

Actinium Pharmaceuticals, Inc.

Form 424B5

February 05, 2015

Filed Pursuant to Rule 424(b)(5)

Registration No. 333-194768

This preliminary prospectus supplement and the accompanying prospectus relate to an effective registration statement under the Securities Act of 1933, but the information in this preliminary prospectus supplement is not complete and may be changed. This preliminary prospectus supplement and the accompanying prospectus are not an offer to sell the securities and we are not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED FEBRUARY 5, 2015

**Preliminary Prospectus Supplement
(to Prospectus dated April 18, 2014)**

Shares of Common Stock

Warrants to purchase Shares of Common Stock

We are offering shares of our common stock pursuant to this prospectus supplement and the accompanying prospectus. Each investor will also receive a warrant to purchase of a share of our common stock at any time on or before months from the date of issuance and at an exercise price of \$ per share, for each share of common stock purchased. The shares of common stock and warrants are being sold at a combined price of \$ per share and warrant. The shares of common stock and warrants will be issued separately.

Our common stock is traded on the NYSE MKT under the symbol "ATNM." On February 4, 2015, the closing price of our common stock on the NYSE MKT was \$4.67 per share. There is no established public 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 nationally recognized trading system.

We have granted the underwriters an option for a period of 30 days to purchase up to _____ additional shares of our common stock.

Investing in our common stock involves a high degree of risk. See “Risk Factors” beginning on page S-8 of this prospectus supplement and in the documents we incorporate by reference into this prospectus supplement and the accompanying prospectus.

	Per Share and Accompanying Warrant (1)	Total
Public Offering Price	\$	\$
Underwriting Discounts and Commissions (2)	\$	\$
Proceeds to Actinium Pharmaceuticals, Inc. before expenses	\$	\$

The above summary of offering proceeds to us does not give effect to any exercise of the warrants being issued in this offering.

(1) The public offering price is \$ _____ per share of common stock and \$0.01 per warrant to purchase of a share of common stock.

(2) The underwriters will receive compensation in addition to the underwriting discount. See “Underwriting” for additional information regarding underwriting compensation.

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 supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

Delivery of the shares is expected to be made on or about February _____, 2015.

Sole Book-Running Manager

LIDLAW & COMPANY (UK) LTD.

Co-Manager

MLV & Co.

The date of this prospectus supplement is February , 2015

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ABOUT THIS PROSPECTUS SUPPLEMENT

This document is in two parts. The first part is the prospectus supplement, which describes the specific terms of this offering and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. 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 common stock 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-39 of this prospectus supplement. These documents contain information you should consider when making your investment decision. You should assume that the information in this prospectus supplement and the accompanying prospectus is accurate only as of the date on the front of the applicable document and that any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus supplement or the accompanying prospectus, or any sale of a security. Our business, financial condition, results of operations and prospects may have changed since those dates. 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. You should rely only on the information contained or incorporated herein by reference in this prospectus supplement and contained or incorporated therein by reference in the accompanying prospectus.

We are offering to sell, and seeking offers to buy, shares of our common stock and the warrants only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and/or the accompanying prospectus and the offering of the common stock and warrants 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 common stock and the distribution of this prospectus supplement and/or the accompanying prospectus outside the United States. This prospectus supplement and/or 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/or the accompanying prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

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 us, 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 common stock and accompanying warrants. 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 documents and notes 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.

The Company

Business Overview

We are a biopharmaceutical company focused on the \$54 billion market for cancer drugs, based on “The Global Use of Medicines: Outlook Through 2016 Report by the IMS Institute for Healthcare Informatics, July 2012”. Our most advanced products are Actimab™-A, an antibody-drug construct containing actinium 225 (Ac-225), currently in human clinical trials for acute myeloid leukemia (AML) and Iomab™-B, an antibody-drug construct containing iodine 131 (I-131), used in myeloconditioning for hematopoietic stem cells transplantation (HSCT) in various indications. We are currently preparing for a Phase 3 trial of Iomab™-B for bone marrow conditioning for HSCT in relapsed and refractory AML patients over the age of 55, which we intend to submit for marketing approval. We are currently also considering filing an application with the U.S. Food and Drug Administration (FDA) for breakthrough therapy designation for Actimab™-A and/or Iomab™-B. We are developing our cancer drugs using our expertise in radioimmunotherapy. In addition, our Ac-225 based drug development relies on the patented Alpha Particle Immunotherapy Technology (APIT) platform technology co-developed with Memorial Sloan Kettering Cancer Center (MSKCC), whose indirect subsidiary, Actinium Holdings Ltd., is a significant stockholder of us. The APIT technology couples monoclonal antibodies (mAb) with extremely potent but comparatively safe alpha particle emitting radioactive isotopes, in particular actinium 225 and bismuth 213. The final drug construct is designed to specifically target and kill cancer cells while minimizing side effects. We intend to develop a number of products for different types of cancer and derive revenue from partnering relationships with large pharmaceutical companies and/or direct sales of its products in specialty markets in the United States.

Business Strategy

We intend to potentially develop our most advanced clinical stage product candidates through approval in the case of Iomab™-B, and up to and including a Phase 2 proof of concept human clinical trial (a trial designed to provide data on the drug's efficacy) in the case of Actimab™-A. 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. In the case of Actimab™-A, 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 actinium-225 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.

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Market Opportunity

We are competing in the marketplace for cancer treatments estimated at over \$83-88 billion in 2012 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 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 (NHL). It is also used experimentally with different carriers in other cancers. Ac-225 has many unique properties and we are a leader in developing this alpha emitter for clinical applications using its proprietary APIT technology.

Our most advanced products are Actimab™-A, Ac-225 labeled mAb for treatment of newly diagnosed AML, a cancer of the blood, in patients ineligible for currently approved therapies; and Iomab™-B, I-131 labeled mAb for preparation of relapsed and refractory AML patients for HSCT. Iomab™-B offers a potentially curative treatment for these patients, most of whom do not survive beyond a year after being diagnosed with this condition. Iomab™-B has also demonstrated efficacy in HSCT preparation for other blood cancer indications, including myelodysplastic syndrome (MDS), acute lymphoblastic leukemia (ALL), Hodgkin’s Lymphoma, and NHL. These are all follow-on indications for which Iomab™-B can be developed and it is our intention to explore these opportunities if and when financing becomes available. 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.

Other potential product opportunities in which a significant amount of 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 is approximately \$1.1 billion.

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

In November 2014, the FDA granted orphan-drug designation 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.

Clinical Trials

Actimab™-A

Actimab™-A is our product currently in multicenter Phase 1/2 clinical trial in AML. It consists of the monoclonal antibody Lintuzumab and alpha emitting radioisotope actinium 225 (Ac-225). The indication in the ongoing trial is newly diagnosed AML patients over the age of 60.

Previous clinical trials leading to this trial included:

Phase 1 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;

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.

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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 receive a full dose and in 83% of those treated at dose levels above 0.5 microcuries per kilogram ($\mu\text{Ci}/\text{kg}$), 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 $\mu\text{Ci}/\text{kg}$. Maximum tolerated single dose in this trial was established at 3 $\mu\text{Ci}/\text{kg}$.

High potency means that a relatively low amount of drug is needed to produce a given effect. In preclinical and Phase I clinical studies, Actimab-A (^{225}Ac -lintuzumab) has demonstrated at least 500-1000 times higher potency than the first-generation predecessor (^{213}Bi -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 ^{225}Ac (compared to 1 alpha decay for bismuth 213) and much longer half life (10 day for ^{225}Ac vs 46 minutes for ^{213}Bi).

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 (^{213}Bi -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; Phase 1 Trial of the Targeted Alpha- Particle Nano-Generator Actinium-225 (^{225}Ac)-Lintuzumab in Acute Myeloid Leukemia (AML); McDevitt MR et al, *Science* 2001, 294:1537—1540; *J Clin Oncol* 29:2011 (suppl, abstr 6516); Rosenblat TL et al *Clin Cancer Res.* 2010, 16(21):5303-5311; Jurcic JG et al. *Blood (ASH Meeting Abstracts)* 2012.

Ongoing Actimab™-A trial:

We have commenced our first company sponsored Phase 1/2 multi-center trial with fractionated (two) doses of Actimab™-A, our lead product candidate for treatment of elderly AML that consists of an AML specific monoclonal antibody (HuM195, also known as Lintuzumab™) and the actinium 225 radioactive isotope attached to it. We are conducting this trial at world-class cancer institutions such as MSKCC, Johns Hopkins Medicine, University of

Pennsylvania Health System, Fred Hutchinson Cancer Center and MD Anderson Cancer Center.

BismabTM-A trials and the Phase 1 ActimabTM-A trial were focused on relapsed, refractory and other difficult to treat acute myeloid leukemia patients. The current multicenter Phase 1/2 trial is focused on newly diagnosed AML patients who have historically had better outcomes. In addition, the new trial includes low doses of chemotherapy with the goal of further improving patient outcomes.

IomabTM-B

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

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Previous Iomab™-B clinical trials leading to the planned Phase 3 trial currently in preparation 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 (age 50+)	68 in dose escalation study 31 treated at MTD	-CR (complete remission) in all patients -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 day28

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 in preparation:

While we do not have a Special Protocol Assessment from the FDA with respect to our planned Phase 3 trial of Iomab™-B, we have obtained FDA's comment and guidance on the Phase 3 clinical trial design, and the FDA has 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 over the age of 55, 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).

For the three and nine months ended September 30, 2014, we had no revenue and our net loss was approximately \$6.1 million and \$19.3 million, respectively. For the twelve months ended December 31, 2013, we had no revenue and our net loss was approximately \$10.8 million.

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We have developed or in-licensed numerous patents and patent applications and possess substantial know-how and trade secrets relating to the development and commercialization of our products. As of February 5, 2015, our patent portfolio includes: 39 issued and pending patents, of which 7 are issued in the United States, 30 are issued or pending internationally, and 2 are pending in the United States. Many of the patents are in-licensed from third parties and some are held by us. These patents cover key areas of our business, including use of the actinium-225 and other alpha emitting isotopes attached to cancer specific carriers like monoclonal antibodies, methods for manufacturing key components of our product candidates including actinium-225 alpha emitting radioisotope and carrier antibodies, and methods for manufacturing finished product candidates for use in cancer treatment. The table below classifies these patents by related family:

Area	Description	US Expiration	US Status	Owner/ Licensor
Platform technology	Metastases larger than 1 mm	2019	Issued	MSKCC
Platform technology	Antibody conjugates with DOTA chelators; methods of treating cancer using the same	2021	Issued	MSKCC
Drug preparation methods	Actinium 225 labeling method (binding to an antibody)	2030	Pending	Owned
Drug preparation methods	Bismuth 213 labeling method (binding to an antibody)	2019	Issued	MSKCC
Isotope production methods	Actinium 225 manufacturing in a cyclotron	2026/2027	Issued	Owned
Monoclonal antibody composition and production	Manufacturing of leukemia targeting antibody	2014	Issued	Abbvie

There are no patents covering IomabTM-B; however, 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 milestones, royalties and research support.

Patents related to the antibody component of Actimab-A have been exclusively licensed by us from AbbVie Biotherapeutics Corp. (formerly Abbott 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, a negotiation right to be our clinical and/or commercial antibody supplier, a negotiation right to co-promote ActimabTM-A in the United States on terms to be negotiated, and the grant-back of IP rights covering

improvements to the antibody for use other than with an alpha-emitting isotope. Patents covering actinium-225 conjugated to antibodies have been exclusively licensed by us from Memorial Sloan-Kettering Cancer Research Center (MSKCC) in exchange for license fees, research support payments, development milestones, 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. As of December 31, 2014, we owe MSKCC approximately \$0.3 million in past fees and research support payments. We source actinium-225 under an agreement with the Oak Ridge National Laboratory (ORNL) that expires at the end 2015. We believe, but cannot guarantee, that we will be able to renew this contract for additional annual periods.

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Recent Financings and Unregistered Sales of Equity Securities

Recent Financings

On June 30, 2014, the Company received gross proceeds of approximately \$12.5 million from the public offering of 1,670,000 shares of the Company's common stock, \$0.001 par value per share at a price to the public of \$7.50 per share less underwriting discounts. The Company paid an underwriting discount of \$0.9 million, paid other offering expenses of \$125,000 and paid attorney and auditor fees of \$72,000 resulting in net proceeds of approximately \$11.5 million. Under the terms of the underwriting agreement, the Company granted the underwriters a 30-day option to purchase up to an additional 250,000 shares of common stock to cover over-allotments, if any, at the offering price. On July 10, 2014, the underwriters exercised their over- allotment and purchased an additional 157,123 shares of the Company's common stock for gross proceeds of approximately \$1.2 million.

Unregistered Sales of Equity Securities

On May 13, 2014 the Company issued 150,000 shares of common stock having a fair value of \$1,237,500 (\$8.25 per share) in exchange for consulting services.

On June 11, 2014 the Company issued 12,500 shares of common stock having a fair value of \$104,375 (\$8.35 per share) in exchange for consulting services.

On July 25, 2014, the Company issued 150,000 shares of common stock having a fair value of \$1,048,500 (\$6.99 per share) in exchange for consulting services.

On September 18, 2014, the Company issued 7,874 shares of common stock having a fair value of \$50,000(\$6.35 per share) in exchange for consulting services.

The Company determined that the securities described above were issued in transactions that were exempt from the registration under the Securities Act of 1933, as amended (the "Securities Act"), pursuant to Section 4(a)(2) thereunder. This determination was based on the non-public manner in which we offered the securities and on the representations of the recipients of the securities, which included, in pertinent part, that they were "accredited investors" within the meaning of Rule 501 of Regulation D promulgated under the Securities Act, that they were acquiring such securities

for investment purposes for their own account and not with a view toward resale or distribution, and that they understood such securities may not be sold or otherwise disposed of without registration under the Securities Act or an applicable exemption therefrom.

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 546 5th Avenue, 14th Floor, New York, New York 10036. Our telephone number is (646) 459-4201. Our website address is www.actiniumpharma.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

Common Stock Offered by Us shares of our common stock, par value \$0.001 per share.

Warrants Offered by Us Warrants to purchase up to shares of common stock. The warrants will be exercisable during the period commencing on the date of original issuance and ending months from such issuance date at an exercise price of \$ per share of common stock. The form of warrant is attached as Annex A to this prospectus supplement. This prospectus also relates to the offering of the shares of common stock issuable upon exercise of the warrants.

Common Stock to be Outstanding Immediately After this Offering shares of our common stock, par value \$0.001 per share.

Over-allotment Option We have granted the underwriters an option to purchase up to additional shares of our common stock and/or up to additional warrants to purchase shares of our common stock. This option is exercisable, in whole or in part, for a period of 30 days from the date of this prospectus supplement.

Use of Proceeds We currently intend to use the net proceeds from the sale of securities offered by this prospectus for general corporate purposes, including capital expenditures, the advancement of our product candidates in clinical trials, such as IomabTM-B Phase 3 clinical trial and ActimabTM-A Phase 2 clinical trial, preclinical trials, to support licensing activities, and to meet working capital needs. See "Use of Proceeds" on page S-30.

Risk Factors See "Risk Factors" beginning on page S-8 of this prospectus supplement, page 6 of the accompanying prospectus and the "Risk Factors" sections of our Annual Report on Form 10-K for the year ended December 31, 2013 for a discussion of factors that you should read and consider before investing in our securities. To the extent that the risk factors contained in this prospectus supplement, the accompanying prospectus or our annual or quarterly reports differ, the risk factors contained in this prospectus supplement shall control.

NYSE MKT symbol ATNM.

The number of shares of our common stock that will be outstanding immediately after the offering is based on 30,910,496 shares outstanding as of February 5, 2015. Unless we specifically state otherwise, the share information in this prospectus supplement excludes:

2,998,084 shares of common stock issuable upon the exercise of stock options outstanding as of September 30, 2014 under our equity incentive plans, with a weighted average exercise price of \$5.98 per share;

2,441,516 shares of common stock available for future grants under our equity incentive plans as September 30, 2014;

732,871 shares of common stock issuable upon the exercise of restricted stock units outstanding as of September 30, 2014; and

7,933,747 shares of common stock issuable upon the exercise of warrants outstanding as of September 30, 2014, with a weighted average exercise price of \$1.47 per share.

Unless otherwise indicated, this prospectus supplement reflects and assumes no exercise of the warrants to be issued to the investors in this Offering and no exercise by the underwriters of their over-allotment option.

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RISK FACTORS

An investment in our securities involves a high degree of risk. Before deciding whether to invest in our securities, you should carefully consider the risks and uncertainties described in this prospectus supplement, the accompanying prospectus and in the documents incorporated by reference. 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 and in the accompanying prospectus entitled “Special Note Regarding Forward-Looking Statements.” Please note that additional risks not presently known to us or that we currently deem immaterial may also impair our business and operations.

Risks Related to Our Business

We have generated no revenue from commercial sales to date and our future profitability is uncertain.

We have a limited operating history and our business is subject to all of the risks inherent in the establishment of a new business enterprise. Our likelihood of success must be considered in light of the problems, expenses, difficulties, complications and delays frequently encountered in connection with this development and expansion. Since we began our business, we have focused on research, development and clinical trials of product candidates, and have incurred losses since inception. As of September 30, 2014, we had an accumulated deficit of approximately \$85.8 million. If we continue to incur operating losses and fail to become a profitable company, we may be unable to continue our operations. We expect to continue to operate at a net loss as we continue our research and development efforts, continue to conduct clinical trials and develop manufacturing, sales, marketing and distribution capabilities. There can be no assurance that the products under development by us will be approved for sale in the United States or elsewhere. Furthermore, there can be no assurance that if such products are approved they will be successfully commercialized, and the extent of our future losses and the timing of our profitability are highly uncertain.

If we fail to obtain the capital necessary to fund our operations, we will be unable to continue or complete our product development and you will likely lose your entire investment.

We do not currently have sufficient capital for the development and commercialization of our lead product candidate and we will need to continue to seek capital from time to time to continue development of our lead product candidates and to acquire and develop other product candidates. Our first product candidate is not expected to be commercialized,

if approved, until at least 2017 and we do not expect that the partnering revenues it will generate will be sufficient to fund our ongoing operations. Our cash balance as of September 30, 2014 was approximately \$11.8 million. We expect that we will need approximately \$25 million over the next 12 months to finance research and development and to cover our ongoing working capital needs.

Our business or operations may change in a manner that would consume available funds more rapidly than anticipated and substantial additional funding may be required to maintain operations, fund expansion, develop new or enhanced products, acquire complementary products, business or technologies or otherwise respond to competitive pressures and opportunities, such as a change in the regulatory environment or a change in preferred cancer treatment modalities. However, we may not be able to secure funding when we need it or on favorable terms.

To raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock. We cannot assure you that we will be able to sell shares or other securities in any other offering at a price per share that is equal to or greater than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock or other securities convertible into or exchangeable for our common stock in future transactions may be higher or lower than the price per share in this offering. Additionally, you may incur dilution as a result of grants of equity awards under our equity incentive plans, or upon exercise of options or warrants currently outstanding with exercise prices at or below the public offering price of our common stock in this offering. See the section entitled "Dilution" below for a more detailed discussion of the dilution you will incur if you purchase common stock and accompanying warrants in this offering.

If we cannot raise adequate funds to satisfy our capital requirements, we will have to delay, scale-back or eliminate our research and development activities, clinical studies or future operations. We may also be required to obtain funds through arrangements with collaborators, which arrangements may require us to relinquish rights to certain technologies or products that we otherwise would not consider relinquishing, including rights to future product candidates or certain major geographic markets. We may further have to license our technology to others. This could result in sharing revenues which we might otherwise have retained for ourselves. Any of these actions may harm our business, financial condition and results of operations.

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The amount of capital we may need depends on many factors, including the progress, timing and scope of our product development programs; the progress, timing and scope of our preclinical studies and clinical trials; the time and cost necessary to obtain regulatory approvals; the time and cost necessary to further develop manufacturing processes and arrange for contract manufacturing; our ability to enter into and maintain collaborative, licensing and other commercial relationships; and our partners' commitment of time and resources to the development and commercialization of our products.

We have limited access to the capital markets and even if we can raise additional funding, we may be required to do so on terms that are dilutive to you.

We have limited access to the capital markets to raise capital. The capital markets have been unpredictable in the recent past for radio-immunotherapy and other oncology companies and unprofitable companies such as ours. In addition, it is generally difficult for development stage companies to raise capital under current market conditions. The amount of capital that a company such as ours is able to raise often depends on variables that are beyond our control. As a result, we may not be able to secure financing on terms attractive to us, or at all. If we are able to consummate a financing arrangement, the amount raised may not be sufficient to meet our future needs. If adequate funds are not available on acceptable terms, or at all, our business, including our technology licenses, results of operations, financial condition and our continued viability will be materially adversely affected.

If we fail to obtain or maintain necessary FDA approval for our radio-immunotherapy products, or if such approvals are delayed, we will be unable to commercially distribute and market our products.

Our products are subject to rigorous regulation by the FDA and numerous other federal, state and foreign governmental authorities. The process of seeking regulatory approval to market a radio-immunotherapy product is expensive and time-consuming and, notwithstanding the effort and expense incurred, approval is never guaranteed. If we are not successful in obtaining timely approval of Company products from the FDA, we may never be able to generate significant revenue and may be forced to cease operations. In particular, the FDA permits commercial distribution of a new radio-immunotherapy product only after a Biologics License Application (BLA) for the product has received FDA approval. The BLA process is costly, lengthy and inherently uncertain. Any BLA filed by us will have to be supported by extensive data, including, but not limited to, technical, preclinical, clinical trial, manufacturing and labeling data, to demonstrate to the FDA's satisfaction the safety and efficacy of the product for its intended use. The lengthy approval process as well as the unpredictability of future clinical trial results may result in our failing to obtain regulatory approval to market our product candidates, which would significantly harm our business, results of operations and prospects. In addition, even if we were to obtain approval, regulatory authorities may approve any of our product candidates for fewer or more limited indications than we request, may not approve the price we intend to charge for our products, may grant approval contingent on the performance of costly post-marketing clinical trials, or may approve a product candidate with a label that does not include the labeling claims necessary or desirable for the successful commercialization of that product candidate. Any of the foregoing scenarios could materially harm the commercial prospects for our product candidates.

The approval process in the United States and in other countries could result in unexpected and significant costs for us and consume management's time and other resources. The FDA and other foreign regulatory agencies could ask us to supplement our submissions, collect non-clinical data, conduct additional clinical trials or engage in other time-consuming actions, or it could simply deny our applications. In addition, even if we obtain approval to market our products in the United States or in other countries, the approval could be revoked or other restrictions imposed if post-market data demonstrates safety issues or lack of effectiveness. We cannot predict with certainty how, or when, the FDA or other regulatory authorities will act. If we are unable to obtain the necessary regulatory approvals, our financial condition and cash flow may be materially adversely affected, and our ability to grow domestically and internationally may be limited. Additionally, even if we obtain approval, regulatory authorities may approve any of our product candidates for fewer or more limited indications that we request. The Company's products may not be approved for the specific indications that are most necessary or desirable for successful commercialization or profitability.

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Our radio-immunotherapy product candidates are in the early stages of development; and we have not demonstrated that any of our products are safe and effective for any indication.

We currently have only two products in clinical development. We have commenced a Phase 1/2 multi-center AML trial with fractionated doses of Actimab™-A under its own federal Investigational New Drug Application (IND). Additionally, there are a number of physician IND trials at the FHCRC that have been conducted or are currently ongoing at FHCRC with single doses of Iomab™-B. We plan to file our own IND prior to initiating our planned Phase 3 study of Iomab™-B.

We cannot predict whether we will encounter problems with any of our ongoing or planned clinical trials that will cause us or regulatory authorities to delay, suspend, or discontinue clinical trials or to delay the analysis of data from ongoing clinical trials. Any of the following could delay or disrupt the clinical development of our product candidates and potentially cause our product candidates to fail to receive regulatory approval:

· conditions imposed on us by the FDA or comparable foreign authorities regarding the scope or design of our clinical trials;

· delays in receiving, or the inability to obtain, required approvals from institutional review boards (IRBs) or other reviewing entities at clinical sites selected for participation in our clinical trials;

· delays in enrolling patients into clinical trials;

· a lower than anticipated retention rate of patients in clinical trials;

· the need to repeat or discontinue clinical trials as a result of inconclusive or negative results or unforeseen complications in testing or because the results of later trials may not confirm positive results from earlier preclinical studies or clinical trials;

· inadequate supply, delays in distribution deficient quality of, or inability to purchase or manufacture drug product, comparator drugs or other materials necessary to conduct our clinical trials;

· unfavorable FDA or other foreign regulatory inspection and review of a clinical trial site or records of any clinical or preclinical investigation;

· serious and unexpected drug-related side effects experienced by participants in our clinical trials, which may occur even if they were not observed in earlier trials or only observed in a limited number of participants;

- a finding that the trial participants are being exposed to unacceptable health risks;
- the placement by the FDA or a foreign regulatory authority of a clinical hold on a trial; or
- delays in obtaining regulatory agency authorization for the conduct of our clinical trials.

We may suspend, or the FDA or other applicable regulatory authorities may require us to suspend, clinical trials of a product candidate at any time if we or they believe the patients participating in such clinical trials, or in independent third party clinical trials for drugs based on similar technologies, are being exposed to unacceptable health risks or for other reasons.

Further, individuals involved with our clinical trials may serve as consultants to us from time to time and receive stock options or cash compensation in connection with such services. If these relationships and any related compensation to the clinical investigator carrying out the study result in perceived or actual conflicts of interest, or the FDA concludes that the financial relationship may have affected interpretation of the study, the integrity of the data generated at the applicable clinical trial site may be questioned and the utility of the clinical trial itself may be jeopardized. The delay, suspension or discontinuation of any of our clinical trials, or a delay in the analysis of clinical data for our product candidates, for any of the foregoing reasons, could adversely affect our efforts to obtain regulatory approval for and to commercialize our product candidates, increase our operating expenses and have a material adverse effect on our financial results.

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Clinical trials may also be delayed or terminated as a result of ambiguous or negative interim results. In addition, a clinical trial may be suspended or terminated by us, the FDA, the IRBs at the sites where the IRBs are overseeing a trial, or a data safety monitoring board, or DSMB, overseeing the clinical trial at issue, or other regulatory authorities due to a number of factors, including:

- failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols;
- inspection of the clinical trial operations or trial sites by the FDA or other regulatory authorities resulting in the imposition of a clinical hold;
- varying interpretation of data by the FDA or similar foreign regulatory authorities;
- failure to achieve primary or secondary endpoints or other failure to demonstrate efficacy;
- unforeseen safety issues; or
- lack of adequate funding to continue the clinical trial.

Additionally, changes in regulatory requirements and guidance may occur and we may need to amend clinical trial protocols to reflect these changes. Amendments may require us to resubmit our clinical trial protocols to IRBs for reexamination, which may impact the cost, timing or successful completion of a clinical trial.

In addition, neither we nor any relevant collaborative partner(s) has yet undertaken any clinical assessment or investigation of Company radio-immunotherapy product candidates for other indications, including colon cancer or prostate cancer. Significant further investment may be required to acquire antibody rights and to undertake necessary research and continued development. Further laboratory and specific clinical testing will be required prior to regulatory approval of any product candidates. Adverse or inconclusive results from pre-clinical testing or clinical trials of product candidates may substantially delay, or halt entirely, any further development of one or more of our products. The projected timetables for continued development of the technologies and related product candidates by us may otherwise be subject to delay or suspension.

Modifications to our product candidates may require federal approvals.

The BLA application is the vehicle through which the company may formally propose that the FDA approve a new pharmaceutical for sale and marketing in the United States. Once a particular product candidate receives FDA approval, expanded uses or uses in new indications of our products may require additional human clinical trials and new regulatory approvals, including additional IND and BLA submissions and premarket approvals before we can begin clinical development, and/or prior to marketing and sales. If the FDA requires new approvals for a particular use or indication, we may be required to conduct additional clinical studies, which would require additional expenditures and harm our operating results. If the products are already being used for these new indications, we may also be subject to significant enforcement actions.

Conducting clinical trials and obtaining approvals can be a time-consuming process, and delays in obtaining required future approvals could adversely affect our ability to introduce new or enhanced products in a timely manner, which in turn would harm our future growth.

There is no guarantee that the FDA will approve BLAs for our product candidates and failure to obtain necessary approvals for our product candidates would adversely affect our ability to grow our business.

We have recently commenced a multi-center Phase 1/2 clinical trial for our lead product candidate, ActimabTM-A, in AML and in the future expect to submit a BLA to the FDA for approval of this product. This product candidate is also the subject of an ongoing human safety trial being conducted under a physician IND at MSKCC. We are in the early stages of evaluating other product candidates consisting of conjugates of Ac-225 with human or humanized antibodies for pre-clinical and clinical development in other types of cancer. In June 2012, we acquired rights to IomabTM, a Phase 2 clinical stage monoclonal antibody with safety and efficacy data in more than 250 patients in need of HSCT. Product candidates utilizing this antibody would also require BLA approval before they can be marketed in the United States. The FDA may not approve these products for the indications that are necessary or desirable for successful commercialization. Indeed, the FDA may fail to approve any BLA we submit for new product candidates or for new intended uses or indications for approved products or future product candidates. Failure to obtain FDA approval for our products in the proposed indications would have an adverse effect on our ability to expand our business.

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Clinical trials necessary to support approval of BLAs for our product candidates will be time consuming and expensive. Delays or failures in our clinical trials may prevent us from commercializing our product candidates and will adversely affect our business, operating results and prospects and could cause us to cease operations.

Initiating and completing clinical trials necessary to support FDA approval of a BLA for Actimab™-A and other product candidates, is a time-consuming and expensive process, and the outcome is inherently uncertain. Moreover, the results of early clinical trials are not necessarily predictive of future results, and any product candidate we advance into clinical trials may not have favorable results in later clinical trials. We have worked with the FDA to develop a clinical trial designed to test the initial safety and efficacy of Actimab™-A in newly diagnosed AML patients over the age of 60, and on October 6, 2008, and January 5, 2009, we submitted IND amendments to the FDA for the conduct of a multi-center Phase 1/2 clinical trial for treatment of AML. The trial is now underway with the purpose of examining the use of Actimab™-A in AML patients who are not eligible for approved forms of treatment with curative intent. The trial is not designed to support marketing approval for the product candidate, and one or more additional trials will have to be conducted in the future before we file a BLA. In addition, there can be no assurance that the data generated during the trial will meet our chosen safety and effectiveness endpoints or otherwise produce results that will eventually support the filing or approval of a BLA. Even if the data from this trial are favorable, these data may not be predictive of the results of any future clinical trials.

The issued patents, which are licensed by us for the HuM-195 antibody, our acute myeloid leukemia targeting antibody, may expire before we have commercialized Actimab™-A.

The humanized antibody which we use in the conjugated Actimab™-A product candidate is covered by the claims of issued patents that we license from Facet Biotech Corporation, a wholly-owned subsidiary of Abbott Laboratories (“Facet”). After these patents expire, others may be eventually able to use an antibody with the same sequence, and we will then need to rely on additional patent protection covering alpha particle drug products comprising actinium 225. Any competing product based on the HuM-195 antibody is likely to require several years of development before achieving our product candidate’s current status and may be subject to significant regulatory hurdles, but is nevertheless a possibility that can affect the Company’s business in the future.

Additionally, because we expect that certain of these patents will expire prior to commercialization of Actimab™-A, we expect that in order to attract a commercialization partner for that product candidate, we may need to reach an agreement with Facet to reduce the milestone payments and royalties currently required to be paid under our license agreement for HuM-195. There can be no assurance that the parties will be able to agree on an amendment to the terms of the license. Failure to reach such an agreement could materially adversely affect our ability to find a commercialization partner for Actimab™-A which may materially harm our business.

Iomab™-B is not patent protected.

Neither the antibody portion nor the composition of matter as a whole for the conjugated Iomab™ product candidate is covered by the claims of any issued or pending patents. Accordingly, there are no patents that would prevent others from using an antibody with the same antibody sequence in any drug product (e.g., those comprising iodine 131 or alpha particle emitters). Any competing product based on the antibody used in Iomab-B™ is likely to require several years of development before achieving our product candidate's current status and may be subject to significant regulatory hurdles, but is nevertheless a possibility that could negatively impact the Company's business in the future.

We may be unable to obtain a sufficient supply of Ac-225 medical grade isotope in order to continue clinical trials and to allow for the manufacture of commercial quantities of Actimab™-A

There are limited quantities of Ac-225 available today. The existing supplier of Ac-225 to us is the ORNL, which is a science and energy national laboratory in the Department of Energy system. ORNL manufactures Ac-225 by eluting it from its supply of Thorium-229. Although this has proven to be a very reliable source of production for a number of years, it is limited by the quantity of Thorium-229 at ORNL. We believe that the current approximate maximum of Ac-225 production from this source is sufficient for approximately 1,000–2,000 patient treatments per year. Since our needs are significantly below that amount at this time, and will continue to be below that for as long as we do not have a commercial product with a potential of selling more than 2,000 patient doses per year, we believe that this supply will be sufficient for completion of clinical trials and early commercialization. To secure supplies beyond this amount, we have developed what we believe to be a scalable cost-effective process for manufacturing Ac-225 in a cyclotron at an estimated cost in excess of \$5 million. This work has been conducted at Technical University Munich (TUM) in Germany. We are now in possession of detailed descriptions of all the developed manufacturing procedures and have rights to all relevant patent applications and other intellectual property. However, we do not currently have access to a commercial cyclotron capable of producing medical grade Ac-225. Although beam time on such cyclotrons is commercially available, we do not currently have a relationship with any entity that owns or controls a suitable cyclotron. We have identified possible sources and estimate that we could secure the necessary beam time when needed at a cost of approximately \$2 million per year. In the meantime, our contract for supply of this isotope from ORNL must be renewed yearly, and the current contract extends through the end of 2015. While we expect this contract will be renewed at the end of its term, there can be no assurance that ORNL will decide to renew the contract or that the United States Department of Energy will not change its policies that allow for the sale of isotope to us. Failure to acquire sufficient quantities of medical grade Ac-225 would make it impossible to effectively complete clinical trials and to commercialize Actimab™-A and would materially harm our business.

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Conducting successful clinical studies may require the enrollment of large numbers of patients, and suitable patients may be difficult to identify and recruit.

Patient enrollment in clinical trials and completion of patient participation and follow-up depends on many factors, including the size of the patient population; the nature of the trial protocol; the availability of approved effective treatments for the relevant disease; competition from other clinical trial programs for similar indications; the attractiveness of, or the discomforts and risks associated with, the treatments received by enrolled subjects; the availability of appropriate clinical trial investigators; support staff; and proximity of patients to clinical sites and ability to comply with the eligibility and exclusion criteria for participation in the clinical trial and patient compliance. For example, patients may be discouraged from enrolling in our clinical trials if the trial protocol requires them to undergo extensive post-treatment procedures or follow-up to assess the safety and effectiveness of our product candidates or if they determine that the treatments received under the trial protocols are not attractive or involve unacceptable risks or discomforts. Patients may also not participate in our clinical trials if they choose to participate in contemporaneous clinical trials of competitive product candidates. In addition, patients participating in refractory AML clinical trials are seriously and often terminally ill and therefore may not complete the clinical trial due to reasons including comorbid conditions or occurrence of adverse medical events related or unrelated to the investigational products, or death.

Development of sufficient and appropriate clinical protocols to demonstrate safety and efficacy are required and we may not adequately develop such protocols to support approval.

The FDA may require us to submit data on a greater number of patients than we originally anticipated and/or for a longer follow-up period or change the data collection requirements or data analysis applicable to our clinical trials. It may also require additional data on certain categories of patients, should it emerge during the conduct of our clinical trials that certain categories of patients are likely to be affected in different and/or additional manners than the rest of the patient population. In addition to FDA requirements, our clinical trials require the approval of the IRB at each site selected. We have submitted our clinical trial protocol for our current ActimabTM-A clinical trial to the IRBs at participating sites for approval and we have thus far obtained approval from five IRBs. Our clinical trial protocols have not been rejected by any IRB to date.

FDA may take actions that would prolong, delay, suspend, or terminate clinical trials of our product candidates, which may delay or prevent us from commercializing our product candidates on a timely basis, causing us to incur additional costs and delay our receipt of any revenue from potential product sales.

There can be no assurance that the data generated in our clinical trials will be acceptable to FDA or that if future modifications during the trial are necessary, that any such modifications will be acceptable to FDA. Certain modifications to a clinical trial protocol made during the course of the clinical trial have to be submitted to the FDA. This could result in the delay or halt of a clinical trial while the modification is evaluated. In addition, depending on

the quantity and nature of the changes made, FDA could take the position that some or all of the data generated by the clinical trial is not usable because the same protocol was not used throughout the trial. This might require the enrollment of additional subjects, which could result in the extension of the clinical trial and the FDA delaying approval of a product candidate. If the FDA believes that its prior approval is required for a particular modification, it can delay or halt a clinical trial while it evaluates additional information regarding the change.

Serious injury or death resulting from a failure of one of our product candidates during current or future clinical trials could also result in the FDA delaying our clinical trials or denying or delaying approval of a product candidate.

The Phase 1 portion of the ongoing Phase 1/2 clinical trial for Actimab™-A being conducted at MSKCC was designed to establish the maximum tolerated dose of the product. As the Company expected, patients receiving highest dose of the drug administered in the trial so far had prolonged bone marrow suppression which could lead to fatal infections and other severe consequences. Consequently, the dose levels of our drug in that trial were reduced as we continue our work on establishing maximum tolerated dose.

Even though an adverse event may not be the result of our product candidate, the FDA or an IRB could delay or halt a clinical trial for an indefinite period of time while an adverse event is reviewed, and likely would do so in the event of multiple such events.

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Any delay or termination of our current or future clinical trials as a result of the risks summarized above, including delays in obtaining or maintaining required approvals from IRBs, delays in patient enrollment, the failure of patients to continue to participate in a clinical trial, and delays or termination of clinical trials as a result of protocol modifications or adverse events during the trials, may cause an increase in costs and delays in the filing of any submissions with the FDA, delay the approval and commercialization of our product candidates or result in the failure of the clinical trial, which could adversely affect our business, operating results and prospects. Lengthy delays in the completion of our Actimab™-A clinical trials would adversely affect our business and prospects and could cause us to cease operations.

If the third parties on which we rely to conduct our clinical trials and to assist us with pre-clinical development do not perform as contractually required or expected, or fail to comply with applicable regulations and standards, we may not be able to obtain regulatory approval for or commercialize our product candidates.

We do not have the ability to independently conduct our pre-clinical and clinical trials for our product candidates and we must rely on third parties, such as contract research organizations, medical institutions, clinical investigators and contract laboratories to conduct such trials. Our reliance on these third parties for clinical development activities results in reduced control over these activities. Moreover, the FDA requires us to comply with regulations and standards, commonly referred to as GCPs, for conducting, recording and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the trial participants are adequately protected. Our reliance on third parties does not relieve us of these responsibilities and requirements. If we or any of our third party contractors fail to comply with applicable GCPs, the clinical data generated in our clinical trials may be deemed unreliable and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. We cannot assure you that upon inspection by a given regulatory authority, such regulatory authority will determine that any of our clinical trials complies with GCP regulations. In addition, our clinical trials must be conducted with product produced under current good manufacturing practice, or cGMP, regulations. Our failure to comply with these regulations may require us to repeat clinical trials, which would delay the regulatory approval process.

To date, we believe our consultants, contract research organizations and other similar entities with which we are working have performed well; however, if these third parties do not successfully carry out their contractual duties, meet expected deadlines, or comply with applicable regulations, we may be required to replace them. Although we believe that there are a number of other third-party contractors we could engage to continue these activities, we may not be able to enter into arrangements with alternative third-party contractors or to do so on commercially reasonable terms, which may result in a delay of our planned clinical trials. Accordingly, we may be delayed in obtaining regulatory approvals for our product candidates and may be delayed in our efforts to successfully develop our product candidates.

In addition, our third-party contractors are not our employees, and except for remedies available to us under our agreements with such third-party contractors, we cannot control whether or not they devote sufficient time and resources to our ongoing clinical, nonclinical and preclinical programs. If these third parties do not successfully carry

out their contractual duties or regulatory obligations or meet expected deadlines, if these third parties need to be replaced, or if the quality or accuracy of the data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements or for other reasons, our pre-clinical development activities or clinical trials may be extended, delayed, suspended or terminated, and we may not be able to obtain regulatory approval for, or successfully commercialize, our product candidates on a timely basis, if at all, and our business, operating results and prospects may be adversely affected. Furthermore, our third-party clinical trial investigators may be delayed in conducting our clinical trials for reasons outside of their control.

The future results of our current or future clinical trials may not support our product candidate claims or may result in the discovery of unexpected adverse side effects.

Even if our clinical trials are completed as planned, we cannot be certain that their results will support our product candidate claims or that the FDA or foreign authorities will agree with our conclusions regarding them. Success in pre-clinical studies and early clinical trials does not ensure that later clinical trials will be successful, and we cannot be sure that the later trials will replicate the results of prior trials and pre-clinical studies. The clinical trial process may fail to demonstrate that our product candidates are safe and effective for the proposed indicated uses. If FDA concludes that the clinical trials for ActimabTM-A, or any other product candidate for which we might seek approval, have failed to demonstrate safety and effectiveness, we would not receive FDA approval to market that product candidate in the United States for the indications sought. In addition, such an outcome could cause us to abandon the product candidate and might delay development of others. Any delay or termination of our clinical trials will delay or preclude the filing of any submissions with the FDA and, ultimately, our ability to commercialize our product candidates and generate revenues. It is also possible that patients enrolled in clinical trials will experience adverse side effects that are not currently part of a product candidate's profile. In addition, our clinical trials for ActimabTM-A involve a relatively small patient population. Because of the small sample size, their results may not be indicative of future results.

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Our product candidates for which we intend to seek approval as biologic products may face competition sooner than anticipated.

Our product candidates are regulated by the FDA as biologic products and we intend to seek approval for these products pursuant to the BLA pathway. The Biologics Price Competition and Innovation Act of 2009, or BPCIA, created an abbreviated pathway for the approval of biosimilar and interchangeable biologic products. The abbreviated regulatory pathway establishes legal authority for the FDA to review and approve biosimilar biologics, including the possible designation of a biosimilar as “interchangeable” based on its similarity to an existing brand product. Under the BPCIA, an application for a biosimilar product cannot be approved by the FDA until 12 years after the original branded product was approved under a BLA. The law is complex and is still being interpreted and implemented by the FDA. As a result, its ultimate impact, implementation, and meaning are subject to uncertainty. While it is uncertain when such processes intended to implement BPCIA may be fully adopted by the FDA, any such processes could have a material adverse effect on the future commercial prospects for our biologic products.

ActimabTM-A and future product candidates may never achieve market acceptance.

ActimabTM-A and future product candidates that we may develop may never gain market acceptance among physicians, patients and the medical community. The degree of market acceptance of any of product will depend on a number of factors, including the actual and perceived effectiveness and reliability of the product; the results of any long-term clinical trials relating to use of the product; the availability, relative cost and perceived advantages and disadvantages of alternative technologies; the degree to which treatments using the product are approved for reimbursement by public and private insurers; the strength of our marketing and distribution infrastructure; and the level of education and awareness among physicians and hospitals concerning the product.

Failure of ActimabTM-A or any of our other product candidates to significantly penetrate current or new markets would negatively impact our business financial condition and results of operations.

To be commercially successful, physicians must be persuaded that using our product candidates for treatment of AML and other cancers, if approved for those indications, are effective alternatives to existing therapies and treatments.

We believe that oncologists and other physicians will not widely adopt a product candidate unless they determine, based on experience, clinical data, and published peer-reviewed journal articles, that the use of that product candidate provides an effective alternative to other means of treating specific cancers. Patient studies or clinical experience may indicate that treatment with our product candidates does not provide patients with sufficient benefits in extension of life or quality of life. We believe that recommendations and support for the use of each product candidate from influential physicians will be essential for widespread market acceptance. Our product candidates are still in the

development stage and it is premature to attempt to gain support from physicians at this time. We can provide no assurance that such support will ever be obtained. If our product candidates do not receive such support from these physicians and from long-term data, physicians may not use or continue to use, and hospitals may not purchase or continue to purchase, them.

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Both before and after marketing approval, our product candidates are subject to ongoing regulatory requirements and continued regulatory review, and if we fail to comply with these continuing regulatory requirements, we could be subject to a variety of sanctions and the sale of any approved products could be suspended.

Both before and after regulatory approval to market a particular product candidate, the manufacturing, labeling, packaging, adverse event reporting, storage, advertising, promotion, distribution and record keeping related to the product are subject to extensive, ongoing regulatory requirements enforced by FDA and other similar regulatory bodies. Additionally, because our product candidates include radio-active isotopes, they will be subject to additional regulation and oversight from the United States Nuclear Regulatory Commission (NRC) and similar bodies in other jurisdictions. The FDA regulatory requirements include submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with cGMP requirements and GCP requirements for any clinical trials that we conduct post-approval. Any regulatory approvals that we receive for our product candidates may also be subject to limitations on the approved indicated uses for which the product may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing, including Phase IV clinical trials, and surveillance to monitor the safety and efficacy of the product candidate. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or manufacturing processes, or failure to comply with the regulatory requirements of the FDA and other applicable U.S. and foreign regulatory authorities could subject us to administrative or judicially imposed sanctions, including:

- restrictions on the marketing of our products or their manufacturing processes;
- warning letters;
- civil or criminal penalties;
- fines;
- injunctions;
- product seizures or detentions;
- import or export bans;
- voluntary or mandatory product recalls and related publicity requirements;

- suspension or withdrawal of regulatory approvals;

- total or partial suspension of production; and

· refusal to approve pending applications for marketing approval of new products or supplements to approved applications.

The FDA's policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained, which would adversely affect our business, prospects and ability to achieve or sustain profitability.

Even if regulatory approval of a product candidate is granted, such approval may be subject to limitations on the intended uses for which a product may be marketed and reduce the potential to successfully commercialize that product and generate revenue from that product. If the FDA determines that the product promotional materials, labeling, training or other marketing or educational activities constitute promotion of an unapproved use, it could request that we or our commercialization partners cease or modify our training or promotional materials or subject us to regulatory enforcement actions. It is also possible that other federal, state or foreign enforcement authorities might take action if they consider such training or other promotional materials to constitute promotion of an unapproved use, which could result in significant fines or penalties under other statutory authorities, such as laws prohibiting false claims for reimbursement.

Our revenue stream will depend upon third party coverage and reimbursement of our product candidates, if approved.

The commercial success of our product candidates in both domestic and international markets will be substantially dependent on whether third-party coverage and reimbursement is available for patients that use our products. However, the availability of insurance coverage and reimbursement for newly approved cancer therapies is uncertain, and therefore, third-party coverage may be particularly difficult to obtain even if our products are approved by the FDA as safe and efficacious. Patients using existing approved therapies are generally reimbursed all or part of the product cost by Medicare or other third-party payors. Medicare, Medicaid, health maintenance organizations and other third-party payors are increasingly attempting to contain healthcare costs by limiting both coverage and the level of reimbursement of new drugs, and, as a result, they may not cover or provide adequate payment for these products. Submission of applications for reimbursement approval generally does not occur prior to the filing of a BLA for that product and may not be granted until many months after BLA approval. In order to obtain coverage and reimbursement for these products, we or our commercialization partners may have to agree to a net sales price lower than the net sales price we might charge in other sales channels. The continuing efforts of government and third-party payors to contain or reduce the costs of healthcare may limit our revenue. Initial dependence on the commercial success of our products may make our revenues particularly susceptible to any cost containment or reduction efforts.

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We have no manufacturing capacity and depend on third-party manufacturers to produce our pre-clinical and clinical trial drug supplies.

We do not currently operate manufacturing facilities for pre-clinical or clinical production of any of our product candidates. We lack experience in drug manufacturing, and we lack the resources and the capabilities to manufacture any of our product candidates on a clinical or commercial scale. As a result, we rely on a third-party manufacturer to supply, store, and distribute pre-clinical and clinical supply of our product candidates, and plan to continue to do so for the foreseeable future. Any performance failure on the part of our existing or future manufacturers could delay clinical development or regulatory approval of our product candidates or commercialization of any approved products, producing additional losses and depriving us of potential product revenue.

Our product candidates require precise, high quality manufacturing. Failure by our contract manufacturer to achieve and maintain high manufacturing standards could result in patient injury or death, product recalls or withdrawals, delays or failures in testing or delivery, cost overruns, or other problems that could seriously hurt our business. Contract manufacturers may encounter difficulties involving production yields, quality control, and quality assurance. These manufacturers are subject to ongoing periodic and unannounced inspections by the FDA and corresponding state and foreign agencies to ensure strict compliance with cGMPs and other applicable government regulations and corresponding foreign standards; however, we do not have control over third-party manufacturers' compliance with these regulations and standards.

If a contract manufacturer cannot perform as agreed, we may be required to replace it. We may incur added costs and delays in identifying and qualifying replacements because the FDA must approve any replacement manufacturer prior to manufacturing our product candidates. Such approval would require new testing and compliance inspections. In addition, a new manufacturer would have to be educated in, or develop substantially equivalent processes for, production of our product candidates after receipt of FDA approval.

We anticipate continued reliance on third parties for manufacturing and marketing, if we are successful in obtaining marketing approval from the FDA and other regulatory agencies for any of our product candidates. If we are not able to secure favorable arrangements with such third parties, our business and financial condition would be harmed, and our commercialization of any of our product candidates may be halted, delayed or made less profitable if those third parties fail to obtain such approvals, fail to provide us with sufficient quantities of product or fail to do so at acceptable quality levels or prices.

To date, our product candidates have been manufactured in small quantities for preclinical and clinical testing by third-party manufacturers. If the FDA or other regulatory agencies approve any of our product candidates for commercial sale, we expect that we would continue to rely, at least initially, on third-party specialized manufacturers to produce commercial quantities of approved products. These manufacturers may not be able to successfully increase the manufacturing capacity for any approved product in a timely or economic manner, or at all. Significant scale-up of

manufacturing may require additional validation studies, which the FDA must review and approve. If third party manufacturers are unable to successfully increase the manufacturing capacity for a product candidate, or we are unable to establish our own manufacturing capabilities, the commercial launch of any approved products may be delayed or there may be a shortage in supply, which in turn could have a material adverse effect on our business.

In addition, the facilities used by our contract manufacturers to manufacture our product candidates must be approved by the FDA pursuant to inspections that will be conducted after we submit a BLA to the FDA. We do not control the manufacturing process of, and are completely dependent on, our contract manufacturing partners for compliance with cGMPs. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or other regulatory authorities, they will not be able to secure and/or maintain regulatory approval for their manufacturing facilities. If the FDA or a comparable foreign regulatory authority does not approve these facilities for the manufacture of our product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our product candidates, if approved.

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We also intend to partner with larger pharmaceutical companies for the commercialization of any of our product candidates that are approved. In connection with our efforts to commercialize our product candidates, we will seek to secure favorable arrangements with third parties to distribute, promote, market and sell them. If we are not able to secure favorable commercial terms or arrangements with third parties for distribution, marketing, promotion and sales of our product candidates, we may have to retain promotional and marketing rights and seek to develop the commercial resources necessary to promote or co-promote or co-market certain or all of our product candidates to the appropriate channels of distribution in order to reach the specific medical market that we are targeting. We may not be able to enter into any partnering arrangements on this or any other basis. If we are not able to secure favorable partnering arrangements, or are unable to develop the appropriate resources necessary for the commercialization of our product candidates, our business and financial condition could be harmed. In addition, we will have to hire additional employees or consultants, since our current employees have limited experience in these areas. Sufficient employees with relevant skills may not be available to us. Any increase in the number of our employees would increase our expense level, and could have an adverse effect on our financial position.

In addition, we, or our potential commercial partners, may not successfully introduce our product candidates or they may not achieve acceptance by patients, health care providers and insurance companies. Further, it is possible that we may not be able to secure arrangements to manufacture, market, distribute, promote and sell our product candidates at favorable commercial terms that would permit us to make a profit. To the extent that corporate partners conduct clinical trials, we may not be able to control the design and conduct of these clinical trials.

We may have conflicts with our partners that could delay or prevent the development or commercialization of our product candidates.

We may have conflicts with our partners, such as conflicts concerning the interpretation of preclinical or clinical data, the achievement of milestones, the interpretation of contractual obligations, payments for services, development obligations or the ownership of intellectual property developed during our collaboration. If any conflicts arise with any of our partners, such partner may act in a manner that is adverse to our best interests. Any such disagreement could result in one or more of the following, each of which could delay or prevent the development or commercialization of our product candidates, and in turn prevent us from generating revenues: unwillingness on the part of a partner to pay us milestone payments or royalties we believe are due under a collaboration; uncertainty regarding ownership of intellectual property rights arising from our collaborative activities, which could prevent us from entering into additional collaborations; unwillingness by the partner to cooperate in the development or manufacture of the product, including providing us with product data or materials; unwillingness on the part of a partner to keep us informed regarding the progress of its development and commercialization activities or to permit public disclosure of the results of those activities; initiating litigation or alternative dispute resolution options by either party to resolve the dispute; or attempts by either party to terminate the agreement.

Upon commercialization of our product candidates, we may be dependent on third parties to market, distribute and sell them.

Our ability to receive revenues may be dependent upon the sales and marketing efforts of any future co-marketing partners and third-party distributors. At this time, we have not entered into an agreement with any commercialization partner and only plan to do so after the successful completion of Phase 2 clinical trials and prior to commercialization. If we fail to reach an agreement with any commercialization partner, or if upon reaching such an agreement that partner fails to sell a large volume of our products, it may have a negative impact on our business, financial condition and results of operations.

Our product candidates will face significant competition in the markets for them, and if they are unable to compete successfully, our business will suffer.

Our product candidates face, and will continue to face, intense competition from large pharmaceutical companies, as well as academic and research institutions. We compete in an industry that is characterized by (i) rapid technological change, (ii) evolving industry standards, (iii) emerging competition and (iv) new product introductions. Our competitors have existing products and technologies that will compete with our product candidates and technologies and may develop and commercialize additional products and technologies that will compete with our product candidates and technologies. Because several competing companies and institutions have greater financial resources than us, they may be able to (i) provide broader services and product lines, (ii) make greater investments in research and development, or R&D, and (iii) carry on broader R&D initiatives. Our competitors also have greater development capabilities than we do and have substantially greater experience in undertaking preclinical and clinical testing of product candidates, obtaining regulatory approvals, and manufacturing and marketing pharmaceutical products. They also have greater name recognition and better access to customers than us. Our chief competitors include companies such as Algeta ASA, Bayer AG, GlaxoSmithKline Plc and Spectrum Pharmaceuticals, Inc. and others.

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If side effects are identified during the time our product candidates are in development or after they are approved and on the market, we may choose to or be required to perform lengthy additional clinical trials, discontinue development of the affected product candidate, change the labeling of any such products, or withdraw or recall any such products from the market, any of which would hinder or preclude our ability to generate revenues.

Undesirable side effects caused by our product candidates could cause us or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or other comparable foreign authorities. The drug-related side effects could affect patient recruitment or the ability of enrolled patients to complete the trial or result in potential product liability claims. Any of these occurrences may harm our business, financial condition and prospects significantly. Even if any of our product candidates receives marketing approval, as greater numbers of patients use a product following its approval, an increase in the incidence of side effects or the incidence of other post-approval problems that were not seen or anticipated during pre-approval clinical trials could result in a number of potentially significant negative consequences, including:

regulatory authorities may withdraw their approval of the product;

regulatory authorities may require the addition of labeling statements, such as warnings or contraindications;

we may be required to change the way the product is administered, conduct additional clinical trials or change the labeling of the product;

we may elect, or we may be required, to recall or withdraw product from the market;

we could be sued and held liable for harm caused to patients; and

our reputation may suffer.

Any of these events could substantially increase the costs and expenses of developing, commercializing and marketing any such product candidates or could harm or prevent sales of any approved products.

Our business depends upon securing and protecting critical intellectual property.

Our commercial success will depend in part on our obtaining and maintaining patent, trade secret, copyright and trademark protection of our technologies in the United States and other jurisdictions, as well as successfully enforcing

this intellectual property and defending this intellectual property against third-party challenges. We will only be able to protect our technologies from unauthorized use by third parties to the extent that valid and enforceable intellectual property protection, such as patents or trade secrets law, cover them. In particular, we place considerable emphasis on obtaining patent and trade secret protection for significant new technologies, products and processes. Furthermore, the degree of future protection of our proprietary rights is uncertain because legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep our competitive advantage. Moreover, the degree of future protection of our proprietary rights is uncertain for product candidates that are currently in the early stages of development because we cannot predict which of these product candidates will ultimately reach the commercial market or whether the commercial versions of these product candidates will incorporate proprietary technologies.

Our patent position is highly uncertain and involves complex legal and factual questions.

Accordingly, we cannot predict the breadth of claims that may be allowed or enforced under our patents or in third-party patents. For example, we or our licensors might not have been the first to make the inventions covered by each of our pending patent applications and issued patents; we or our licensors might not have been the first to file patent applications for these inventions; others may independently develop similar or alternative technologies or duplicate any of our technologies; it is possible that none of our pending patent applications or the pending patent applications of our licensors will result in issued patents; our issued patents and issued patents of our licensors may not provide a basis for commercially viable technologies, or may not provide us with any competitive advantages, or may be challenged and invalidated by third parties; and, we may not develop additional proprietary technologies that are patentable.

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As a result, our owned and licensed patents may not be valid and we may not be able to obtain and enforce patents and to maintain trade secret protection for the full commercial extent of our technology. The extent to which we are unable to do so could materially harm our business.

We or our licensors have applied for and will continue to apply for patents for certain products. Such applications may not result in the issuance of any patents, and any patents now held or that may be issued may not provide us with adequate protection from competition. Furthermore, it is possible that patents issued or licensed to us may be challenged successfully. In that event, if we have a preferred competitive position because of such patents, such preferred position would be lost. If we are unable to secure or to continue to maintain a preferred position, we could become subject to competition from the sale of generic products. Failure to receive, inability to protect, or expiration of our patents for medical use, manufacture, conjugation and labeling of Ac-225, the antibodies that we license from third parties, or subsequent related filings, would adversely affect our business and operations.

Patents issued or licensed to us may be infringed by the products or processes of others. The cost of enforcing our patent rights against infringers, if such enforcement is required, could be significant, and we do not currently have the financial resources to fund such litigation. Further, such litigation can go on for years and the time demands could interfere with our normal operations. There has been substantial litigation and other proceedings regarding patent and other intellectual property rights in the pharmaceutical industry. We may become a party to patent litigation and other proceedings. The cost to us of any patent litigation, even if resolved in our favor, could be substantial. Some of our competitors may be able to sustain the costs of such litigation more effectively than we can because of their substantially greater financial resources. Litigation may also absorb significant management time.

Unpatented trade secrets, improvements, confidential know-how and continuing technological innovation are important to our scientific and commercial success. Although we attempt to and will continue to attempt to protect our proprietary information through reliance on trade secret laws and the use of confidentiality agreements with our partners, collaborators, employees and consultants and other appropriate means, these measures may not effectively prevent disclosure of our proprietary information, and, in any event, others may develop independently, or obtain access to, the same or similar information.

Certain of our patent rights are licensed to us by third parties. If we fail to comply with the terms of these license agreements, our rights to those patents may be terminated, and we will be unable to conduct our business.

If we are found to be infringing on patents or trade secrets owned by others, we may be forced to cease or alter our product development efforts, obtain a license to continue the development or sale of our products, and/or pay damages.

Our manufacturing processes and potential products may violate proprietary rights of patents that have been or may be granted to competitors, universities or others, or the trade secrets of those persons and entities. As the pharmaceutical industry expands and more patents are issued, the risk increases that our processes and potential products may give rise to claims that they infringe the patents or trade secrets of others. These other persons could bring legal actions against us claiming damages and seeking to enjoin clinical testing, manufacturing and marketing of the affected product or process. If any of these actions are successful, in addition to any potential liability for damages, we could be required to obtain a license in order to continue to conduct clinical tests, manufacture or market the affected product or use the affected process. Required licenses may not be available on acceptable terms, if at all, and the results of litigation are uncertain. If we become involved in litigation or other proceedings, it could consume a substantial portion of our financial resources and the efforts of our personnel.

Our ability to protect and enforce our patents does not guarantee that we will secure the right to commercialize our patents.

A patent is a limited monopoly right conferred upon an inventor, and his successors in title, in return for the making and disclosing of a new and non-obvious invention. This monopoly is of limited duration but, while in force, allows the patent holder to prevent others from making and/or using its invention. While a patent gives the holder this right to exclude others, it is not a license to commercialize the invention where other permissions may be required for commercialization to occur. For example, a drug cannot be marketed without the appropriate authorization from the FDA, regardless of the existence of a patent covering the product. Further, the invention, even if patented itself, cannot be commercialized if it infringes the valid patent rights of another party.

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We rely on confidentiality agreements to protect our trade secrets. If these agreements are breached by our employees or other parties, our trade secrets may become known to our competitors.

We rely on trade secrets that we seek to protect through confidentiality agreements with our employees and other parties. If these agreements are breached, our competitors may obtain and use our trade secrets to gain a competitive advantage over us. We may not have any remedies against our competitors and any remedies that may be available to us may not be adequate to protect our business or compensate us for the damaging disclosure. In addition, we may have to expend resources to protect our interests from possible infringement by others.

The use of hazardous materials, including radioactive and biological materials, in our research and development efforts imposes certain compliance costs on us and may subject us to liability for claims arising from the use or misuse of these materials.

Our research, development and manufacturing activities involves the controlled use of hazardous materials, including chemicals, radioactive and biological materials, such as radioactive isotopes. We are subject to federal, state, local and foreign environmental laws and regulations governing, among other matters, the handling, storage, use and disposal of these materials and some waste products. We cannot completely eliminate the risk of contamination or injury from these materials and we could be held liable for any damages that result, which could exceed our financial resources. We currently maintain insurance coverage for injuries resulting from the hazardous materials we use; however, future claims may exceed the amount of our coverage. Also, we do not have insurance coverage for pollution cleanup and removal. Currently the costs of complying with such federal, state, local and foreign environmental regulations are not significant, and consist primarily of waste disposal expenses. However, they could become expensive, and current or future environmental laws or regulations may impair our research, development, production and commercialization efforts.

We may undertake international operations, which will subject us to risks inherent with operations outside of the United States.

Although we do not have any foreign operations at this time, we intend to seek market clearances in foreign markets that we believe will generate significant opportunities. However, even with the cooperating of a commercialization partner, conducting drug development in foreign countries involves inherent risks, including, but not limited to difficulties in staffing, funding and managing foreign operations; unexpected changes in regulatory requirements; export restrictions; tariffs and other trade barriers; difficulties in protecting, acquiring, enforcing and litigating intellectual property rights; fluctuations in currency exchange rates; and potentially adverse tax consequences.

If we were to experience any of the difficulties listed above, or any other difficulties, any international development activities and our overall financial condition may suffer and cause us to reduce or discontinue our international development and registration efforts.

We may not be successful in hiring and retaining key employees.

Our future operations and successes depend in large part upon the continued service of key members of our senior management team whom we are highly dependent upon to manage our business. If any member of our current senior management terminates his or her employment with us, such a departure may have a material adverse effect on our business.

Our future success also depends on our ability to identify, attract, hire or engage, retain and motivate other well-qualified managerial, technical, clinical and regulatory personnel. There can be no assurance that such professionals will be available in the market, or that we will be able to retain existing professionals or meet or continue to meet their compensation requirements. Furthermore, the cost base in relation to such compensation, which may include equity compensation, may increase significantly, which could have a material adverse effect on us. Failure to establish and maintain an effective management team and work force could adversely affect our ability to operate, grow and manage our business.

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We may be subject, directly or indirectly, to federal and state healthcare fraud and abuse laws, false claims laws, and health information privacy and security laws. If we are unable to comply, or have not fully complied, with such laws, we could face substantial penalties.

If we obtain FDA approval for any of our product candidates and begin commercializing those products in the United States, our operations may be directly, or indirectly through our customers, subject to various federal and state fraud and abuse laws, including, without limitation, the federal Anti-Kickback Statute, the federal False Claims Act, and physician sunshine laws and regulations. These laws may impact, among other things, our proposed sales, marketing, and education programs. In addition, we may be subject to patient privacy regulation by both the federal government and the states in which we conduct our business. The laws that may affect our ability to operate include:

the federal Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, to induce, or in return for, the purchase or recommendation of an item or service reimbursable under a federal healthcare program, such as the Medicare and Medicaid programs;

federal civil and criminal false claims laws and civil monetary penalty laws, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment from Medicare, Medicaid, or other third-party payors that are false or fraudulent;

the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which created federal criminal statutes that prohibit executing a scheme to defraud any healthcare benefit program and making false statements relating to healthcare matters;

HIPAA, as amended by the Health Information Technology and Clinical Health Act, or HITECH, and its implementing regulations, which imposes certain requirements relating to the privacy, security, and transmission of individually identifiable health information;

the federal physician sunshine requirements under PPACA, which require certain manufacturers of drugs, devices, biologics, and medical supplies to report annually to the U.S. Department of Health and Human Services information related to payments and other transfers of value to physicians, other healthcare providers, and teaching hospitals, and ownership and investment interests held by physicians and other healthcare providers and their immediate family members and applicable group purchasing organizations;

state law equivalents of each of the above federal laws, such as anti-kickback and false claims laws that may apply to items or services reimbursed by any third-party payor, including commercial insurers; state laws that require pharmaceutical companies to comply with the industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; state laws that require drug manufacturers to report

information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; and state laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways, thus complicating compliance efforts.

Because of the breadth of these laws and the narrowness of the statutory exceptions and safe harbors available, it is possible that some of our business activities could be subject to challenge under one or more of such laws. In addition, recent health care reform legislation has strengthened these laws. For example, the PPACA, among other things, amends the intent requirement of the federal anti-kickback and criminal healthcare fraud statutes. A person or entity no longer needs to have actual knowledge of this statute or specific intent to violate it to have committed a violation. Moreover, the PPACA provides that the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act.

If our operations are found to be in violation of any of the laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including civil and criminal penalties, damages, fines, exclusion from participation in government health care programs, such as Medicare and Medicaid, imprisonment, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

Healthcare legislative reform measures may have a material adverse effect on our business and results of operations.

In March 2010, President Obama signed the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act (collectively, "PPACA"), which makes changes that are expected to significantly impact the pharmaceutical industries. One of the principal aims of the PPACA as currently enacted is to expand health insurance coverage to approximately 32 million Americans who are currently uninsured. The consequences of this significant coverage expansion on the sales of our products, once they are developed, are unknown and speculative at this point.

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The PPACA contains a number of provisions designed to generate the revenues necessary to fund the coverage expansions among other things. This includes new fees and taxes on manufacturers of certain branded prescription drugs, an abbreviated pathway for approval of biosimilar products, a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted or injected, increases in the minimum Medicaid rebates owed by manufacturers under the Medicaid Drug Rebate Program and an extension of the rebate program to individuals enrolled in Medicaid managed care organizations, and a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D.

The PPACA provisions on comparative clinical effectiveness research extend the initiatives of the American Recovery and Reinvestment Act of 2009, also known as the stimulus package, which included \$1.1 billion in funding to study the comparative effectiveness of health care treatments and strategies. This stimulus funding was designated for, among other things, conducting, supporting or synthesizing research that compares and evaluates the risks and benefits, clinical outcomes, effectiveness and appropriateness of products. The PPACA appropriates additional funding to comparative clinical effectiveness research. Although Congress has indicated that this funding is intended to improve the quality of health care, it remains unclear how the research will impact current Medicare coverage and reimbursement or how new information will influence other third-party payor policies.

In addition, other legislative changes have been proposed and adopted since the PPACA was enacted. On August 2, 2011, the President Obama signed into law the Budget Control Act of 2011, which, among other things, creates the Joint Select Committee on Deficit Reduction to recommend proposals in spending reductions to Congress. The Joint Select Committee did not achieve a targeted deficit reduction of at least \$1.2 trillion for the years 2013 through 2021, which threatened to trigger the legislation's automatic reduction to several government programs. This includes aggregate reductions of Medicare payments to providers of 2% per fiscal year, which went into effect in April 2013 and will stay in effect through 2024 unless additional Congressional action is taken. On January 2, 2013, Congress passed and President Obama signed the American Taxpayer Relief Act of 2012 which, among other things, further reduced Medicare payments to certain providers, including physicians, hospitals and cancer treatment centers. We expect that the PPACA, as well as other federal or state health care reform measures that may be adopted in the future, could have a material adverse effect on our industry generally and our ability to successfully commercialize our products or could limit or eliminate our spending on certain development projects. The taxes imposed by the PPACA and the expansion in the government's role in the U.S. healthcare industry may result in decreased profits to us, lower reimbursement by payors for our products, and/or reduced medical procedure volumes, all of which may adversely affect our business, financial condition and results of operations.

Managing our growth as we expand operations may strain our resources.

We expect to need to grow rapidly in order to support additional, larger, and potentially international, pivotal clinical trials of our product candidates, which will place a significant strain on our financial, managerial and operational resources. In order to achieve and manage growth effectively, we must continue to improve and expand our

operational and financial management capabilities. Moreover, we will need to increase staffing and to train, motivate and manage our employees. All of these activities will increase our expenses and may require us to raise additional capital sooner than expected. Failure to manage growth effectively could materially harm our business, financial condition or results of operations.

We may expand our business through the acquisition of rights to new product candidates that could disrupt our business, harm our financial condition and may also dilute current stockholders' ownership interests in our company.

Our business strategy includes expanding our products and capabilities, and we may seek acquisitions of product candidates, antibodies or technologies to do so. Acquisitions involve numerous risks, including substantial cash expenditures; potentially dilutive issuance of equity securities; incurrence of debt and contingent liabilities, some of which may be difficult or impossible to identify at the time of acquisition; difficulties in assimilating acquired technologies or the operations of the acquired companies; diverting our management's attention away from other business concerns; risks of entering markets in which we have limited or no direct experience; and the potential loss of our key employees or key employees of the acquired companies.

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We can make no assurances that any acquisition will result in short-term or long-term benefits to us. We may incorrectly judge the value or worth of an acquired product, company or business. In addition, our future success would depend in part on our ability to manage the rapid growth associated with some of these acquisitions. We cannot assure that we will be able to make the combination of our business with that of acquired products, businesses or companies work or be successful. Furthermore, the development or expansion of our business or any acquired products, business or companies may require a substantial capital investment by us. We may not have these necessary funds or they might not be available to us on acceptable terms or at all. We may also seek to raise funds by selling shares of our preferred or common stock, which could dilute each current stockholder's ownership interest in the Company.

Risks Related to Ownership of Our Common Stock

Because we became public by means of a "reverse merger," we may not be able to attract the attention of major brokerage firms.

Additional risks may exist since we became public through a "reverse merger." Securities analysts of major brokerage firms may not provide coverage of us since there is little incentive to brokerage firms to recommend the purchase of our common stock. We cannot assure you that brokerage firms will want to conduct any secondary offerings on behalf of our company in the future.

The sale of securities by us in any equity or debt financing could result in dilution to our existing stockholders and have a material adverse effect on our earnings.

We believe we need up to \$25 million in cash to finance research and development and to cover our ongoing working capital needs through 2016, and we have not completed efforts to establish a stable recurring source of revenues sufficient to cover our operating costs for the next twelve months. We have financed our operations primarily through sales of stock and the issuance of convertible promissory notes. It is likely that during the next twelve months we will seek to raise capital through the sales of stock and/or issuance of convertible debentures in order to expand our level of operations to continue our research and development efforts.

Any sale of common stock by us in a future private placement offering could result in dilution to the existing stockholders as a direct result of our issuance of additional shares of our capital stock. In addition, our business strategy may include expansion through internal growth, by acquiring subscribers email lists, or by establishing strategic relationships with targeted customers and vendor. In order to do so, or to finance the cost of our other activities, we may issue additional equity securities that could dilute our stockholders' stock ownership. We may also assume additional debt and incur impairment losses related to goodwill and other tangible assets if we acquire another

company and this could negatively impact our earnings and results of operations.

Future sales of our common stock in the public market could lower the price of our common stock and impair our ability to raise funds in future securities offerings.

Future sales of a substantial number of shares of our common stock in the public market, or the perception that such sales may occur, could adversely affect the then prevailing market price of our common stock and could make it more difficult for us to raise funds in the future through a public offering of our securities. We believe we need up to \$25 million in cash to finance research and development and to cover our ongoing working capital needs through 2016, and we have not completed efforts to establish a stable recurring source of revenues sufficient to cover our operating costs for the next twelve months. We have financed our operations primarily through sales of stock and the issuance of convertible promissory notes. It is likely that during the next twelve months we will continue to finance our operations through sales of stock and/or issuance of convertible promissory notes.

Our common stock is extremely thinly traded, so you may be unable to sell at or near asking prices or at all if you need to sell your shares to raise money or otherwise desire to liquidate your shares.

Trading volume in our common stock is limited. This may inhibit investment by major institutional investment funds, including mutual funds, as well as individual investors. A higher volume trading market may never develop or be maintained. Active trading markets generally result in lower price volatility and more efficient execution of buy and sell orders. Absence of an active trading market reduces the liquidity of the shares traded there.

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Our Common Stock is subject to price volatility unrelated to our operations.

The trading volume of our common stock has been and may continue to be extremely limited and sporadic. As a result of such trading activity, the quoted price for our common stock on the NYSE MKT may not necessarily be a reliable indicator of its fair market value.

We expect the market price of our Common Stock to fluctuate substantially due to a variety of factors, including market perception of our ability to achieve our planned growth, quarterly operating results of other companies in the same industry, trading volume in our common stock, changes in general conditions in the economy and the financial markets or other developments affecting the Company's competitors or the Company itself. This volatility has had a significant effect on the market price of securities issued by many companies for reasons unrelated to their operating performance and could have the same effect on our common stock.

Because we do not intend to pay dividends, stockholders will benefit from an investment in our Common Stock only if it appreciates in value.

We have never declared or paid any cash dividends on our Preferred Stock or Common Stock. For the foreseeable future, it is expected that earnings, if any, generated from our operations will be used to finance the growth of our business, and that no dividends will be paid to holders of our Preferred Stock or Common Stock. As a result, the success of an investment in our Preferred Stock or Common Stock will depend upon any future appreciation in its value. There is no guarantee that our Preferred Stock or Common Stock will appreciate in value.

Certain provisions of our Certificate of Incorporation and Bylaws and Delaware law make it more difficult for a third party to acquire us and make a takeover more difficult to complete, even if such a transaction were in the stockholders' interest.

Our Certificate of Incorporation and Bylaws and certain provisions of Delaware State law could have the effect of making it more difficult or more expensive for a third party to acquire, or from discouraging a third party from attempting to acquire, control of the Company, even when these attempts may be in the best interests of our stockholders. For example, we are governed by Section 203 of the Delaware General Corporation Law. In general, Section 203 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 the business combination is approved in a prescribed manner. A "business combination" includes mergers, asset sales or other transactions resulting in a financial benefit to the stockholder. An "interested stockholder" is a person who, together with affiliates and associates, owns, or within three years, did own, 15% or more of the corporation's outstanding voting stock. These provisions may have the effect of delaying, deferring or preventing a

change in our control.

Compliance with the reporting requirements of federal securities laws can be expensive.

We are subject to the information and reporting requirements of the Exchange Act and other federal securities laws, and the compliance obligations of the Sarbanes-Oxley Act. The costs of preparing and filing annual and quarterly reports and other information with the SEC and furnishing audited reports to stockholders are substantial. In addition, we will incur substantial expenses in connection with the preparation of registration statements and related documents with respect to the registration of resale of the Common Stock.

Applicable regulatory requirements, including those contained in and issued under the Sarbanes-Oxley Act, may make it difficult for us to retain or attract qualified officers and directors, which could adversely affect the management of its business and its ability to obtain or retain listing of our Common Stock.

We may be unable to attract and retain those qualified officers, directors and members of board committees required to provide for effective management because of the rules and regulations that govern publicly held companies, including, but not limited to, certifications required by principal executive officers. The enactment of the Sarbanes-Oxley Act has resulted in the issuance of a series of related rules and regulations and the strengthening of existing rules and regulations by the SEC, as well as the adoption of new and more stringent rules by the stock exchanges. The perceived increased personal risk associated with these changes may deter qualified individuals from accepting roles as directors and executive officers.

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Further, some of these changes heighten the requirements for board or committee membership, particularly with respect to an individual's independence from the corporation and level of experience in finance and accounting matters. We may have difficulty attracting and retaining directors with the requisite qualifications. If we are unable to attract and retain qualified officers and directors, the management of our business and our ability to obtain or retain listing of our shares of Common Stock on any stock exchange (assuming we elect to seek and are successful in obtaining such listing) could be adversely affected.

If we fail to maintain an effective system of internal controls, we may not be able to accurately report our financial results or detect fraud. Investors could lose confidence in our financial reporting and this may decrease the trading price of our Common Stock.

We must maintain effective internal controls to provide reliable financial reports and detect fraud. As disclosed in this prospectus supplement and accompanying prospectus, we have previously identified material weaknesses in our internal control over financial reporting because we did not have sufficient written policies and procedures for accounting and financial reporting and we did not have effective controls over period end financial disclosures and reporting processes. Our management has taken action to begin remediating these material weaknesses, but we cannot be certain when remediation will have been completed. In future periods, we may identify additional deficiencies in our system of internal controls over financial reporting that may require remediation. There can be no assurances that any such future deficiencies identified may not be material weaknesses that would be required to be reported in future periods. Failure to maintain an effective system of internal controls could harm our operating results and cause investors to lose confidence in our reported financial information. Any such loss of confidence would have a negative effect on the trading price of our Common Stock.

The price of our common stock may become volatile, which could lead to losses by investors and costly securities litigation.

The trading price of our Common Stock may be highly volatile and could fluctuate in response to factors such as:

actual or anticipated variations in our operating results;

announcements of developments by us or our competitors;

the timing of IND and/or BLA approval, the completion and/or results of our clinical trials;

regulatory actions regarding our products;

announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures or capital commitments;

adoption of new accounting standards affecting the our industry;

additions or departures of key personnel;

introduction of new products by us or our competitors;

sales of the our Common Stock or other securities in the open market; and

other events or factors, many of which are beyond our control.

The stock market is subject to significant price and volume fluctuations. In the past, following periods of volatility in the market price of a company's securities, securities class action litigation has often been initiated against such a company. Litigation initiated against us, whether or not successful, could result in substantial costs and diversion of our management's attention and Company resources, which could harm our business and financial condition.

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Additional Risks Relating to this Offering

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 for general corporate purposes, including capital expenditures, the advancement of our product candidates in clinical trials, such as IomabTM-B and Actimab-A, preclinical trials, and to meet 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 prices per share at which shares of our common stock and accompanying warrants are sold in this offering may be substantially higher than the book value per share of our common stock, you may suffer immediate and substantial dilution in the net tangible book value of the common stock you purchase in this offering. After giving effect to the sale of _____ shares of common stock in this offering at the offering price of \$ _____ per share, and after deducting estimated offering expenses payable by us, our net tangible book value as of September 30, 2014 would have been \$ _____ million, or \$____ per share of common stock. This represents an immediate increase in the net tangible book value of \$ _____ per share to our existing stockholders and an immediate and substantial dilution in net tangible book value of \$ _____ per share to new investors who purchase our common stock in the offering. See the section entitled “Dilution” for a more detailed discussion of the dilution you will incur if you purchase common stock in this offering.

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.

Almost all of our 30,910,496 outstanding shares of common stock as of February 5, 2015, as well as a substantial number of shares of our common stock underlying outstanding options, restricted stock and warrants, are available for sale in the public market, either pursuant to Rule 144 under the Securities Act of 1933, as amended, or an effective registration statement. Pursuant to this shelf registration statement on Form S-3, we may sell up to \$200,000,000 of our equity securities over the next three years. 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.

In order to raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock. We cannot assure you that we will be able to sell shares or other securities in any other offering at a price per share that is equal to or greater than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock or other securities convertible into or exchangeable for our common stock in future transactions may be higher or lower than the price per share in this offering. See the section entitled “Dilution” below for a more detailed discussion of the dilution you will incur if you purchase common stock and accompanying warrants in this offering.

Withholding taxes may be imposed under FATCA on dividends on, or gross proceeds from the sale or other disposition of, our common stock paid to non-U.S. financial institutions and certain other non-U.S. entities.

Withholding taxes may be imposed under Sections 1471 to 1474 of the U.S. Internal Revenue Code of 1986, as amended (the “Code”) (such Sections commonly referred to as the Foreign Account Tax Compliance Act, or “FATCA”) on certain types of payments made to non-U.S. financial institutions and certain other non-U.S. entities. Specifically, a 30% withholding tax may be imposed on dividends on, or gross proceeds from the sale or other disposition of, our common stock paid to a “foreign financial institution” or a “non-financial foreign entity” (each as defined in the Code), unless (1) the foreign financial institution undertakes certain diligence and reporting obligations, (2) the non-financial foreign entity either certifies it does not have any “substantial United States owners” (as defined in the Code) or furnishes identifying information regarding each substantial United States owner, or (3) the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from these rules. If the payee is a foreign financial institution and is subject to the diligence and reporting requirements in (1) above, it must enter into an agreement with the U.S. Department of the Treasury requiring, among other things, that it undertake to identify accounts held by certain “specified United States persons” or “United States-owned foreign entities” (each as defined in the Code), annually report certain information about such accounts, and withhold 30% on certain payments to non-compliant foreign financial institutions and certain other account holders. Foreign financial institutions located in jurisdictions that have an intergovernmental agreement with the United States governing FATCA may be subject to different rules.

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Under the applicable Treasury Regulations, withholding under FATCA generally applies to payments of dividends on our common stock, and, after December 31, 2016, will apply to payments of gross proceeds from the sale or other disposition of such stock. Prospective investors should consult their tax advisors regarding the potential application of withholding under FATCA to their investment in our common stock.

We may be limited in our ability to utilize, or may not be able to utilize, net operating loss, or NOL, carryforwards to reduce our future tax liability.

In general, a corporation that undergoes an “ownership change” is subject to limitations on its ability to utilize its pre-change NOLs, to offset future taxable income. In general, under the Code, an ownership change occurs if the aggregate stock ownership of certain stockholders (generally 5% stockholders, applying certain look-through and aggregation rules) increases by more than 50 percentage points over such stockholders’ lowest percentage ownership during the testing period (generally three years). Purchases of our common stock in amounts greater than specified levels, which will be beyond our control, could create a limitation on our ability to utilize our NOLs for tax purposes in the future. Limitations imposed on our ability to utilize NOLs could cause U.S. federal and state income taxes to be paid earlier than would be paid if such limitations were not in effect and could cause such NOLs to expire unused, in each case reducing or eliminating the benefit of such NOLs. Furthermore, we may not be able to generate sufficient taxable income to utilize our NOLs before they expire. If any of these events occur, we may not derive some or all of the expected benefits from our NOLs. In addition, NOLs incurred in one state may not be available to offset income earned in a different state. Furthermore, there may be periods during which the use of NOLs is suspended or otherwise limited for state tax purposes, which could accelerate or permanently increase state taxes owed.

A substantial number of shares of our common stock may be sold in this offering, which could cause the price of our common stock to decline.

In this offering we will sell shares, or approximately % of our outstanding common stock as of February 5, 2015, together with warrants to purchase shares, or approximately % of our outstanding common stock as of February , 2015. This sale and any future sales of a substantial number of shares of our common stock in the public market, or the perception that such sales may occur, could adversely affect the price of our common stock. We cannot predict the effect, if any, that market sales of those shares of common stock or the availability of those shares of common stock for sale will have on the market price of our common stock.

There is no public market for the warrants to purchase shares of common stock being offered in this offering.

There is no established public trading market for the warrants being offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply to list the warrants on any national securities exchange or

other nationally recognized trading system, including the NYSE MKT. Without an active market, the liquidity of the warrants will be limited. The warrants in this offering will be issued in physical form.

The warrants are speculative in nature.

The warrants do not confer any rights of common stock ownership on its holders, such as voting rights or the right to receive dividends, but rather merely represent the right to acquire shares of common stock at a fixed price for a limited period of time. Specifically, commencing on the date of issuance, holders of the warrants may exercise their right to acquire the common stock and pay an exercise price of \$ per share, subject to certain adjustments, prior to months from the date of issuance, after which date any unexercised warrants will expire and have no further value. Moreover, following this offering, the market value of the warrants is uncertain and there can be no assurance that the market value of the warrants will equal or exceed their public offering price. The warrants will not be listed or quoted for trading on any market or exchange. There can be no assurance that the market price of the common stock will ever equal or exceed the exercise price of the warrants, and consequently, whether it will ever be profitable for holders of the warrants to exercise the warrants.

Holders of our warrants will have no rights as a common shareholder until they acquire our common stock.

Until you acquire shares of our common stock upon exercise of your warrants, you will have no rights with respect to our common stock. Upon exercise of your warrants, you will be entitled to exercise the rights of a common stockholder only as to matters for which the record date occurs after the exercise date.

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 fi performance, strategies, expectations, competitive environment and regulation. Words such as “may,” “should,” “could,” “would,” “predicts,” “potentially,” “continue,” “expects,” “anticipates,” “future,” “intends,” “plans,” “believes,” “estimates,” and 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;

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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-8 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.

MARKET PRICE DATA AND DIVIDEND INFORMATION

Market Price Data

Our common stock is listed for quotation on the NYSE MKT under the symbol “ATNM”. The following table sets forth, for the quarters indicated, the high and low sale per share sales prices of our common stock as reported by the NYSE MKT or www.otcbb.com, as applicable. On March 26, 2014 our common stock commenced trading on the NYSE MKT.

Quarterly Common Stock Price Ranges

Fiscal Year 2015, Quarter Ended:	High	Low
March 31, 2015 (through February 4, 2015)	\$6.07	\$4.48

Fiscal Year 2014, Quarter Ended:	High	Low
March 31, 2014	\$12.49	\$4.51
June 30, 2014	\$15.00	\$6.74
September 30, 2014	\$7.77	\$5.93
December 31, 2014	\$8.12	\$5.40

Fiscal Year 2013, Quarter Ended:	High	Low
March 31, 2013	\$7.75	\$1.50
June 30, 2013	\$6.25	\$3.00
September 30, 2013	\$6.40	\$3.10
December 31, 2013	\$7.91	\$4.30

Dividends

We have never declared or paid a cash dividend. Any future decisions regarding dividends are made by our Board of Directors. We currently intend to retain and use any future earnings for the development and expansion of our business and do not anticipate paying any cash dividends in the foreseeable future. Our Board of Directors has complete discretion on whether to pay dividends. Even if our Board of Directors decides to pay dividends, the form, frequency and amount will depend upon our future operations and earnings, capital requirements and surplus, general financial condition, contractual restrictions and other factors that the Board of Directors may deem relevant.

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USE OF PROCEEDS

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

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 capital expenditures, the advancement of our product candidates in clinical trials, such as IomabTM-B and ActimabTM- A, preclinical trials, to support licensing activities, 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 FDA 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.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and capitalization as of September 30, 2014 as follows:

on an actual basis; and

on an as adjusted basis to reflect our issuance and sale in this offering of shares of our common stock and warrants to purchase shares of common stock, at a combined public offering price of \$ per share, after deducting estimated offering expenses payable by us.

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You should read this table together with the section of this prospectus supplement entitled “Use of Proceeds” and with the financial statements and related notes and the other information that we incorporated by reference into this prospectus supplement and the accompanying prospectus, including our Annual Report on Form 10-K and Quarterly Reports on Form 10-Q that we file from time to time.

	September 30, 2014	
	Actual	As Adjusted
	(dollars in thousands)	
Cash and cash equivalents	\$11,751	\$
Long-term debt, including current portion	0	0
Stockholders' equity:		
Preferred stock, \$0.01 par value; 50,000,000 shares authorized; no shares issued or outstanding	—	—
Common stock, \$.001 par value; 200,000,000 shares authorized; 29,619,495 shares issued and outstanding, actual; shares issued and outstanding, as adjusted	29	
Additional paid-in capital	88,121	
Accumulated deficit	(85,778)	
Total stockholders' equity	2,372	
Total capitalization	\$2,372	\$

The table above excludes the following shares issuable as of September 30, 2014:

2,998,084 shares of common stock issuable upon the exercise of outstanding stock options, at a weighted average exercise price of \$5.98 per share; and

732,871 shares of common stock issuable upon the exercise of restricted stock units; and

7,933,747 shares of common stock issuable upon the exercise of outstanding warrants, at a weighted average exercise price of \$1.47 per share; and

2,441,516 shares of common stock available for future issuance under our equity compensation plans.

DILUTION

If you invest in our common stock, your interest will be diluted to the extent of the difference between the price per share you pay in this offering and the net tangible book value per share of our common stock immediately after this

offering.

Our net tangible book value of our common stock as of September 30, 2014 was approximately \$ million, or approximately \$0.08 per share of common stock, based upon shares outstanding at that time. “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 outstanding.

After giving effect to the sale of shares of common stock and warrants to purchase shares of common stock in the aggregate amount of \$ at an assumed offering price of \$ per share, the last reported sale price of our common stock on the NYSE MKT on February 2, 2015, after deducting estimated offering expenses payable by us, and excluding the proceeds, if any, from the exercise of the warrants issued pursuant to this offering, our net tangible book value as of September 30, 2014 would have been \$ million, or \$ per share of common stock. This represents an immediate increase in net tangible book value of \$ per share to our existing stockholders and an immediate dilution in net tangible book value of \$ per share to new investors in this offering.

The following table illustrates this calculation on a per share basis:

Assumed offering price per share:	\$
Net tangible book value per share as of September 30, 2014	\$0.08
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 number of shares of our common stock that will be outstanding immediately after the offering is based on shares outstanding as of September 30, 2014, and excludes:

3,013,084 shares of common stock issuable upon the exercise of stock options outstanding as of September 30, 2014 under our equity incentive plans, with a weighted average exercise price of \$5.98 per share;

2,441,516 shares of common stock available for future grants under our equity incentive plans as of September 30, 2014;

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732,871 shares of common stock issuable upon the exercise of restricted stock units outstanding as of September 30, 2014; and

7,933,747 shares of common stock issuable upon the exercise of warrants outstanding as of September 30, 2014, with a weighted average exercise price of \$1.47 per share.

shares of common stock issuable upon exercise of the over-allotment option to purchase shares of common stock is exercised in full.

If the underwriters exercise in full their option to purchase additional shares of common stock and warrants to purchase shares of common stock, the net tangible book value will increase to \$ per share, representing an increase to existing stockholders of \$ per share and immediate dilution of \$ per share to new investors purchasing shares in this offering.

The foregoing illustration does not reflect potential dilution from the exercise of outstanding options or warrants to purchase shares of our common stock.

DESCRIPTION OF SECURITIES WE ARE OFFERING

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 MKT under the symbol "ATNM." On March 26, 2014 our common stock commenced trading on the NYSE MKT exchange.

Warrants

Form. The warrants will be issued as individual warrant agreements to the investors. The form of warrant is attached as Annex A to this Prospectus Supplement.

Exercisability. The warrants are exercisable beginning on the date of issuance, and at any time up to 12 months from the date of issuance. The warrants will be exercisable, at the option of each holder, in whole or in part by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our common stock purchased upon such exercise (except in the case of a cashless exercise as discussed below). No fractional shares of common stock will be issued in connection with the exercise of a warrant. In lieu of fractional shares, we will pay the holder an amount in cash equal to the fractional amount multiplied by the market value of a share of common stock. The holder will not have the right to exercise any portion of the warrant if the holder (together with its affiliates) would beneficially own in excess of 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the warrants.

Failure to Timely Deliver Shares. If we fail to deliver to the investor a certificate representing shares issuable upon exercise of a warrant by the third trading day after the exercise date as required by the warrant, and if the investor purchases the shares of our common stock after that third trading day to deliver in satisfaction of a sale by the investor of the underlying warrant shares that the investor anticipated receiving from us, then, within three trading days of receipt of the investor's request, we, at the investor's discretion, will either (i) pay cash to the investor in an amount equal to the investor's total purchase price (including brokerage commissions, if any) for the shares of common stock purchased less the exercise price (as described below), or the buy-in price, at which point our obligation to deliver the warrant (and to issue the underlying common stock) will terminate, or (ii) promptly honor our obligation to deliver to the investor a certificate or certificates representing the underlying common stock and pay cash to the investor in an amount equal to the excess (if any) of the buy-in price over the product of (A) the number of shares of common stock, times (B) the per share closing price of our common stock on the date of the event giving rise to our obligation to deliver the certificate.

Exercise Price. Each warrant represents the right to purchase 1/10th of a share of common stock at an exercise price equal to \$ 0.10 per share, subject to adjustment as described below. The exercise price is subject to appropriate adjustment in the event of certain stock dividends and distributions, stock splits, stock combinations, reclassifications or similar events affecting our common stock and also upon any distributions of assets, including cash, stock or other property to our stockholders.

Fundamental Transactions. If we consummate any merger, consolidation, sale or other reorganization event in which our common stock is converted into or exchanged for securities, cash or other property, or if we consummate certain sales or other business combinations, then following such event, the holders of the warrants will be entitled to receive upon exercise of the warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the warrants immediately prior to such event.

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Governing Law. The warrant is governed by New York law.

Transferability. Subject to applicable laws, the warrants may be offered for sale, sold, transferred or assigned without our consent.

Exchange Listing. There is no public trading market for the warrants, and we do not expect a market to develop. In addition, we do not intend to apply for listing of the warrants on any securities exchange or other trading system.

Rights as a Stockholder. Except as otherwise provided in the warrants or by virtue of such holder's ownership of shares of our common stock, the holder of a warrant does not have the rights or privileges of a holder of our common stock, including any voting rights, until the holder exercises the warrant.

DIVIDEND POLICY

We have never declared or paid a cash dividend. Any future decisions regarding dividends are made by our Board of Directors. We currently intend to retain and use any future earnings for the development and expansion of our business and do not anticipate paying any cash dividends in the foreseeable future. Our Board of Directors has complete discretion on whether to pay dividends. Even if our Board of Directors decides to pay dividends, the form, frequency and amount will depend upon our future operations and earnings, capital requirements and surplus, general financial condition, contractual restrictions and other factors that the Board of Directors may deem relevant.

UNDERWRITING

Laidlaw & Company (UK) Ltd. is acting as the representative of the underwriters. We have entered into an underwriting agreement with the representative. Subject to the terms and conditions of the underwriting agreement, we have agreed to offer and sell to investors identified by the underwriters, up to _____ shares of common stock and _____ warrants to purchase shares of common stock at the public offering price shown on the cover page of this prospectus supplement. The Company will pay the underwriters the commission set forth on the cover page of this prospectus supplement.

This offering is being completed on a "best efforts" basis and the underwriters have no obligation to buy any shares of our common stock from us or to arrange for the purchase or sale of any specific number or dollar amount of shares. The obligations of the underwriters may be terminated upon the occurrence of certain events specified in the underwriting agreement. Furthermore, pursuant to the underwriting agreement, the underwriters' obligations are subject to customary conditions, representations and warranties contained in the underwriting agreement, such as receipt by the underwriters of officers' certificates and legal opinions.

The underwriters are offering the common stock and accompanying warrants, subject to prior sale, when, as and if issued to and accepted by them, subject to approval of legal matters by their counsel and other conditions specified in the underwriting agreement. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Underwriting Commissions and Offering Expenses

The underwriters propose to offer the common stock and warrants to the public at the public offering price shown below. The underwriters may offer the common stock and warrants to securities dealers at the price to the public less a concession.

The following table shows the public offering price, underwriting commissions and proceeds, before expenses, to us:

	Total Per Share and Without Accompanying Warrant		With Over-Allotment
	Over-Allotment	Over-Allotment	Over-Allotment
Public offering price	\$	\$	\$
Underwriting discount (1)	\$	\$	\$
Proceeds, before expenses, to us	\$	\$	\$

(1) With respect to investments made by investors introduced by the Company, the underwriters will be paid only 50% of the underwriting discount.

We have also agreed to pay the underwriters' expenses relating to the offering, including (a) all filing fees relating to the registration of the Securities to be sold in the Offering with the Commission; (b) all actual filing fees associated with the review of this offering by FINRA; (c) all fees and expenses relating to the listing of our shares of common stock on the NYSE MKT; (d) all fees, expenses and disbursements relating to the registration or qualification of our securities under the "blue sky" securities laws of such states and other jurisdictions as the representative may reasonably designate (including, without limitation, all filing and registration fees); (e) all fees, expenses and disbursements relating to the registration, qualification or exemption of our securities under the securities laws of such foreign jurisdictions as the representative may reasonably designate; (f) the costs of all mailing and printing of the underwriting documents as the representative may reasonably deem necessary; (g) the costs of preparing, printing and delivering certificates representing the securities sold in this Offering; (h) fees and expenses of our transfer agent; (i) stock transfer and/or stamp taxes, if any, payable upon the transfer of securities from the Company to the representative; (j) the fees and expenses of our accountants; and (k) the fees and expenses of our legal counsel and other agents and representatives.

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