares of its capital stock, or split, subdivide or combine the securities as to which purchase rights under this warrant exist into a different number of securities of the same class, the exercise price for such securities shall be proportionately decreased in the case of a dividend, split or subdivision or proportionately increased in the case of a combination.

In addition, for so long as there are any warrants outstanding, if and whenever at any time and from time to time after the warrant issue date, as applicable, we shall issue any shares of common stock for no consideration or a consideration per share less than the exercise price, as applicable, then, forthwith upon such issue or sale, the warrants shall be subject to a proportional adjustment determined by multiplying such warrant exercise price by the following fraction:

N(0) +

N(1)

N(0) + N(2)

Where:

N(0) = the number of shares of common stock outstanding (calculated on a Fully Diluted Basis) immediately prior to the issuance of such additional shares of common stock or common stock Equivalents;

N(1) = the number of shares of common stock which the aggregate consideration, if any (including the aggregate Net Consideration Per Share with respect to the issuance of common stock equivalents), received or receivable by us for the total number of such additional shares of common stock so issued or deemed to be issued would purchase at the warrant exercise price, as applicable, in effect immediately prior to such issuance; and

N(2) = the number of such additional shares of common stock so issued or deemed to be issued.

Stock Offering Warrants

The Stock Offering Warrants have a term ending on January 31, 2019 and are exercisable for an aggregate of up to 2,682,155 shares of our common stock at an initial per share exercise price of $0.78, subject to adjustment as set forth below (anti-dilution). As of October 11, 2017, there were 1,239,997 warrants outstanding. These warrants have a cashless exercise provision. We also have a right of first refusal on the holder’s sale of the warrant shares.

These warrants have a cashless exercise provision. We also have a right of first refusal on the holder’s sale of the warrant shares. The exercise prices of the Stock Offering Warrants are subject to adjustment upon certain events. If we at any time while the warrants remain outstanding and unexpired shall declare a dividend or make a distribution on the outstanding Common Stock payable in shares of its capital stock, or split, subdivide or combine

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the securities as to which purchase rights under this warrant exist into a different number of securities of the same class, the exercise price for such securities shall be proportionately decreased in the case of a dividend, split or subdivision or proportionately increased in the case of a combination.

Consulting Firm Warrants

The Consulting Firm Warrants have a term ending on December 17, 2019 and are exercisable for an aggregate of up to 3,755,560 shares of the Company's common stock. As of October 11, 2017, there were 1,502,223 warrants outstanding. These warrants may not be exercised by the Holder upon less than 90 days prior written notice of such exercise and provided further that that the Holder may elect, in its sole discretion, to waive the Prior Notice Requirement, in whole or in part, upon 65 days prior written notice of such waiver. These warrants have a cashless exercise provision and were issued at an initial per share exercise price of $0.001, subject to adjustment as if the Company at any time while the warrants remain outstanding and unexpired shall declare a dividend or make a distribution on the outstanding Common Stock payable in shares of its capital stock, or split, subdivide or combine the securities as to which purchase rights under this warrant exist into a different number of securities of the same class, the exercise price for such securities shall be proportionately decreased in the case of a dividend, split or subdivision or proportionately increased in the case of a combination. The warrants are also subject to piggy-back registration rights.

2015 Offering Warrants

The 2015 Offering Warrants have a term ending February 11, 2019 and are exercisable for an aggregate of up to 3,333,333 shares of our common stock at $6.50 per share. As of October 11, 2017, there were 3,333,333 warrants outstanding. The exercise price and the number of warrant shares shall be adjusted from time to time if we at any time on or after the issuance date subdivides (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of its outstanding shares of common stock into a greater number of shares, the exercise price in effect immediately prior to such subdivision will be proportionately reduced and the number of warrant shares will be proportionately increased. If we at any time on or after the issuance date combines (by combination, reverse stock split or otherwise) one or more classes of its outstanding shares of Common Stock into a smaller number of shares, the exercise price in effect immediately prior to such combination will be proportionately increased and the number of warrant shares will be proportionately decreased.

If at any time prior to the expiration date we grant, issue or sell any Options, Convertible Securities or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the "Purchase Rights"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this warrant (without regard to any limitations on the exercise of this warrant) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of common stock are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, that to the extent that the Holder's right to participate in any such Purchase Right would result in the holder exceeding the Maximum Percentage, then the holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such shares of Common Stock as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Maximum Percentage (as defined in the warrant), at which time the Holder shall be granted such right to the same extent as if there had been no such limitation).

Placement Agent Warrants

We have issued three types of warrants to the Placement Agent, Placement Agent Stock Offering Warrants, Placement Agent Common Stock Warrants, and Placement Agent December 2013 Offering Warrants.

Placement Agent Stock Offering Warrants

The Placement Agent Stock Offering Warrants have a term ending on January 31, 2019 and are exercisable for an aggregate of up to 1,251,022 shares of our common stock at an initial per share exercise price of

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$0.78, subject to adjustment as set forth below (anti dilution). As of October 11, 2017, there were 355,293 warrants outstanding. These warrants have a cashless exercise provision. The exercise prices of the warrants are subject to adjustment upon certain events. If we at any time while the warrants remain outstanding and unexpired shall declare a dividend or make a distribution on the outstanding Common Stock payable in shares of its capital stock, or split, subdivide or combine the securities as to which purchase rights under this warrant exist into a different number of securities of the same class, the exercise price for such securities shall be proportionately decreased in the case of a dividend, split or subdivision or proportionately increased in the case of a combination.

Placement Agent Common Stock Warrants

The Placement Agent Common Stock Warrants have a five year term from January 28, 2013 and are exercisable for an aggregate of up to 467,845 shares of our common stock at an initial per share exercise price of $2.48, subject to adjustment as set forth below. As of October 11, 2017, there were 298,065 warrants outstanding. These warrants have a cashless exercise provision. We may also call this warrant for redemption upon written notice to all warrant holders at any time the closing price of the common stock exceeds $1.50 (as may be adjusted pursuant to warrant agreement) for 20 consecutive trading days, as reported by Bloomberg, provided at such time there is an effective registration statement covering the resale of the shares underlying the warrants. In the 60 business days following the date the redemption notice is deemed given in accordance with the agreement, investors may choose to exercise this warrant or a portion of the warrant by paying the then applicable exercise price per share for every share exercised. Any shares not exercised on the last day of the exercise period will be redeemed by us at $0.001 per share.

The exercise prices of the warrants are subject to adjustment upon certain events. If we at any time while the warrants remain outstanding and unexpired shall declare a dividend or make a distribution on the outstanding Common Stock payable in shares of its capital stock, or split, subdivide or combine the securities as to which purchase rights under this warrant exist into a different number of securities of the same class, the exercise price for such securities shall be proportionately decreased in the case of a dividend, split or subdivision or proportionately increased in the case of a combination.

In addition, for so long as there are any warrants outstanding, if and whenever at any time and from time to time after the warrant issue date, as applicable, we shall issue any shares of common stock for no consideration or a consideration per share less than the exercise price, as applicable, then, forthwith upon such issue or sale, the warrants shall be subject to a proportional adjustment determined by multiplying such warrant exercise price by the following fraction:

N(0) +

N(1)

N(0) + N(2)

Where:

N(0) = the number of shares of common stock outstanding (calculated on a Fully Diluted Basis) immediately prior to the issuance of such additional shares of common stock or common stock Equivalents;

N(1) = the number of shares of common stock which the aggregate consideration, if any (including the aggregate Net Consideration Per Share with respect to the issuance of common stock equivalents), received or receivable by the Company for the total number of such additional shares of common stock so issued or deemed to be issued would purchase at the warrant exercise price, as applicable, in effect immediately prior to such issuance; and

N(2) = the number of such additional shares of common stock so issued or deemed to be issued.

Placement Agent December 2013 Offering Warrants

The Placement Agent December 2013 Offering Warrants have a five year term from January 10, 2014 and are exercisable for an aggregate of up to 138,265 shares of our common stock at an initial per share exercise price of $9.00, subject to adjustment as set forth below. As of October 11, 2017, there were 124,997 warrants outstanding. These warrants have a cashless exercise provision. We may also call this warrant for redemption upon written notice to all warrant holders at any time the closing price of the common stock exceeds $15.00 (as may be adjusted pursuant to warrant agreement) for 20 consecutive trading days, as reported by Bloomberg, provided at such

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time there is an effective registration statement covering the resale of the shares underlying the warrants. In the 60 business days following the date the redemption notice is deemed given in accordance with the agreement, investors may choose to exercise this warrant or a portion of the warrant by paying the then applicable exercise price per share for every share exercised. Any shares not exercised on the last day of the exercise period will be redeemed by us at $0.001 per share.

The exercise prices of the warrants are subject to adjustment upon certain events. If we at any time while the warrants remain outstanding and unexpired shall declare a dividend or make a distribution on the outstanding Common Stock payable in shares of its capital stock, or split, subdivide or combine the securities as to which purchase rights under this warrant exist into a different number of securities of the same class, the exercise price for such securities shall be proportionately decreased in the case of a dividend, split or subdivision or proportionately increased in the case of a combination.

Consultant Warrants.

As of October 11, 2017, we had outstanding warrants exercisable for 507,833 shares of common stock issued to various consultants in consideration for services. The exercise prices range from $0.98 to $11.66 per share. These warrants do not have a cashless exercise provision.

2017 Warrants

In July 2017 in connection with an offering, we issued warrants to purchase 18,275,000 shares of Common Stock (the "Warrants"). The Warrants are exercisable commencing on the issuance date at an exercise price equal to $1.05 per whole share of common stock, subject to adjustments as provided under the terms of the Warrants. The Warrants are exercisable for five years from the date of issuance. These warrants do have a cashless exercise provision.

Registration Rights

On December 21, 2015, we entered into an Investor Rights Agreement (the “Investor Rights Agreement”) with Memorial Sloan Cancer Center (“MSKCC”). Under the terms of the Investor Rights Agreement, Actinium has granted MSKCC piggyback registration rights that would be triggered in the event Actinium were to engage in a public registered offering of its shares for its own account where other shareholders are participating as selling shareholders or where such public registered offering is for the account of other selling shareholders. In addition, Actinium has granted MSKCC unlimited Form S-3 registration rights with respect to its shares.

Delaware Anti-Takeover Law, Provisions of our Certificate of Incorporation and Bylaws

Delaware Anti-Takeover Law

We are subject to Section 203 of the Delaware General Corporation Law. Section 203 generally prohibits a public Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interested stockholder, unless:

• prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;

• the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding (i) shares owned by persons who are directors and also officers and (ii) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

• on or subsequent to the date of the transaction, the business combination is approved by the board and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock which is not owned by the interested stockholder.

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Section 203 defines a business combination to include:

• any merger or consolidation involving the corporation and the interested stockholder;

• any sale, transfer, pledge or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;

• subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder; or

• the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with, or controlling, or controlled by, the entity or person. The term “owner” is broadly defined to include any person that, individually, with or through that person’s affiliates or associates, among other things, beneficially owns the stock, or has the right to acquire the stock, whether or not the right is immediately exercisable, under any agreement or understanding or upon the exercise of warrants or options or otherwise or has the right to vote the stock under any agreement or understanding, or has an agreement or understanding with the beneficial owner of the stock for the purpose of acquiring, holding, voting or disposing of the stock.

The restrictions in Section 203 do not apply to corporations that have elected, in the manner provided in Section 203, not to be subject to Section 203 of the Delaware General Corporation Law or, with certain exceptions, which do not have a class of voting stock that is listed on a national securities exchange or authorized for quotation on the Nasdaq Stock Market or held of record by more than 2,000 stockholders. Our certificate of incorporation and bylaws do not opt out of Section 203.

Section 203 could delay or prohibit mergers or other takeover or change in control attempts with respect to us and, accordingly, may discourage attempts to acquire us even though such a transaction may offer our stockholders the opportunity to sell their stock at a price above the prevailing market price.

Certificate of Incorporation and Bylaws

Provisions of our certificate of incorporation and bylaws may delay or discourage transactions involving an actual or potential change in our control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares, or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our common stock. Among other things, our certificate of incorporation and bylaws:

• permit our board of directors to issue up to 50,000,000 shares of preferred stock, without further action by the stockholders, with any rights, preferences and privileges as they may designate, including the right to approve an acquisition or other change in control;

• provide that all vacancies, including newly created directorships, may, except as otherwise required by law, be filled by the affirmative vote of a majority of directors then in office;

• divide our board of directors into three classes, with each class serving staggered three-year terms, with such three year term commencing on the election of a director on and after the 2014 annual meeting;

• do not provide for cumulative voting rights (therefore allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election, if they should so choose);

• provide that special meetings of our stockholders may be called only by our Chairman of the Board, board of directors, chief executive officer ,or the holders of not less than one-tenth of all the shares entitled to vote at the meeting; and

• set forth an advance notice procedure with regard to business to be brought before a meeting of stockholders.

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DESCRIPTION OF DEBT SECURITIES

We may issue debt securities from time to time, in one or more series, as either senior or subordinated debt or as senior or subordinated convertible debt. While the terms we have summarized below will apply generally to any debt securities that we may offer under this prospectus, we will describe the particular terms of any debt securities that we may offer in more detail in the applicable prospectus supplement. The terms of any debt securities offered under a prospectus supplement may differ from the terms described below. Unless the context requires otherwise, whenever we refer to the indenture, we are also referring to any supplemental indentures that specify the terms of a particular series of debt securities.

We will issue the debt securities under the indenture that we will enter into with the trustee named in the indenture. The indenture will be qualified under the Trust Indenture Act of 1939, as amended ("Trust Indenture Act"). We have filed the form of indenture as an exhibit to the registration statement of which this prospectus is a part, and supplemental indentures and forms of debt securities containing the terms of the debt securities being offered will be filed as exhibits to the registration statement of which this prospectus is a part or will be incorporated by reference from reports that we file with the SEC.

The following summary of material provisions of the debt securities and the indenture is subject to, and qualified in its entirety by reference to, all of the provisions of the indenture applicable to a particular series of debt securities. We urge you to read the applicable prospectus supplements and any related free writing prospectuses related to the debt securities that we may offer under this prospectus, as well as the complete indenture that contains the terms of the debt securities.

General Terms of the Indenture

The indenture does not limit the amount of debt securities that we may issue. It provides that we may issue debt securities up to the principal amount that we may authorize and may be in any currency or currency unit designated by us. Except for the limitations on consolidation, merger and sale of all or substantially all of our assets contained in the indenture, the terms of the indenture do not contain any covenants or other provisions designed to afford holders of any debt securities protection with respect to our operations, financial condition or transactions involving us.

We may issue the debt securities issued under the indenture as “discount securities,” which means they may be sold at a discount below their stated principal amount. These debt securities, as well as other debt securities that are not issued at a discount, may, for U.S. federal income tax purposes, be treated as if they were issued with “original issue discount,” or “OID,” because of interest payment and other characteristics. Special U.S. federal income tax considerations applicable to debt securities issued with original issue discount will be described in more detail in any applicable prospectus supplement.

We will describe in the applicable prospectus supplement the terms of the series of debt securities being offered, including:

• the title of the series of debt securities;

• any limit upon the aggregate principal amount that may be issued;

• the maturity date or dates;

• the form of the debt securities of the series;

• the applicability of any guarantees;

• whether or not the debt securities will be secured or unsecured, and the terms of any secured debt;

• whether the debt securities rank as senior debt, senior subordinated debt, subordinated debt or any combination thereof, and the terms of any subordination;

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• if the price (expressed as a percentage of the aggregate principal amount thereof) at which such debt securities will be issued is a price other than the principal amount thereof, the portion of the principal amount thereof payable upon declaration of acceleration of the maturity thereof, or if applicable, the portion of the principal amount of such debt securities that is convertible into another security or the method by which any such portion shall be determined;

• the interest rate or rates, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;

• our right, if any, to defer payment of interest and the maximum length of any such deferral period;

• if applicable, the date or dates after which, or the period or periods during which, and the price or prices at which, we may, at our option, redeem the series of debt securities pursuant to any optional or provisional redemption provisions and the terms of those redemption provisions;

• the date or dates, if any, on which, and the price or prices at which we are obligated, pursuant to any mandatory sinking fund or analogous fund provisions or otherwise, to redeem, or at the holder's option to purchase, the series of debt securities and the currency or currency unit in which the debt securities are payable;

• the denominations in which we will issue the series of debt securities, if other than denominations of $1,000, and any integral multiple thereof;

• any and all terms, if applicable, relating to any auction or remarketing of the debt securities of that series and any security for our obligations with respect to such debt securities and any other terms which may be advisable in connection with the marketing of debt securities of that series;

• whether the debt securities of the series shall be issued in whole or in part in the form of a global security or securities; the terms and conditions, if any, upon which such global security or securities may be exchanged in whole or in part for other individual securities; and the depositary for such global security or securities;

• if applicable, the provisions relating to conversion or exchange of any debt securities of the series and the terms and conditions upon which such debt securities will be so convertible or exchangeable, including the conversion or exchange price, as applicable, or how it will be calculated and may be adjusted, any mandatory or optional (at our option or the holders' option) conversion or exchange features, the applicable conversion or exchange period and the manner of settlement for any conversion or exchange;

• if other than the full principal amount thereof, the portion of the principal amount of debt securities of the series which shall be payable upon declaration of acceleration of the maturity thereof;

• additions to or changes in the covenants applicable to the particular debt securities being issued, including, among others, the consolidation, merger or sale covenant;

• additions to or changes in the events of default with respect to the securities and any change in the right of the trustee or the holders to declare the principal, premium, if any, and interest, if any, with respect to such securities to be due and payable;

• additions to or changes in or deletions of the provisions relating to covenant defeasance and legal defeasance;

• additions to or changes in the provisions relating to satisfaction and discharge of the indenture;

• additions to or changes in the provisions relating to the modification of the indenture both with and without the consent of holders of debt securities issued under the indenture;

• the currency of payment of debt securities if other than U.S. dollars and the manner of determining the equivalent amount in U.S. dollars;

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• whether interest will be payable in cash or additional debt securities at our or the holders' option and the terms and conditions upon which the election may be made;

• the terms and conditions, if any, upon which we will pay amounts in addition to the stated interest, premium, if any, and principal amounts of the debt securities of the series to any holder that is not a “United States person” for federal tax purposes;

• any restrictions on transfer, sale or assignment of the debt securities of the series; and

• any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities, any other additions or changes in the provisions of the indenture, and any terms that may be required by us or advisable under applicable laws or regulations.

Conversion or Exchange Rights

We will set forth in the prospectus supplement the terms on which a series of debt securities may be convertible into or exchangeable for our common stock or our other securities. We will include provisions as to settlement upon conversion or exchange and whether conversion or exchange is mandatory, at the option of the holder or at our option. We may include provisions pursuant to which the number of shares of our common stock or our other securities that the holders of the series of debt securities receive would be subject to adjustment.

Consolidation, Merger or Sale

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, the indenture will not contain any covenant that restricts our ability to merge or consolidate, or sell, convey, transfer or otherwise dispose of our assets as an entirety or substantially as an entirety. However, any successor to or acquirer of such assets (other than a subsidiary of ours) must assume all of our obligations under the indenture or the debt securities, as appropriate.

Events of Default Under the Indenture

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, the following are events of default under the indenture with respect to any series of debt securities that we may issue:

• if we fail to pay any installment of interest on any debt securities of that series, as and when the same shall become due and payable, and such default continues for a period of 90 days; provided, however, that a valid extension of an interest payment period by us in accordance with the terms of any indenture supplemental thereto shall not constitute a default in the payment of interest for this purpose;

• if we fail to pay the principal of (or premium, if any) on any debt securities of that series as and when the same shall become due and payable whether at maturity, upon redemption, by declaration or otherwise, or in any payment required by any sinking or analogous fund established with respect to that series; provided, however, that a valid extension of the maturity of such debt securities in accordance with the terms of any indenture supplemental thereto shall not constitute a default in the payment of principal or premium, if any;

• if we fail to observe or perform any other covenant or agreement with respect to that series contained in the indenture or otherwise established with respect to that series pursuant to the indenture, other than a covenant or agreement specifically included solely for the benefit of one or more debt securities other than that series, and our failure continues for 90 days after we receive written notice of such failure, requiring the same to be remedied and stating that such is a notice of default thereunder, from the trustee or holders of at least 25% in aggregate principal amount of the outstanding debt securities of the applicable series; and

• if specified events of bankruptcy, insolvency or reorganization occur.

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If an event of default with respect to debt securities of any series occurs and is continuing, other than an event of default described in the last bullet point above, the trustee or the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series, by notice to us in writing, and to the trustee if notice is given by such holders, may declare the unpaid principal of (premium, if any) and accrued and unpaid interest, if any, due and payable immediately. If an event of default specified in the last bullet point above occurs with respect to us, the principal amount of and accrued interest, if any, of that series shall be automatically due and payable without any declaration or other action on the part of the trustee or any holder.

The holders of a majority in principal amount of the outstanding debt securities of an affected series may waive any default or event of default with respect to the series and its consequences, except defaults or events of default regarding payment of principal, premium, if any, or interest, unless we have cured the default or event of default in accordance with the indenture. Any waiver shall cure the default or event of default.

Subject to the terms of the indenture, if an event of default under an indenture shall occur and be continuing, the trustee will be under no obligation to exercise any of its rights or powers under such indenture at the request or direction of any of the holders of the applicable series of debt securities, unless such holders have offered the trustee reasonable indemnity. The holders of a majority in principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee, or exercising any trust or power conferred on the trustee, with respect to the debt securities of that series, provided that:

• the direction so given by the holder is not in conflict with any law or the applicable indenture; and

• subject to its duties under the Trust Indenture Act, the trustee need not take any action that might involve it in personal liability or might be unduly prejudicial to the holders not involved in the proceeding.

A holder of the debt securities of any series will have the right to institute a proceeding under the indenture or to appoint a receiver or trustee, or to seek other remedies only if:

• the holder has given written notice to the trustee of a continuing event of default with respect to that series;

• the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series have made written request;

• such holders have offered to the trustee indemnity satisfactory to it against the costs, expenses and liabilities to be incurred by the trustee in compliance with the request; and

• the trustee does not institute the proceeding, and does not receive from the holders of a majority in aggregate principal amount of the outstanding debt securities of that series other inconsistent directions within 90 days after the notice, request and offer.

These limitations do not apply to a suit instituted by a holder of debt securities if we default in the payment of the principal, premium, if any, or interest on, the debt securities.

We will periodically file statements with the trustee regarding our compliance with specified covenants in the indenture.

Modification of Indenture; Waiver

We and the trustee may change an indenture without the consent of any holders with respect to specific matters:

• to cure any ambiguity, defect or inconsistency in the indenture or in the debt securities of any series;

• to comply with the provisions described above under “Description of Debt Securities—Consolidation, Merger or Sale;”

• to provide for uncertificated debt securities in addition to or in place of certificated debt securities;

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• to add to our covenants, restrictions, conditions or provisions such new covenants, restrictions, conditions or provisions for the benefit of the holders of all or any series of debt securities, to make the occurrence, or the occurrence and the continuance, of a default in any such additional covenants, restrictions, conditions or provisions an event of default or to surrender any right or power conferred upon us in the indenture;

• to add to, delete from or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication and delivery of debt securities, as set forth in the indenture;

• to make any change that does not adversely affect the interests of any holder of debt securities of any series in any material respect;

• to provide for the issuance of and establish the form and terms and conditions of the debt securities of any series as provided above under “Description of Debt Securities—General” to establish the form of any certifications required to be furnished pursuant to the terms of the indenture or any series of debt securities, or to add to the rights of the holders of any series of debt securities;

• to evidence and provide for the acceptance of appointment under any indenture by a successor trustee; or

• to comply with any requirements of the SEC in connection with the qualification of any indenture under the Trust Indenture Act.

In addition, under the indenture, the rights of holders of a series of debt securities may be changed by us and the trustee with the written consent of the holders of at least a majority in aggregate principal amount of the outstanding debt securities of each series that is affected. However, unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, we and the trustee may make the following changes only with the consent of each holder of any outstanding debt securities affected:

• extending the fixed maturity of any debt securities of any series;

• reducing the principal amount, reducing the rate of or extending the time of payment of interest, or reducing any premium payable upon the redemption of any series of any debt securities; or

• reducing the percentage of debt securities, the holders of which are required to consent to any amendment, supplement, modification or waiver.

Discharge

Each indenture provides that we can elect to be discharged from our obligations with respect to one or more series of debt securities, except for specified obligations, including obligations to:

• provide for payment;

• register the transfer or exchange of debt securities of the series;

• replace stolen, lost or mutilated debt securities of the series;

• pay principal of and premium and interest on any debt securities of the series;

• maintain paying agencies;

• hold monies for payment in trust;

• recover excess money held by the trustee;

• compensate and indemnify the trustee; and

• appoint any successor trustee.

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In order to exercise our rights to be discharged, we must deposit with the trustee money or government obligations sufficient to pay all the principal of, any premium, if any, and interest on, the debt securities of the series on the dates payments are due.

Form, Exchange and Transfer

We will issue the debt securities of each series only in fully registered form without coupons and, unless we provide otherwise in the applicable prospectus supplement, in denominations of $1,000 and any integral multiple thereof. The indenture provides that we may issue debt securities of a series in temporary or permanent global form and as book-entry securities that will be deposited with, or on behalf of, The Depository Trust Company, or DTC, or another depositary named by us and identified in a prospectus supplement with respect to that series. To the extent the debt securities of a series are issued in global form and as book-entry, a description of terms relating will be set forth in the applicable prospectus supplement.

At the option of the holder, subject to the terms of the indenture and the limitations applicable to global securities described in the applicable prospectus supplement, the holder of the debt securities of any series can exchange the debt securities for other debt securities of the same series, in any authorized denomination and of like tenor and aggregate principal amount.

Subject to the terms of the indenture and the limitations applicable to global securities set forth in the applicable prospectus supplement, holders of the debt securities may present the debt securities for exchange or for registration of transfer, duly endorsed or with the form of transfer endorsed thereon duly executed if so required by us or the security registrar, at the office of the security registrar or at the office of any transfer agent designated by us for this purpose. Unless otherwise provided in the debt securities that the holder presents for transfer or exchange, we will impose no service charge for any registration of transfer or exchange, but we may require payment of any taxes or other governmental charges.

We will name in the applicable prospectus supplement the security registrar, and any transfer agent in addition to the security registrar, that we initially designate for any debt securities. We may at any time designate additional transfer agents or rescind the designation of any transfer agent or approve a change in the office through which any transfer agent acts, except that we will be required to maintain a transfer agent in each place of payment for the debt securities of each series.

If we elect to redeem the debt securities of any series, we will not be required to:

• issue, register the transfer of, or exchange any debt securities of that series during a period beginning at the opening of business 15 days before the day of mailing of a notice of redemption of any debt securities that may be selected for redemption and ending at the close of business on the day of the mailing; or

• register the transfer of or exchange any debt securities so selected for redemption, in whole or in part, except the unredeemed portion of any debt securities we are redeeming in part.

Information Concerning the Trustee

The trustee, other than during the occurrence and continuance of an event of default under an indenture, undertakes to perform only those duties as are specifically set forth in the applicable indenture. Upon an event of default under an indenture, the trustee must use the same degree of care as a prudent person would exercise or use in the conduct of his or her own affairs. Subject to this provision, the trustee is under no obligation to exercise any of the powers given it by the indenture at the request of any holder of debt securities unless it is offered reasonable security and indemnity against the costs, expenses and liabilities that it might incur.

Payment and Paying Agents

Unless we otherwise indicate in the applicable prospectus supplement, we will make payment of the interest on any debt securities on any interest payment date to the person in whose name the debt securities, or one or more predecessor securities, are registered at the close of business on the regular record date for the interest.

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We will pay principal of and any premium and interest on the debt securities of a particular series at the office of the paying agents designated by us, except that unless we otherwise indicate in the applicable prospectus supplement, we will make interest payments by check that we will mail to the holder or by wire transfer to certain holders. Unless we otherwise indicate in the applicable prospectus supplement, we will designate the corporate trust office of the trustee as our sole paying agent for payments with respect to debt securities of each series. We will name in the applicable prospectus supplement any other paying agents that we initially designate for the debt securities of a particular series. We will maintain a paying agent in each place of payment for the debt securities of a particular series.

All money we pay to a paying agent or the trustee for the payment of the principal of or any premium or interest on any debt securities that remains unclaimed at the end of two years after such principal, premium or interest has become due and payable (or such shorter period set forth in applicable escheat, abandoned or unclaimed property law) will be repaid to us, and the holder of the debt security thereafter may look only to us for payment thereof.

Governing Law

The indenture and the debt securities will be governed by and construed in accordance with the laws of the State of New York, except to the extent that the Trust Indenture Act is applicable.

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DESCRIPTION OF WARRANTS

As of October 11, 2017, there were 27,147,183 shares of common stock that may be issued upon exercise of outstanding warrants.

We may issue warrants for the purchase of debt securities, common stock or preferred stock in one or more series. We may issue warrants independently or together with debt securities, common stock or preferred stock, and the warrants may be attached to or separate from these securities.

We will evidence each series of warrants by warrant certificates that we may issue under a separate agreement. We may enter into a warrant agreement with a warrant agent. Each warrant agent may be a bank that we select which has its principal office in the United States. We may also choose to act as our own warrant agent. We will indicate the name and address of any such warrant agent in the applicable prospectus supplement relating to a particular series of warrants.

We will describe in the applicable prospectus supplement the terms of the series of warrants, including:

• the offering price and aggregate number of warrants offered;

• if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;

• if applicable, the date on and after which the warrants and the related securities will be separately transferable;

• in the case of warrants to debt securities, purchase common stock or preferred stock, the number or amount of shares of common stock or preferred stock, as the case may be, purchasable upon the exercise of one warrant and the price at which and currency in which these shares may be purchased upon such exercise;

• the manner of exercise of the warrants, including any cashless exercise rights;

• the warrant agreement under which the warrants will be issued;

• the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreement and the warrants;

• anti-dilution provisions of the warrants, if any;

• the terms of any rights to redeem or call the warrants;

• any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;

• the dates on which the right to exercise the warrants will commence and expire or, if the warrants are not continuously exercisable during that period, the specific date or dates on which the warrants will be exercisable;

• the manner in which the warrant agreement and warrants may be modified;

• the identities of the warrant agent and any calculation or other agent for the warrants;

• federal income tax consequences of holding or exercising the warrants;

• the terms of the securities issuable upon exercise of the warrants;

• any securities exchange or quotation system on which the warrants or any securities deliverable upon exercise of the warrants may be listed or quoted; and

• any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

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Before exercising their warrants, holders of warrants will not have any of the rights of holders of the securities purchasable upon such exercise, including, in the case of warrants to purchase common stock or preferred stock, the right to receive dividends, if any, or, payments upon our liquidation, dissolution or winding up or to exercise voting rights, if any.

Exercise of Warrants

Each warrant will entitle the holder to purchase the securities that we specify in the applicable prospectus supplement at the exercise price that we describe in the applicable prospectus supplement. Unless we otherwise specify in the applicable prospectus supplement, holders of the warrants may exercise the warrants at any time up to 5:00 P.M. eastern time, the close of business, on the expiration date that we set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

Holders of the warrants may exercise the warrants by delivering the warrant certificate representing the warrants to be exercised together with specified information, and paying the required exercise price by the methods provided in the applicable prospectus supplement. We will set forth on the reverse side of the warrant certificate, and in the applicable prospectus supplement, the information that the holder of the warrant will be required to deliver to the warrant agent.

Upon receipt of the required payment and the warrant certificate properly completed and duly executed at the corporate trust office of the warrant agent or any other office indicated in the applicable prospectus supplement, we will issue and deliver the securities purchasable upon such exercise. If fewer than all of the warrants represented by the warrant certificate are exercised, then we will issue a new warrant certificate for the remaining amount of warrants.

Enforceability of Rights By Holders of Warrants

Any warrant agent will act solely as our agent under the applicable warrant agreement and will not assume any obligation or relationship of agency or trust with any holder of any warrant. A single bank or trust company may act as warrant agent for more than one issue of warrants. A warrant agent will have no duty or responsibility in case of any default by us under the applicable warrant agreement or warrant, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a warrant may, without the consent of the related warrant agent or the holder of any other warrant, enforce by appropriate legal action the holder's right to exercise, and receive the securities purchasable upon exercise of, its warrants in accordance with their terms.

Warrant Agreement Will Not Be Qualified Under Trust Indenture Act

No warrant agreement will be qualified as an indenture, and no warrant agent will be required to qualify as a trustee, under the Trust Indenture Act. Therefore, holders of warrants issued under a warrant agreement will not have the protection of the Trust Indenture Act with respect to their warrants.

Governing Law

Each warrant agreement and any warrants issued under the warrant agreements will be governed by New York law.

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DESCRIPTION OF RIGHTS

We may issue rights to our stockholders to purchase shares of our common stock or preferred stock. We may offer rights separately or together with one or more additional rights, debt securities, preferred stock, common stock or warrants, or any combination of those securities in the form of units, as described in the applicable prospectus supplement. Each series of rights will be issued under a separate rights agreement to be entered into between us and a bank or trust company, as rights agent. The rights agent will act solely as our agent in connection with the certificates relating to the rights of the series of certificates and will not assume any obligation or relationship of agency or trust for or with any holders of rights certificates or beneficial owners of rights. The following description sets forth certain general terms and provisions of the rights to which any prospectus supplement may relate. The particular terms of the rights to which any prospectus supplement may relate and the extent, if any, to which the general provisions may apply to the rights so offered will be described in the applicable prospectus supplement. To the extent that any particular terms of the rights, rights agreement or rights certificates described in a prospectus supplement differ from any of the terms described below, then the terms described below will be deemed to have been superseded by that prospectus supplement. We encourage you to read the applicable rights agreement and rights certificate for additional information before you decide whether to purchase any of our rights.

We will provide in a prospectus supplement the following terms of the rights being issued:

• the date on which stockholders entitled to the rights distribution will be determined;

• the aggregate number of shares of common stock or preferred stock purchasable upon exercise of the rights;

• the exercise price;

• the aggregate number of rights issued;

• the date, if any, on and after which the rights will be separately transferable;

• the date on which the ability to exercise the rights will commence, and the date on which such ability will expire;

• the conditions to the completion of the offering, if any;

• the withdrawal, termination and cancellation rights, if any;

• any applicable material U.S. federal income tax considerations; and

• any other terms of the rights, including terms, procedures and limitations relating to the distribution, exchange and exercise of the rights.

Each right will entitle the holder of rights to purchase, for cash, the number of shares of common stock or preferred stock at the exercise price provided in the applicable prospectus supplement. Rights may be exercised at any time up to the close of business on the expiration date for the rights provided in the applicable prospectus supplement.

Holders may exercise rights as described in the applicable prospectus supplement. Upon receipt of payment and the rights certificate properly completed and duly executed at the corporate trust office of the rights agent or any other office indicated in the prospectus supplement, we will, as soon as practicable, forward the shares of common stock or preferred stock, as applicable, purchasable upon exercise of the rights. If less than all of the rights issued in any rights offering are exercised, we may offer any unsubscribed securities directly to persons other than stockholders, to or through agents, underwriters or dealers or through a combination of such methods, including pursuant to standby arrangements, as described in the applicable prospectus supplement.

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DESCRIPTION OF PURCHASE CONTRACTS

We may issue purchase contracts, including contracts obligating holders to purchase from us, and for us to sell to holders, a specific or variable number of our debt securities, shares of common stock, preferred stock, warrants or rights, or securities of an entity unaffiliated with us, or any combination of the above, at a future date or dates. Alternatively, the purchase contracts may obligate us to purchase from holders, and obligate holders to sell to us, a specific or variable number of our debt securities, shares of common stock, preferred stock, warrants, rights or other property, or any combination of the above. The price of the securities or other property subject to the purchase contracts may be fixed at the time the purchase contracts are issued or may be determined by reference to a specific formula described in the purchase contracts. We may issue purchase contracts separately or as a part of units each consisting of a purchase contract and one or more of our other securities described in this prospectus or securities of third parties, including U.S. Treasury securities, securing the holder's obligations under the purchase contract. The purchase contracts may require us to make periodic payments to holders or vice versa and the payments may be unsecured or pre-funded on some basis. The purchase contracts may require holders to secure the holder's obligations in a manner specified in the applicable prospectus supplement.

The applicable prospectus supplement will describe the terms of any purchase contracts in respect of which this prospectus is being delivered, including, to the extent applicable, the following:

• whether the purchase contracts obligate the holder or us to purchase or sell, or both purchase and sell, the securities subject to purchase under the purchase contract, and the nature and amount of each of those securities, or the method of determining those amounts;

• whether the purchase contracts are to be prepaid;

• whether the purchase contracts are to be settled by delivery, or by reference or linkage to the value, performance or level of the securities subject to purchase under the purchase contract;

• any acceleration, cancellation, termination or other provisions relating to the settlement of the purchase contracts;

• any applicable federal income tax considerations; and

• whether the purchase contracts will be issued in fully registered or global form.

The preceding description sets forth certain general terms and provisions of the purchase contracts to which any prospectus supplement may relate. The particular terms of the purchase contracts to which any prospectus supplement may relate and the extent, if any, to which the general provisions may apply to the purchase contracts so offered will be described in the applicable prospectus supplement. To the extent that any particular terms of the purchase contracts described in a prospectus supplement differ from any of the terms described above, then the terms described above will be deemed to have been superseded by that prospectus supplement. We encourage you to read the applicable purchase contract for additional information before you decide whether to purchase any of our purchase contracts.

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DESCRIPTION OF UNITS

We may issue units comprised of one or more of the other securities described in this prospectus or any prospectus supplement in any combination. Each unit will be issued so that the holder of the unit is also the holder, with the rights and obligations of a holder, of each security included in the unit. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any times before a specified date or upon the occurrence of a specified event or occurrence.

The applicable prospectus supplement will describe:

• the designation and the terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;

• any unit agreement under which the units will be issued;

• any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units; and

• whether the units will be issued in fully registered or global form.

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PLAN OF DISTRIBUTION

We may sell the securities being offered pursuant to this prospectus to or through underwriters, through dealers, through agents, or directly to one or more purchasers or through a combination of these methods. The applicable prospectus supplement will describe the terms of the offering of the securities, including:

• the name or names of any underwriters, if any, and if required, any dealers or agents;

• the purchase price of the securities and the proceeds we will receive from the sale;

• any underwriting discounts and other items constituting underwriters' compensation;

• any discounts or concessions allowed or re-allowed or paid to dealers; and

• any securities exchange or market on which the securities may be listed or traded.

We may distribute the securities from time to time in one or more transactions at:

• a fixed price or prices, which may be changed;

• market prices prevailing at the time of sale, directly by us or through a designated agent;

• prices related to such prevailing market prices; or

• negotiated prices.

Only underwriters named in the prospectus supplement are underwriters of the securities offered by the prospectus supplement.

If underwriters are used in an offering, we will execute an underwriting agreement with such underwriters and will specify the name of each underwriter and the terms of the transaction (including any underwriting discounts and other terms constituting compensation of the underwriters and any dealers) in a prospectus supplement. The securities may be offered to the public either through underwriting syndicates represented by managing underwriters or directly by one or more investment banking firms or others, as designated. If an underwriting syndicate is used, the managing underwriter(s) will be specified on the cover of the prospectus supplement. If underwriters are used in the sale, the offered securities will be acquired by the underwriters for their own accounts and may be resold from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. Any public offering price and any discounts or concessions allowed or reallowed or paid to dealers may be changed from time to time. Unless otherwise set forth in the prospectus supplement, the obligations of the underwriters to purchase the offered securities will be subject to conditions precedent, and the underwriters will be obligated to purchase all of the offered securities, if any are purchased.

We may grant to the underwriters options to purchase additional securities to cover over-allotments, if any, at the public offering price, with additional underwriting commissions or discounts, as may be set forth in a related prospectus supplement. The terms of any over-allotment option will be set forth in the prospectus supplement for those securities.

If we use a dealer in the sale of the securities being offered pursuant to this prospectus or any prospectus supplement, we will sell the securities to the dealer, as principal. The dealer may then resell the securities to the public at varying prices to be determined by the dealer at the time of resale. The names of the dealers and the terms of the transaction will be specified in a prospectus supplement.

We may sell the securities directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of securities and we will describe any commissions we will pay the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, any agent will act on a best-efforts basis for the period of its appointment.

We may authorize agents or underwriters to solicit offers by institutional investors to purchase securities from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts

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providing for payment and delivery on a specified date in the future. We will describe the conditions to these contracts and the commissions we must pay for solicitation of these contracts in the prospectus supplement.

In connection with the sale of the securities, underwriters, dealers or agents may receive compensation from us or from purchasers of the securities for whom they act as agents, in the form of discounts, concessions or commissions. Underwriters may sell the securities to or through dealers, and those dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters or commissions from the purchasers for whom they may act as agents. Underwriters, dealers and agents that participate in the distribution of the securities, and any institutional investors or others that purchase securities directly for the purpose of resale or distribution, may be deemed to be underwriters, and any discounts or commissions received by them from us and any profit on the resale of the common stock by them may be deemed to be underwriting discounts and commissions under the Securities Act of 1933, as amended.

We may provide agents, underwriters and other purchasers with indemnification against particular civil liabilities, including liabilities under the Securities Act of 1933, as amended, or contribution with respect to payments that the agents, underwriters or other purchasers may make with respect to such liabilities. Agents and underwriters may engage in transactions with, or perform services for, us in the ordinary course of business.

To facilitate the public offering of a series of securities, persons participating in the offering may engage in transactions that stabilize, maintain, or otherwise affect the market price of the securities. This may include over-allotments or short sales of the securities, which involves the sale by persons participating in the offering of more securities than have been sold to them by us. In addition, those persons may stabilize or maintain the price of the securities by bidding for or purchasing securities in the open market or by imposing penalty bids, whereby selling concessions allowed to underwriters or dealers participating in any such offering may be reclaimed if securities sold by them are repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. Such transactions, if commenced, may be discontinued at any time. We make no representation or prediction as to the direction or magnitude of any effect that the transactions described above, if implemented, may have on the price of our securities.

Unless otherwise specified in the applicable prospectus supplement, any common stock sold pursuant to a prospectus supplement will be eligible for listing on a national securities exchange, such as the NYSE American or NASDAQ, subject to official notice of issuance. Any underwriters to whom securities are sold by us for public offering and sale may make a market in the securities, but such underwriters will not be obligated to do so and may discontinue any market making at any time without notice.

In order to comply with the securities laws of some states, if applicable, the securities offered pursuant to this prospectus will be sold in those states only through registered or licensed brokers or dealers. In addition, in some states securities may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and complied with.

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LEGAL MATTERS

The validity of the securities offered by this prospectus will be passed upon by The Matt Law Firm, PLLC Utica, New York.

EXPERTS

The financial statements incorporated in this prospectus by reference to the Annual Report on Form 10-K for the fiscal year ended December 31, 2016 have been so incorporated in reliance on the report of GBH CPAs, PC, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the informational requirements of the Securities Exchange Act of 1934, as amended, and in accordance therewith file annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission. Such reports, proxy statements and other information can be read and copied at the Securities and Exchange Commission's public reference facilities at 100 F Street, N.E., Washington, D.C. 20549, at prescribed rates. Please call the Securities and Exchange Commission at 1-800-732-0330 for further information on the operation of the public reference facilities. In addition, the Securities and Exchange Commission maintains a website that contains reports, proxy and information statements and other information regarding registrants that file electronically with the Securities and Exchange Commission. The address of the Securities and Exchange Commission's website is www.sec.gov.

We make available free of charge on or through our website at www.actiniumpharmaceuticals.com, our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, as soon as reasonably practicable after we electronically file such material with or otherwise furnish it to the Securities and Exchange Commission.

We have filed with the Securities and Exchange Commission a registration statement under the Securities Act of 1933, as amended, relating to the offering of these securities. The registration statement, including the attached exhibits, contains additional relevant information about us and the securities. This prospectus does not contain all of the information set forth in the registration statement. You can obtain a copy of the registration statement, at prescribed rates, from the Securities and Exchange Commission at the address listed above, or for free at www.sec.gov. The registration statement and the documents referred to below under “Incorporation of Certain Information By Reference” are also available on our website, www.actiniumpharmaceuticals.com.

We have not incorporated by reference into this prospectus the information on our website, and you should not consider it to be a part of this prospectus.

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INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The Securities and Exchange Commission allows us to “incorporate by reference” the information we have filed with it, which means that we can disclose important information to you by referring you to those documents. The information we incorporate by reference is an important part of this prospectus, and later information that we file with the Securities and Exchange Commission will automatically update and supersede this information. We incorporate by reference the documents listed below and any future documents (excluding information furnished pursuant to Items 2.02 and 7.01 of Form 8-K) we file with the Securities and Exchange Commission pursuant to Sections l3(a), l3(c), 14 or l5(d) of the Securities Exchange Act of 1934, as amended, subsequent to the date of this prospectus and prior to the termination of the offering:

• Our Annual Report on Form 10-K for the fiscal year ended December 31, 2016, filed with the Securities and Exchange Commission on March 16, 2017;

• Our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2017, filed with the Securities and Exchange Commission on May 15, 2017;

• Our Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2017, filed with the Securities and Exchange Commission on August 4, 2017;

• Our Current Report on Form 8-K, filed with the Securities and Exchange Commission on March 28, 2017;

• Our Current Report on Form 8-K, filed with the Securities and Exchange Commission on May 11, 2017;

• Our Current Report on Form 8-K, filed with the Securities and Exchange Commission on May 16, 2017;

• Our Current Report on Form 8-K/A, filed with the Securities and Exchange Commission on May 26, 2017;

• Our Current Report on Form 8-K, filed with the Securities and Exchange Commission on June 8, 2017;

• Our Current Report on Form 8-K, filed with the Securities and Exchange Commission on June 9, 2017;

• Our Current Report on Form 8-K, filed with the Securities and Exchange Commission on June 16, 2017;

• Our Current Report on Form 8-K, filed with the Securities and Exchange Commission on July 3, 2017;

• Our Current Report on Form 8-K, filed with the Securities and Exchange Commission on July 28, 2017;

• The description of our common stock, which is contained in our Form 8-K/A, filed with the Securities and Exchange Commission on January 28, 2013.

All filings filed by us pursuant to the Securities Exchange Act of 1934, as amended, after the date of the initial filing of this registration statement and prior to the effectiveness of such registration statement (excluding information furnished pursuant to Items 2.02 and 7.01 of Form 8-K) shall also be deemed to be incorporated by reference into the prospectus.

You should rely only on the information incorporated by reference or provided in this prospectus. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus is accurate as of any date other than the date of this prospectus or the date of the documents incorporated by reference in this prospectus.

We will provide without charge to each person to whom a copy of this prospectus is delivered, upon written or oral request, a copy of any or all of the information that has been incorporated by reference in this prospectus but not delivered with this prospectus (other than an exhibit to these filings, unless we have specifically

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incorporated that exhibit by reference in this prospectus). Any such request should be addressed to us at: 275 Madison Avenue, 7th Floor, New York, New York 10016, Attention: Steve O'Loughlin, Principal Financial Officer, or made by phone at (646) 677-3875. You may also access the documents incorporated by reference in this prospectus through our website at www.actiniumpharmceuticals.com. Except for the specific incorporated documents listed above, no information available on or through our website shall be deemed to be incorporated in this prospectus or the registration statement of which it forms a part.

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Shares of Common Stock

Warrants to Purchase Shares Common Stock

Prospectus Supplement

Sole Book-Running Manager

William Blair

April , 2019