As filed with the Securities and Exchange Commission on May 9, 2013

Registration No. 333-

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-3

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

NeoStem, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**22-2343568**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

420 Lexington Avenue, Suite 350

New York, New York 10170

(212) 584-4180

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Catherine M. Vaczy, Esq.

Vice President and General Counsel

NeoStem, Inc.

420 Lexington Avenue, Suite 350, New York, New York 10170

(212) 584-4180

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copy to:

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65 Livingston Avenue

Roseland, New Jersey 07068

Telephone: (973) 597-2500

Approximate date of proposed sale to the public: From time to time after this Registration Statement becomes effective.

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

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box: x

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

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

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box: ☐

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

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

Large accelerated filer ☐	Accelerated filer ☐
Non-accelerated filer ☐ (Do not check if a smaller reporting company)	Smaller reporting company x

CALCULATION OF REGISTRATION FEE

Title of each class of securities to be registered	Amount to be Registered (1)(2)	Proposed Maximum Offering Price Per Share(2)	Proposed Maximum Aggregate offering Price (2)(3)(4)	Amount of registration fee (5)
Common stock, $0.001 par value per share, underlying Common Stock Purchase Warrants	—	—	$7,985,264	$1,089.19
Total	**—**	—	$7,985,264	$1,089.19

The Registrant has an existing "shelf" registration statement on Form S-3, File No. 333-166169, that was declared effective on May 11, 2010 and which expires on May 11, 2013 pursuant to Rule 415(a)(5) under the Securities Act. The November 2010 $1.85 Warrants to purchase shares of common stock having an aggregate offering price of $5,224,706 and Series E Warrants to purchase shares of common stock having an aggregate offering price of $2,760,558 (with the aggregate offering prices calculated as described in footnotes (3) and (4) above), in each case issued under such registration statement, remain outstanding. The Registrant is filing this new Registration Statement for the sole purpose of ensuring that an effective Registration Statement covers the exercise of such previously issued November 2010 $1.85 Warrants and Series E Warrants. Pursuant to Rule 415(a)(6) under the Securities Act, the filing fees previously paid in connection with the securities being registered hereunder will continue to be applied to such securities. In accordance with SEC rules, the Registrant may continue to offer and sell securities being registered hereunder during the grace period afforded by Rule 415(a)(5). Pursuant to Rule 415(a)(6), the offering of the unsold securities registered under the prior registration statement will be deemed terminated as of the effective date of this Registration Statement. If the Registrant sells any securities being registered hereunder during the grace period, the Registrant will identify in a pre-effective amendment to this Registration Statement the new amount of securities to be carried forward to this Registration Statement in reliance upon Rule 415(a)(6).

(1) The securities being registered hereunder include such indeterminate number of shares of common stock that may be issuable with respect to the securities being registered hereunder as a result of stock splits, stock dividends or similar transactions, in each case determined in accordance with Rule 416 under the Securities Act of 1933, as amended (the "Securities Act").

(2) Pursuant to Rule 457(o) under the Securities Act, the registration fee for this Registration Statement is calculated on the basis of the maximum aggregate offering price of all the securities listed in the fee table.

(3) The common stock registered hereunder consists of (A) shares of common stock having an aggregate offering price of $5,224,706 issuable upon the exercise of warrants to purchase an aggregate of 2,824,165 shares of common stock at an exercise price of $1.85 per share (the "November 2010 $1.85 Warrants"), which November 2010 $1.85 Warrants were previously issued in connection with the Registrant's November 2010 offering of units consisting of shares of common stock and November 2010 $1.85 Warrants; and (B) shares of common stock having an aggregate offering price of $2,760,558 issuable upon the exercise of warrants to purchase an aggregate of 1,930,460 shares of common stock (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof) at an exercise price of $1.43 per share (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof) (the "Series E Warrants"), which Series E Warrants were previously issued in connection with the Registrant's November 2010 offering of units consisting of shares of the Registrant's

formerly outstanding Series E 7% Senior Convertible Preferred Stock, Series E Warrants and shares of common stock. The November 2010 $1.85 Warrants and the Series E Warrants were issued and previously registered pursuant to Registration Statement on Form S-3 (File No. 333-166169).

(4) Estimated solely for the purpose of computing the amount of the registration fee for the shares of common stock issuable upon the exercise of the outstanding warrants in accordance with Rule 457(g) under the Securities Act, based upon the higher of (A) the price at which the warrants may be exercised or (B) $0.575, the average of the high and low prices of the Registrant's common stock as reported on the NYSE MKT on May 6, 2013 (the “Market Price”), which date is within five business days of the filing of this Registration Statement. Because the respective exercise prices of the warrants exceed the Market Price, the Proposed Maximum Aggregate Offering Price consists of (A) as to the November 2010 $1.85 Warrants, the $1.85 exercise price multiplied by the 2,824,165 shares of common stock underlying the outstanding November 2010 $1.85 Warrants, plus (B) as to the Series E Warrants, the $1.43 exercise price (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof) multiplied by the 1,930,460 shares of common stock underlying the outstanding Series E Warrants (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof).

(5) The shares of common stock issuable upon the exercise of the November 2010 $1.85 Warrants and the Series E Warrants were previously registered pursuant to Registration Statement on Form S-3 (File No. 333-166169). In connection with such previous registration of the shares of common stock issuable upon the exercise of the November 2010 $1.85 Warrants and the Series E Warrants, the Registrant paid a registration fee of $569.35. Pursuant to Rule 415(a)(6) under the Securities Act, the filing fees previously paid in connection with the securities being registered hereunder will continue to be applied to the same and no additional fee is required to be paid for the current registration statement.

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

EXPLANATORY NOTE

The Registrant has an existing "shelf" registration statement on Form S-3, File No. 333-166169, that was declared effective on May 11, 2010 and which expires on May 11, 2013 pursuant to Rule 415(a)(5) under the Securities Act (the "Prior Registration Statement"). The common stock registered pursuant to this Registration Statement consists of (A) shares of common stock having an aggregate offering price of $5,224,706 issuable upon the exercise of warrants to purchase an aggregate of 2,824,165 shares of common stock at an exercise price of $1.85 per share (the "November 2010 $1.85 Warrants"), which November 2010 $1.85 Warrants were previously issued by the Registrant pursuant to the Prior Registration Statement and (B) shares of common stock having an aggregate offering price of $2,760,558 issuable upon the exercise of warrants to purchase an aggregate of 1,930,460 shares of common stock (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof) at an exercise price of $1.43 per share (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof) (the "Series E Warrants"), which Series E Warrants were previously issued by the Registration pursuant to the Prior Registration Statement. The Registrant is filing this new Registration Statement for the sole purpose of ensuring that an effective Registration Statement covers the exercise of such previously issued November 2010 $1.85 Warrants and Series E Warrants. In accordance with SEC rules, the Registrant may continue to offer and sell securities being registered hereunder during the grace period afforded by Rule 415(a)(5). Pursuant to Rule 415(a)(6), the offering of the unsold securities registered under the Prior Registration Statement will be deemed terminated as of the effective date of this Registration Statement. If the Registrant sells any securities being registered hereunder during the grace period, the Registrant will identify in a pre-effective amendment to this Registration Statement the new amount of securities to be carried forward to this Registration Statement in reliance upon Rule 415(a)(6).

SUBJECT TO COMPLETION, DATED MAY 9, 2013

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

PROSPECTUS

NEOSTEM, INC.

$7,985,264 of Common Stock Underlying Warrants Previously Issued

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We are offering shares of common stock having an aggregate offering price of $7,985,264 ("Common Stock"), which Common Stock is issuable upon the exercise of outstanding warrants previously issued by us in November 2010 as follows:

- shares of Common Stock having an aggregate offering price of $5,224,706 issuable upon the exercise of warrants to purchase an aggregate of 2,824,165 shares of Common Stock at an exercise price of $1.85 per share (the "November 2010 $1.85 Warrants"); and

- shares of Common Stock having an aggregate offering price of $2,760,558 issuable upon the exercise of warrants to purchase an aggregate of 1,930,460 shares of Common Stock (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof) at an exercise price of $1.43 per share (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof) (the "Series E Warrants").

In order to obtain the shares of Common Stock to which this prospectus relates, the holders of the warrants must pay the applicable exercise price. We will receive proceeds from any exercises of the warrants, but not from the sale of the underlying Common Stock. Please see the section titled "Plan of Distribution" on page 21 for more information regarding the offering. The November 2010 $1.85 Warrants and the Series E Warrants are callable by us in certain circumstances as described under the captions "Description of Securities - November 2010 $1.85 Warrants" and "Description of Securities - Series E Warrants", beginning on pages 23 and 24, respectively.

Our Common Stock is listed on the NYSE MKT and traded under the symbol "NBS." On May 6, 2013, the last reported sales price of our Common Stock on the NYSE MKT was $0.57 per share. There were 193,799,542 shares of our Common Stock outstanding as of May 6, 2013.

Investing in our Common Stock is speculative and involves a high degree of risk. See "Risk Factors" beginning on page 4.

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

The date of this prospectus is , 2013.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements in this prospectus or the documents incorporated by reference herein constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of NeoStem, Inc. to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. Such factors include, among others, those set forth under the caption "Risk Factors." The words "believe," "expect," "anticipate," "intend," and "plan" and similar expressions identify forward-looking statements. Readers are cautioned not to place undue reliance on any of these forward-looking statements, which speak only as of the date the statement was made. NeoStem, Inc. undertakes no obligation to update any forward-looking statement.

ABOUT THIS PROSPECTUS

We have an existing "shelf" registration statement on Form S-3, File No. 333-166169, that was declared effective on May 11, 2010 and which expires on May 11, 2013 pursuant to Rule 415(a)(5) under the Securities Act (the "Prior Registration Statement"), subject to an up to 180 day grace period pending effectiveness of the registration statement of which this prospectus is a part. Of the securities issued under the Prior Registration Statement, there remain outstanding and unexercised (A) November 2010 $1.85 Warrants to purchase an aggregate of 2,824,165 shares of Common Stock at an exercise price of $1.85 per share, and (B) Series E Warrants to purchase an aggregate of 1,930,460 shares of Common Stock (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof) at an exercise price of $1.43 per share (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof). We have filed the registration statement of which this prospectus is a part for the sole purpose of ensuring that an effective registration statement covers the exercise of such November 2010 $1.85 Warrants and Series E Warrants. The Common Stock underlying the November 2010 $1.85 Warrants and the Series E Warrants has an aggregate offering price of $7,985,264.

It is important for you to read and consider all of the information contained in this prospectus and any supplement hereto before making any decision whether to invest in the Common Stock. You should also read and consider the information contained in the documents that we have incorporated by reference as described in "Where You Can Find More Information, and "Incorporation of Certain Information by Reference" in this prospectus.

We have not authorized anyone to give any information or to make any representations different from that which is contained or incorporated by reference in this prospectus or any applicable prospectus supplement in connection with the offer made by this prospectus and, if given or made, such information or representations must not be relied upon as having been authorized by NeoStem, Inc. or any such person. Neither the delivery of this prospectus or any applicable prospectus supplement nor any sale made hereunder and thereunder shall under any circumstances create an implication that there has been no change in the affairs of NeoStem, Inc. since the date hereof. This prospectus or any applicable prospectus supplement does not constitute an offer or solicitation by anyone in any state in which such offer or solicitation is not authorized or in which the person making such offer or solicitation is not qualified to do so or to anyone to whom it is unlawful to make such offer or solicitation.

PROSPECTUS SUMMARY

Investing in our securities involves a high degree of risk. This summary highlights some information contained or incorporated by reference in this prospectus. It may not contain all of the information that is important to you. Important information is incorporated by reference into this prospectus. To understand this offering fully, you should read carefully the entire prospectus, including “Risk Factors”, and the other financial statements and documents incorporated by reference in this prospectus.

About NeoStem

NeoStem, Inc. (“we,” “NeoStem” or the “Company”) is a leader in the emerging cellular therapy industry. Cellular therapy addresses the process by which new cells are introduced into a tissue to prevent or treat disease, or regenerate damaged or aged tissue, and comprises a separate therapeutic technology platform in addition to the current three pillars of healthcare: pharmaceuticals, biologics and medical devices. Modern cell-based therapies have progressed from the first recorded human to human blood transfusion 200 years ago through to the advanced cellular therapies of today including bone marrow and organ transplantation, tissue banking and reproductive *in vitro* fertilization and future therapies being investigated to treat cancer, cardiologic, neurologic, ophthalmic and orthopedic diseases among others. We anticipate that cellular therapies will have a large role in the fight against chronic disease and in lessening the economic burden that these diseases pose to modern society.

Our business model includes the development of novel proprietary cell therapy products as well as operating a contract development and manufacturing organization (“CDMO”) providing services to others in the regenerative medicine industry. The combination of a therapeutic development business and revenue-generating service provider business provides the Company with unique capabilities for cost effective in-house product development and immediate revenue and cash flow generation.

Progenitor Cell Therapy, LLC, our wholly owned subsidiary (“PCT”), is a leading CDMO in the cellular therapy industry. Since its inception in 1997, PCT has provided pre-clinical and clinical current Good Manufacturing Practice (“cGMP”) development and manufacturing services to over 100 clients advancing regenerative medicine product candidates through rigorous quality standards all the way through to human testing. PCT has two cGMP, state-of-the art cell therapy research, development, and manufacturing facilities in New Jersey and California, serving the cell therapy community with integrated and regulatory compliant distribution capabilities. Its core competencies in the cellular therapy industry include manufacturing of cell therapy-based products, product and process development, cell and tissue processing, regulatory support, storage, distribution and delivery and consulting services.

Our wholly-owned subsidiary, Amorcyte, LLC (“Amorcyte”), which we acquired in October 2011, is developing our own cell therapy, AMR-001, for the treatment of cardiovascular disease. AMR-001 represents our most clinically advanced therapeutic product candidate and enrollment for our Phase 2 PreSERVE clinical trial to investigate AMR-001's safety and efficacy in preserving heart function after a heart attack in a particular type of post Acute Myocardial Infarction (“AMI”) patients commenced in 2012. We are on track to complete enrollment for this study in 2013 with the first data readout available six to eight months after the last patient is enrolled. If approved by the U.S. Food and Drug Administration ("FDA") and/or other worldwide regulatory agencies, AMR-001 would address a significant unmet medical need in the treatment of AMI, potentially improving the quality and longevity of life for those afflicted, and position the Company to capture a meaningful share of the worldwide AMI market.

Through our majority-owned subsidiary, Athelos Corporation (“Athelos”), we are collaborating with Becton-Dickinson in early stage clinical development of a therapy utilizing T-cells, collaborating for autoimmune and inflammatory conditions. We plan to investigate the clinical feasibility of nTreg-based therapeutics to prevent and/or treat type 1 diabetes, graft vs. host disease, steroid resistant asthma, lupus, multiple sclerosis and solid organ transplant rejection.

Our pre-clinical assets include our VSEL ™ (Very Small Embryonic Like) Technology platform for which we expect to file an IND with the FDA to initiate a National Institute of Health ("NIH") funded human clinical study treating periodontitis with VSELs™. We are also working on a Department of Defense funded study of VSELs™ and mesenchymal stem cells for the treatment of chronic wounds.

NeoStem's origins are in adult stem cell collection and storage and we believe that as new therapeutics are developed utilizing one's own stored cells (autologous), the market penetration rate for the collection and storage business may rise sharply from its current low single digits percentage level allowing our developing a network to scale rapidly if the demand grows.

We believe that NeoStem is ideally positioned to be an integrated leader in the cell therapy industry. We have significant basic research and development capabilities, manufacturing facilities on both the east and west coast of the United States, the support of regulatory and logistical expertise and a talented and experienced clinical team. We believe this expertise will allow us to achieve our mission of becoming the premier cell therapy company.

NeoStem Corporate Information

Our principal executive offices are located at 420 Lexington Avenue, Suite 350, New York, New York 10170, and our telephone number is (212) 584-4180. Our Common Stock is currently traded on the NYSE MKT under the symbol "NBS." We maintain a corporate website at *www.neostem.com*. The contents of our website are not incorporated by reference into this prospectus and should not be considered to be a part of this prospectus or relied upon in connection herewith.

NeoStem, Inc. was incorporated under the laws of the State of Delaware in September 1980 under the name Fidelity Medical Services, Inc. and commenced operations in the adult stem cell collection, processing and storage services business in January 2006. Unless otherwise stated, all references to "us," "our," "NeoStem," "we," the "Company" and similar designations refer to NeoStem, Inc.

This prospectus and the information incorporated by reference includes trademarks, service marks and trade names owned by us or other companies. All trademarks, service marks and trade names included or incorporated by reference into this prospectus are the property of their respective owners.

The Offering

We are offering shares of Common Stock having an aggregate offering price of $7,985,264, which Common Stock is issuable upon the exercise of outstanding warrants previously issued by us in November 2010 as follows:

- shares of Common Stock having an aggregate offering price of $5,224,706 issuable upon the exercise of November 2010 $1.85 Warrants to purchase an aggregate of 2,824,165 shares of Common Stock at an exercise price of $1.85 per share; and

- shares of Common Stock having an aggregate offering price of $2,760,558 issuable upon the exercise of Series E Warrants to purchase an aggregate of 1,930,460 shares of Common Stock (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof) at an exercise price of $1.43 per share (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof).

In order to obtain the shares of Common Stock underlying the warrants, the holders thereof must pay the applicable exercise price. We will receive proceeds from any exercises of the warrants, but not from the sale of the underlying Common Stock. Please see the section titled "Plan of Distribution" on page 21 for more information regarding the offering. The November 2010 $1.85 Warrants and the Series E Warrants are callable by us in certain circumstances as described under the captions "Description of Securities - November 2010 $1.85 Warrants" and "Description of Securities - Series E Warrants", beginning on page 23 and 24, respectively.

RISK FACTORS

Investing in our securities involves risk. Please see the risk factors set forth under the heading “Risk Factors” beginning on page 23 of our Annual Report on Form 10-K for the year ended December 31, 2012, which document is on file with the Securities and Exchange Commission and is incorporated by reference into this prospectus. Before making an investment decision, you should carefully consider these risks as well as other information we include or incorporate by reference in this prospectus and any supplement hereto. The risks and uncertainties we have described are not the only ones facing our Company. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our business operations.

RISKS RELATED TO THIS OFFERING, OUR SECURITIES AND OUR FINANCIAL CONDITION

We anticipate that we will need substantial additional financing in the future to continue our operations; if we are unable to raise additional capital, as and when needed, we may be forced to delay, reduce or eliminate one or more of our product development programs, cell therapy initiatives or commercialization efforts.

Our current operating plan will require significant levels of additional capital to fund, among other things, the continued development of our cell therapy product candidates and the operation, enhancement and expansion of our contract development and manufacturing operations to support our customers and our clinical development activities.

In 2012, our research and development expenses increased significantly as a result of the initiation of the AMR-001 Phase 2 clinical trial. This trial is expected to continue to enroll patients throughout 2013. Even beyond the conclusion of the current study, AMR-001 will require significant investment over a period of several years before it could be approved by FDA and commercialized by us. If the results of the current Phase 2 trial are positive, we will need to conduct additional clinical studies of the product, including larger and more expensive pivotal Phase 3 studies. To do so, we will need to raise additional money in the capital markets, enter into collaboration agreements with third parties or undertake some combination thereof. If we are unsuccessful in these efforts, we will likely need to otherwise delay or abandon the trials.

The amount and timing of our future capital requirements also will likely depend on many other factors, including:

- the scope, progress, results, costs, timing and outcomes of our other cell therapy research and development programs and product candidates;

- our ability to enter into any collaboration agreements with third parties for our other product candidates and the timing and terms of any such agreements;

- the timing of and the costs involved in obtaining regulatory approvals for our product candidates, a process which could be particularly lengthy or complex given the FDA's limited experience with marketing approval for cell therapy products; and

- the costs of maintaining, expanding and protecting our intellectual property portfolio, including potential litigation costs and liabilities.

To both fund our AMR-001 clinical studies and support our future operations, we would likely seek to raise additional capital through a variety of different public and/or private financings vehicles. This could include, but not be limited to, use of our equity line with Aspire Capital, as described below, potential warrant exercises, option exercises, issuances of other debt or equity securities in public or private financings, and/or sale of assets. If we raise capital through the sale of equity, or securities convertible into equity, it would result in dilution to our then existing stockholders. Servicing the interest and principal repayment obligations under debt facilities could divert funds that would otherwise be available to support research and development, clinical or commercialization activities. In certain cases, we also may seek funding through collaborative arrangements, that would likely require us to relinquish certain rights to our technology or product candidates and share in the future revenues associated with the partnered product.

Ultimately, we may be unable to raise additional capital or enter into collaborative relationships on terms that are acceptable to us, if at all. Our inability to obtain necessary additional capital or financing to fund our future operating needs could adversely affect our business, results of operations and financial condition.

We have incurred substantial losses and negative cash flow from operations in the past, and expect to continue to incur losses and negative cash flow for the near term.

We have a limited operating history, limited capital, and limited sources of revenue. Since our inception in 1980 through March 31, 2013, we have incurred aggregate net losses of approximately $206.2 million. We incurred net losses attributable to common stockholders of approximately $8.8 million for the three months ended March 31, 2013, approximately $55.3 million for the year ended December 31, 2012 and approximately $47.8 million for the year ended December 31, 2011. As of March 31, 2013, our cash and cash equivalents were approximately $9.3 million. The revenues generated in our cell therapy services business have not been, and are not expected in the foreseeable future to be, sufficient to cover costs attributable to that business or to our operations as a whole, including our development activities associated with our product candidates. Ultimately, we may never generate sufficient revenue from our cell therapy services business for us to reach profitability, generate positive cash flow or sustain, on an ongoing basis, our current or projected levels of product development and other operations.

Management will have broad discretion as to the use of the proceeds from our recent capital raises and any proceeds from the exercise of the warrants with respect to which the underlying shares are being registered hereby, and we may not use the proceeds effectively.

Our management will have broad discretion in the application of the net proceeds from our recent April 2013 underwritten offering, our recent private placements, and any proceeds resulting from the exercise, if any, of the warrants with respect to which the underlying shares of common stock are registered by this prospectus, and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common stock. Our failure to apply these funds effectively could have a material adverse effect on our business, delay the development of our product candidates and cause the price of our common stock to decline.

You will experience dilution if we issue additional equity securities in future fundraising transactions and if shares of our common stock underlying our significant number of outstanding warrants and options are purchased by the holders thereof.

If in the future we issue additional common stock, or securities convertible into or exchangeable or exercisable for common stock, our stockholders, including investors who purchase shares offered under this prospectus, will experience dilution, and any such issuances may result in downward pressure on the price of our common stock.

In addition, we have a significant number of outstanding securities convertible into, or allowing the purchase of our common stock. Investors will be subject to increased dilution upon the exercise of outstanding stock options and warrants. There were 193,799,542 shares of our common stock outstanding as of May 6, 2013. As of that date, stock options and warrants outstanding represented 81,670,148 shares of our common stock that could be issued in the future. The number of shares issuable upon exercise of our Series E Warrants are subject to weighted average antidilution adjustment. Most of the outstanding shares of our common stock, as well as the vast majority of the shares of our common stock that may be issued under our outstanding options and warrants, are not restricted from trading or have the contractual right to be registered. Also, the issuance of additional shares as a result of such conversion or purchase, or their subsequent sale, could adversely affect the price of our common stock.

Our stock price has been, and will likely continue to be, highly volatile.

The market price of our common stock has been and in the future may continue to be highly volatile. For example, from January 1, 2012 through May 6, 2013 our common stock traded as low as $0.30 per share and as high as $0.90 per share; in 2011, our Common Stock traded as low as $0.43 per share and as high as $2.10 per share.

The market price for our common stock is highly dependent on, among other things, our clinical development efforts with respect to AMR-001, the profitability and growth of our cell therapy services business, the amount of our available cash and investments and our level of cash utilization. Future events could increase the volatility seen in our Common Stock and ultimately cause a significant decline in the price of our common stock and ultimately impact our ability to raise additional capital in the future. These events could including the following, among others:

- low levels of trading volume for our shares;
- capital-raising or other transactions including this offering that are, or may in the future be, dilutive to existing stockholders or that involve the issuance of debt securities;
- delays in our clinical trials, negative clinical trial results or adverse regulatory decisions relating to our product candidates;

- adverse fluctuations in our revenues or operating results or financial results that otherwise fall below the market's expectations;
- disappointing developments concerning our PCT clients or other potential business partners for our product candidates; and
- legal challenges, disputes and/or other adverse developments impacting our patents or other proprietary rights that protect our products.

In addition, broader external events, such as news concerning economic or market conditions in the general economy or within our industry, the activities of our competitors, changes (or the threat of changes) in U.S. or foreign government regulations impacting the life sciences industry or the movement of capital into or out of our industry, are likely to affect the price of our Common Stock. There can be no assurance that the market price of our Common Stock will not continue to fluctuate or decline significantly in the future.

In addition to potential dilution associated with the shares underlying warrants being offered by this prospectus and future fundraising transactions, we currently have significant numbers of securities outstanding that are convertible into or exercisable for our Common Stock, which could result in significant additional dilution and downward pressure on our stock price.

Sales of a substantial number of shares of our Common Stock in the public markets (including the shares underlying the November 2010 $1.85 Warrants and the Series E Warrants that are covered by this prospectus), or the perception that such sales could occur, could depress the market price of shares of our Common Stock and impair our ability to raise capital through the sale of additional equity securities. As of May 6, 2013, there were 193,799,542 shares of our Common Stock outstanding. In addition, there were outstanding stock options and warrants representing the potential issuance of an additional 81,670,148 shares of our Common Stock. The issuance of these shares in the future would result in significant dilution to our current stockholders and could adversely affect the price of our Common Stock and the terms on which we could raise additional capital. In addition, the issuance and subsequent trading of shares could cause the supply of our Common Stock available for purchase in the market to exceed the purchase demand for our Common Stock. Such supply in excess of demand could cause the market price of our Common Stock to decline.

Sales of our Common Stock to Aspire Capital pursuant to our Purchase Agreement may cause substantial dilution to our existing stockholders and the sale of the shares of Common Stock acquired by Aspire Capital could cause the price of our Common Stock to decline.

The Company entered into a Purchase Agreement with Aspire Capital Fund, LLC in September 2011, as amended on August 23, 2012, pursuant to which Aspire Capital committed to the purchase of up to $20 million of shares of the Company's Common Stock over the term of that Agreement, subject to certain terms and conditions, including a floor price as set forth in the Agreement.

Through March 31, 2013, Aspire purchased 9.8 million shares of the Company's common stock for an aggregate consideration of approximately $6.1 million. After Aspire Capital acquires shares under the Purchase Agreement, it may immediately sell all or some of those shares. Sales to Aspire Capital by us pursuant to the Purchase Agreement may result in substantial dilution to the interests of other holders of our Common Stock. The sale of a substantial number of shares of our Common Stock to Aspire Capital, or anticipation of such sales, could make it more difficult for us to sell equity or equity-related securities in the future at a time and at a price that we might otherwise wish to effect sales. However, we have the right to control the timing and amount of any sales of our shares to Aspire Capital and the Purchase Agreement may be terminated by us at any time at our discretion without any cost to us.

In the event we effect a reverse stock split, there can be no assurances that it would have the desired effects on our Common Stock.

At our 2012 Annual Meeting, our stockholders authorized our Board of Directors, if they deem it advisable, to amend our certificate of incorporation to effect a reverse stock split of our Common Stock at a ratio within the range of 1:2 to 1:10, as determined by our Board. While we would intend any reverse stock split that might be effected pursuant to this authorization to have a beneficial impact on our Common Stock and investor interest, there can be no assurances that any such reverse split would have the intended effects. It is not uncommon for the market price of a company's common stock to decline in the period following a reverse stock split. If the market price of our Common Stock were to decline following an implementation by us of a reverse stock split, the percentage decline may be greater than would occur in the absence of a reverse stock split.

Actual and beneficial ownership of large quantities of our Common Stock by our executive officers and directors may substantially reduce the influence of other stockholders.

As of May 6, 2013, our executive officers and directors owned, of record and beneficially, an aggregate of approximately 16.0% and 22.6%, respectively, of our outstanding Common Stock. As a result, such persons may have the ability to exercise enhanced control and influence over the approval process for actions that require stockholder approval, including the approval of mergers, sales of assets or other significant corporate transactions or other matters submitted for stockholder approval. Furthermore, at certain times the interests of our substantial stockholders may conflict with the interests of our other stockholders.

Failure to maintain effective internal control over financial reporting in accordance with Section 404 of the Sarbanes-Oxley Act could have a material adverse effect on our business and stock price.

During the course of testing our disclosure controls and procedures and internal control over financial reporting, we may identify and disclose material weaknesses or significant deficiencies in internal control over financial reporting that will have to be remedied. Implementing any appropriate changes to our internal control may require specific compliance training of our directors, officers and employees, entail substantial costs to modify our existing accounting systems, and take a significant period of time to complete. Such changes may not, however, be effective in maintaining the adequacy of our internal control over financial reporting, and any failure to maintain that adequacy or inability to produce accurate financial statements on a timely basis could result in our financial statements being unreliable, increase our operating costs and materially impair our ability to operate our business.

Failure to achieve and maintain effective internal control over financial reporting could result in a loss of investor confidence in our financial reports and could have a material adverse effect on our stock price. Additionally, failure to maintain effective internal control over our financial reporting could result in government investigation or sanctions by regulatory authorities.

RISKS RELATED TO OUR CELL THERAPY PRODUCT DEVELOPMENT EFFORTS

Our future success is dependent in part, on the timely and successful development and commercialization of AMR-001, and if we encounter delays or difficulties in the development of this product candidate, our business prospects would be significantly harmed.

We are, in significant part, dependent upon the successful development, approval and commercialization of AMR-001 for the treatment of cardiovascular disease. AMR-001 is in an early stage of development. Before we are able to seek regulatory approval, we must conduct extensive clinical trials to demonstrate AMR-001's safety and efficacy in humans. Clinical testing is expensive, difficult to design and implement, and can take many years to complete. Importantly, a failure of one or more clinical trials can occur at any stage of testing. We may experience numerous unforeseen events during, or as a result of, clinical trials that could delay or prevent our ability to complete our clinical studies, receive regulatory approval or commercialize AMR-001, including the following:

- Ÿ suspensions, delays or changes in the design, initiation, enrollment, implementation or completion of required clinical trials;
- Ÿ adverse changes in our financial position or significant and unexpected increases in the cost of our clinical development program;
- Ÿ changes or uncertainties in, or additions to, the regulatory approval process that require us to alter our current development strategy;
- Ÿ clinical trial results that are negative, inconclusive or even less than desired as to AMR-001's safety and/or efficacy, which could result in the need for additional clinical studies or the termination of the product's development; and
- Ÿ delays in the ability to manufacture the product in quantities or in a form that is suitable for any required clinical trials;
- Ÿ intellectual property constraints that prevent us from making, using, or commercializing AMR-001; and
- Ÿ the supply or quality of our product candidates or other materials necessary to conduct clinical trials of these product candidates may be insufficient or inadequate.

During our Phase 1 trial of AMR-001 for post AMI patients, serious adverse events occurred in subjects treated with AMR-001. To date, in our Phase 2 trial of AMR-001 for post AMI patients, serious adverse events occurred which may or may not have been in the group of subjects treated with AMR-001. There can be no assurance that similar or other additional events will not occur in the Phase 2 or any other future clinical trials of AMR-001, particularly in light of the impaired heart function of patients who will be the target subject population of AMR-001.

Even if we are able to successfully complete our clinical development program for AMR-001 and ultimately receive regulatory approval to market the product, we may, among other things:

- Ÿ obtain approval for indications that are not as broad as the indications we sought;
- Ÿ have the product removed from the market after obtaining marketing approval;
- Ÿ encounter issues with respect to the manufacturing of commercial supplies;
- Ÿ be subject to additional post-marketing testing requirements; and/or
- Ÿ be subject to restrictions on how the product is distributed or used.

We may experience delays in enrolling patients in our clinical trials, which could delay or prevent the receipt of necessary regulatory approvals.

We may not be able to complete the current PreSERVE Phase 2 clinical trial of AMR-001 as anticipated (or initiate any future trials) if we are unable to identify and enroll a sufficient number of eligible patients to participate in the clinical trials required by the FDA or other regulatory authorities. For example, we had originally expected to complete the PreSERVE Phase 2 trial of AMR-001 earlier in 2013, but now expect to complete enrollment for this study later in 2013. We also may be unable to engage a sufficient number of clinical trial sites to conduct our trials. The challenge of enrolling patients will become more difficult if we are required by the FDA or a similar regulatory agency outside the United States to conduct a trial on a larger population than we currently anticipate. In that event, we might be required to seek patients to participate in our trials from Europe or other foreign jurisdictions, which could raise regulatory uncertainties and increase clinical trial costs. Moreover, because PCT does not currently have manufacturing facilities operating outside of the United States, our ability to conduct trials outside of the U.S. may be constrained by our ability to transport trial materials to foreign destinations within the expiry period of such materials unless, and until we commence operation outside of the United States.

We may face challenges in enrolling patients to participate in our clinical trials due to the novelty of our cell-based therapies, the size of the patient populations and the eligibility criteria for enrollment in the trial. In addition, some patients may have concerns regarding cell therapy that may negatively affect their perception of therapies under development and their decision to enroll in the trials. Furthermore, patients suffering from diseases within target indications may enroll in competing clinical trials, which could negatively affect our ability to complete enrollment of our trials. Enrollment challenges in clinical trials often result in increased development costs for a product candidate, significant delays and potentially the abandonment of the clinical trial.

Our development of AMR-001 is subject to uncertainty because CD34+ cells are derived from human bone marrow, a source material that is inherently variable.

The number of CD34+/CXCR4+-cells and the composition of the CD34+ cell population from bone marrow vary from patient to patient. These cells are the basis of AMR-001. Such variability in the number and composition of these cells could adversely affect our ability to manufacture AMR-001 in a cost-effective manner and meet acceptable product release specifications for use in a clinical trial or, if approved, for commercial sale. As a consequence, the development and regulatory approval process for AMR-001 (or any of our other CD34+ product candidates) could be delayed or may never be completed.

Any disruption to our access to the cell sorting system we are using in the Phase 2 clinical trial of AMR-001 could adversely affect the completion of the trial and any future regulatory submission.

The cell sorting system that we are using in our Phase 2 clinical trial of AMR-001 is owned by an unaffiliated third party. Any lack of continued availability of this system, for any reason, would have a material adverse effect on our ability to complete the Phase 2 or any subsequent clinical studies of AMR-001. Moreover, any data obtained in studies using the current system may not be usable in a regulatory submission unless we can establish comparability between the current cell sorting system and any future system. Although there are other available systems in the marketplace, we have not evaluated their cost, safety or effectiveness, or whether AMR-001 would be compatible with such systems.

The initiation of a pivotal Phase 3 clinical trial for AMR-001 will require the validation and establishment of manufacturing controls that may delay the product's current development timeline.

If the results of our Phase 2 clinical trial of AMR-001 are positive and support Phase 3 development, we expect to initiate and complete one or more pivotal Phase 3 clinical trials. To do so, we are required to have certain validated and established manufacturing controls with respect to the safety, purity and potency of AMR-001 when administered to patients. We may not be successful in our efforts to address any chemistry, manufacturing and controls, or CMC, issues raised by the FDA. If we cannot initiate, or if we are delayed in initiating, a pivotal Phase 3 clinical program of AMR-001 as a result of our failure to satisfy the FDA's CMC concerns or otherwise, the timing of our planned regulatory submission for commercialization of AMR-001 would be delayed, or we may be unable to seek regulatory approval to commercialize AMR-001 at all.

We presently lack sufficient manufacturing capabilities to produce AMR-001 at commercial scale quantities and do not have an alternate manufacturing supply, which could negatively impact our ability to meet any future demand for the product.

Currently, PCT exclusively provides the cell processing services necessary for clinical production of AMR-001 and also provides services and produces materials for clinical trials on behalf of unaffiliated third parties. To date, PCT has not produced any products at commercial scale quantities. We expect that we would need to significantly expand our manufacturing capabilities to meet potential demand for AMR-001, if approved, as well as any of our other product candidates that might attain regulatory approval. Such expansion would require additional regulatory approvals. Even if we increase our manufacturing capabilities, it is possible that we may still lack sufficient capacity to meet demand. Ultimately, if we are unable to supply AMR-001 to meet commercial demand, whether because of processing constraints or other disruptions, delays or difficulties that we experience, sales of the product and its long term commercial prospects could be significantly damaged.

We do not presently have any alternate supply for AMR-001. If our facility where AMR-001 is currently being manufactured or equipment were significantly damaged or destroyed, or if there were other disruptions, delays or difficulties affecting manufacturing capacity, the ongoing Phase 2 clinical study and future clinical studies and commercial production for AMR-001 would likely be significantly disrupted and delayed. It would be both time consuming and expensive to replace this capacity with third parties, particularly since any new facility would need to comply with the regulatory requirements.

Ultimately, if we are unable to supply AMR-001 to meet commercial demand, whether because of processing constraints or other disruptions, delays or difficulties that we experience, our production costs could dramatically increase and sales of the product and its long-term commercial prospects could be significantly damaged.

The commercial potential and profitability of AMR-001 is unknown and subject to significant risk and uncertainty.

Even if we successfully develop and obtain regulatory approval for AMR-001, the market may not understand or accept the product, which could adversely affect both the timing and level of future sales. Ultimately, the degree of market acceptance of AMR-001 (or any of our future product candidates) will depend on a number of factors, including:

- Ÿ the clinical effectiveness, safety and convenience of AMR-001, particularly in relation to alternative treatments;
- Ÿ our ability to distinguish AMR-001 from any ethical and political controversies associated with stem cell products derived from human embryonic or fetal tissue; and
- Ÿ the cost of the product, the reimbursement policies of government and third-party payors and our ability to obtain sufficient third-party coverage or reimbursement.

Even if we are successful in achieving unit sales of AMR-001 consistent with our expectations, it is not clear to what extent, if any, the product will be profitable. The costs of goods associated with production of AMR-001 may be significant. While we are working to improve the speed and efficiency and lower the cost of our manufacturing processes, there can be no assurance that we will be successful in these efforts. In addition, some changes in manufacturing processes or procedures generally require FDA or foreign regulatory authority review and approval prior to implementation. We may need to conduct additional preclinical studies and clinical trials to support approval of any such changes for AMR-001. Furthermore, this review process could be costly and time-consuming and could delay or prevent the commercialization of product candidates.

We have limited experience in the development and marketing of cell therapies and may be unsuccessful in our efforts to establish a profitable business.

Over the past two years, we shifted our business plan to focus on capturing a piece of the burgeoning field of cell therapy. Despite being in business for over ten years, we have limited experience in the areas of cell therapy product development and marketing, and in the related regulatory issues and processes. While the founders of PCT currently provide services in connection with our development activities, we cannot assure you that our management will successfully oversee our clinical development efforts and our plans to capture a piece of the cell therapy market.

Our cell therapy business is based on novel technologies that are inherently expensive, risky and may not be understood by or accepted in the marketplace, which could adversely affect our future value.

The clinical development, commercialization and marketing of cell and tissue-based therapies is at an early-stage, substantially research-oriented, and financially speculative. To date, very few companies have been successful in their efforts to develop and commercialize a stem cell product. In general, stem cell products may be susceptible to various risks, including undesirable and unintended side effects, unintended immune system responses, inadequate therapeutic efficacy, or other characteristics that may prevent or limit their approval or commercial use. Furthermore, the number of people who may use cell or tissue-based therapies is difficult to forecast with accuracy. Our future success is dependent on the establishment of a large global market for cell- and tissue-based therapies and our ability to capture a share of this market with our product candidates.

Our development efforts with AMR-001, our Treg therapies and VSEL™ technology are susceptible to the same risks of failure inherent in the development and commercialization of therapeutic products based on new technologies. The novel nature of cellular therapeutics creates significant challenges in the areas of product development and optimization, manufacturing, government regulation, third-party reimbursement and market acceptance. For example, the United States FDA has relatively limited experience regulating therapies based on cells, and there are few approved treatments utilizing cell therapy.

If we are unable or unsuccessful in our efforts to discover or license, develop, receive regulatory approval for and commercialize our product candidates, our long-term prospects will be negatively impacted.

Our product candidates require governmental approvals prior to commercialization. We face the substantial risks of failure inherent in developing cell-based therapies. Our product candidates must satisfy rigorous standards of safety and efficacy before the FDA or foreign regulatory authorities will approve them for commercial use. There can be no assurance that these standards will remain consistent over time, further complicating our ability to obtain marketing approvals for our product candidates. To satisfy these standards, we will need to conduct significant additional research, preclinical testing and clinical trials.

Preclinical testing and clinical development are long, expensive and highly uncertain processes; most product candidates are never approved for commercial use. Failure can occur at any stage of testing. Success in preclinical testing and early clinical trials does not ensure that later clinical trials will be successful or sufficient for regulatory approval. Based on results at any stage of clinical trials, we may decide to discontinue development of our product candidates. Even if we obtain approval and begin marketing a product, ongoing clinical trials, including for other indications, may result in additional information that could affect our ability or decision to continue marketing the product. Even if we receive regulatory approval for our product candidates, we must comply with applicable FDA post-marketing regulations governing manufacturing, promotion, labeling, risk management and reporting of adverse events and other information, as well as other regulatory requirements. Failure to comply with applicable regulatory requirements could subject us to criminal prosecution, civil penalties, recall or seizure of products, withdrawal of marketing approval, total or partial suspension of production or injunction, as well as other regulatory actions against our product or us.

We have limited resources with which to conduct pre-clinical and clinical studies, which may limit or delay our ability to discover new products or develop our product candidates and increase the risk that our long-term business objectives will not be met. While we also seek to obtain government grants and other funding to further our research and development activities, there is no assurance that such monies will be available to us in the future. Without sufficient funding, we may have to significantly reduce the levels of such expenditures.

Despite our limited resources, we intend to explore opportunities to expand our product portfolio by acquiring or in-licensing product candidates. Although we conduct extensive evaluations of product candidate opportunities as part of our due diligence efforts, there can be no assurance that our development efforts for such products will be successful or that we will not become aware of issues or complications that will cause us to alter, delay or terminate these efforts.

We may rely on third parties to help us develop or commercialize our product candidates, and our ability to commercialize such candidates may be impaired or delayed if our collaborations are unsuccessful.

We may in the future selectively pursue strategic collaborations for the development and commercialization of our product

candidates in the United States or abroad, which may require us to share any future profits or revenues, issue our equity securities or transfer certain other material rights. With respect to AMR-001, we anticipate that we may need to enter into a collaboration agreement with one or more third parties to conduct and fund Phase 3 clinical trials and to commercialize the product.

Despite our efforts, there can be no assurance that we will be able to identify suitable collaborators or negotiate collaboration agreements on terms that are acceptable to us, if at all. In any future third-party collaboration, we would be dependent upon the success of the collaborators in performing their responsibilities and their continued cooperation. Such collaborators may not cooperate or perform their obligations under their agreements with us. We may be unable to control the amount and timing of our collaborators' resources that will be devoted to performing their responsibilities under their agreements with us. Collaborators may choose to pursue alternative technologies in preference to those being developed in collaboration with us. The development and commercialization of our product candidates will be delayed if collaborators fail to conduct their responsibilities in a timely manner or in accordance with applicable regulatory requirements or if they breach or terminate their collaboration agreements. Disputes with collaborators also could result in product development delays, decreased revenues and litigation expenses.

Contractual arrangements with licensors or collaborators may require us to pay royalties or make other payments related to the development of a product candidate, which would adversely affect the level of our future revenues and profits.

Even if we obtain all applicable regulatory approvals and successfully commercialize one or more of our cell therapy candidates, contractual arrangements between us and a licensor, collaborator or other third party in connection with the respective product may require that we make royalty or other payments to the respective third party, and as a result we would not receive all of the revenue derived from commercial sales of such product.

Under the agreement pursuant to which we acquired Amorcyte, we are required to pay to the former Amorcyte shareholders certain earn-out payments following the first commercial sale of AMR-001, generally equal to 10% of net sales (or 30% of any sublicensing fees, royalties and milestone fees or profit sharing payments), less our out-of-pocket clinical development costs not previously paid or reimbursed and other expenses. Also, our license agreements relating to our Treg therapeutic product candidates include obligations to pay royalties on net sales of licensed products, maintenance fees and milestone fees upon events such as initiation of clinical trial stages, license application filings and regulatory approvals.

Even if we are successful in developing a therapeutic application using our cell technologies, it is unclear whether cell therapy can serve as the foundation for a commercially viable and profitable business.

Stem cell collection techniques are rapidly developing and could undergo significant change in the future. Such rapid technological development could result in our technologies becoming obsolete. While our AMR-001 product candidate, our Treg therapies and VSEL™ technology appear promising, such technologies may fail to be successfully commercialized for numerous reasons, including, but not limited to, competing technologies for the same indication. There can be no assurance that we will be able to develop a commercially successful therapeutic application for this technology or other potential stem cell technologies.

Moreover, advances in other treatment methods or in disease prevention techniques could significantly reduce or entirely eliminate the need for our cell therapy services, planned products and therapeutic efforts. There is no assurance that cell therapies will achieve the degree of success envisioned by us in the treatment of disease. Additionally, technological or medical developments may materially alter the commercial viability of our technology or services, and require us to incur significant costs to replace or modify equipment in which we have a substantial investment. We are focused on cell therapy, and if this field is substantially unsuccessful, this could jeopardize our success or future results. The occurrence of any of these factors may have a material adverse effect on our business, operating results and financial condition.

If we are unsuccessful in building or contracting for commercial sales and marketing capabilities in the United States and abroad, our revenues from any future products will be adversely affected.

We currently have no capabilities or experience in the selling, marketing or commercial distribution of biologic products. If any of our product candidates are ultimately approved for marketing, we would need to hire and develop an internal sales and marketing organization and/or outsource these functions to one or more third parties.

We may be unable to establish sufficient marketing, sales and distribution capabilities necessary to successfully commercialize and gain market acceptance for any of our product candidates. In addition, co-promotion or other marketing arrangements with third parties to commercialize product candidates could significantly limit the revenues we recognize from such product candidates, and these third parties may fail to commercialize the product candidates successfully.

If competitors develop and market products that are more effective, safer, or less expensive than our product candidates or

offer other advantages, our commercial prospects will be limited.

Our cell therapy development programs face, and will continue to face, intense competition from pharmaceutical, biopharmaceutical and biotechnology companies, as well as numerous academic and research institutions and governmental agencies engaged in drug discovery activities or funding, both in the United States and abroad. Some of these competitors are pursuing the development of drugs and other therapies that target the same diseases and conditions that we are targeting with our product candidates.

Because AMR-001 generally targets patients without other revascularization options, we do not believe it will compete directly with pharmaceutical therapies being developed to treat less severe stages of our target indications. However, to the extent that therapies are developed that reverse the progression of the ischemic damage or improve blood flow to damaged tissue, they could have the effect of reducing demand for our product. In addition, because AMR-001 requires the removal of bone marrow from the patient, potential competing products that do not require this invasive procedure may have a competitive advantage in terms of patient appeal. New pharmaceutical agents or devices that improve the repair of cardiac injury after a heart attack, with the result that fewer patients develop ischemic heart failure, would also represent a competitive threat for AMR-001.

Furthermore, cell-based therapies, such as skeletal myoblasts, bone marrow-derived stem cells and adipose cells are being pursued by companies such as Aastrom Biosciences, Inc., Angioblast Systems, Inc., Athersys, Inc., Pluristem Therapeutics, Inc., ReNeuron Group, Stemedica Cell Technologies Inc. and Bioheart, Inc. Some other companies, such as Cytori and Miltenyi, are developing medical devices to facilitate the production of therapeutic cell populations by clinicians for the treatment of AMR-001's target indications. Such devices may be approved by the FDA under a less rigorous regulatory process, and less extensive clinical testing and manufacturing controls than we are required to pursue for AMR-001 and thus could reach the market well before AMR-001.

As a general matter, we also face competition from many other companies that are researching and developing cell therapies. Many of these companies have financial and other resources substantially greater than ours. In addition, many of these competitors have significantly greater experience in testing pharmaceutical and other therapeutic products, obtaining FDA and other regulatory approvals, and marketing and selling. If we ultimately obtain regulatory approval for any of our product candidates, we also will be competing with respect to manufacturing efficiency and marketing capabilities, areas in which we have limited or no commercial-scale experience. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated by our competitors. Competition may increase further as a result of advances made in the commercial applicability of our technologies and greater availability of capital for investment in these fields.

We may be subject to significant product liability claims and litigation, including potential exposure from the use of our product candidates in human subjects, and our insurance may be inadequate to cover claims that may arise.

Our business exposes us to potential product liability risks inherent in the testing, processing and marketing of cell therapy products. Such liability claims may be expensive to defend and result in large judgments against us. We face an inherent risk of product liability exposure related to the testing of AMR-001 and any future product candidates in human clinical trials and will face an even greater risk with respect to any commercial sales of our products once approved. No product candidate has been widely used over an extended period of time, and therefore safety data is limited. Cell therapy companies derive the raw materials for manufacturing of product candidates from human cell sources, and therefore the manufacturing process and handling requirements are extensive, which increases the risk of quality failures and subsequent product liability claims. We presently have product liability insurance limited to $5 million per incident and $5 million in annual aggregate.

We will need to increase our insurance coverage when we begin commercializing product candidates, if ever. At that time, we may not be able to obtain or maintain product liability insurance on acceptable terms with adequate coverage or at all, or if claims against us substantially exceed our coverage, then our financial position could be significantly impaired.

Whether or not we are ultimately successful in any product liability litigation that may arise, such litigation could consume substantial amounts of our financial and managerial resources, decreased demand for our products and injure our reputation.

We seek to maintain errors and omissions, directors and officers, workers' compensation and other insurance at levels we believe to be appropriate to our business activities. If, however, we were subject to a claim in excess of this coverage or to a claim not covered by our insurance and the claim succeeded, we would be required to pay the claim from our own limited resources, which could have a material adverse effect on our financial condition, results of operations and business. Additionally, liability or alleged liability could harm our business by diverting the attention and resources of our management and damaging our reputation.

We may be unable to retain key officers or employees or hire new key officers or employees needed to implement our business strategy and develop our products and businesses.

Given the specialized nature of cell therapy and that it is a relatively new field, there is an inherent scarcity of experienced personnel in the field. We are substantially dependent on the skills and efforts of current senior management for their management and operations, as well as for the implementation of their business strategy. In addition, our future success depends upon our ability to attract and retain additional qualified personnel (including medical, scientific, technical, commercial, business and administrative personnel) necessary to support our anticipated growth, develop our business, perform our contractual obligations to third parties and maintain appropriate licensure. There can be no assurance that we will be successful in attracting or retaining personnel required by us to continue to grow our operations. The loss of a key employee, the failure of a key employee to perform in his or her current position or our inability to attract and/or retain skilled employees, as needed, could result in our inability to continue to grow our business or to implement our business strategy, or may have a material adverse effect on our business, financial condition and operating results.

RISKS RELATED TO OUR CONTRACT DEVELOPMENT AND MANUFACTURING BUSINESS

Cell therapy is in its early stages, it is still a developing field and a significant global market for our third party manufacturing services at PCT may never emerge.

Cell therapy is in its early stages and is still a developing area of research, with few cell therapy products approved for clinical use. Many of the existing cellular therapy candidates are based on novel cell technologies that are inherently risky and may not be understood or accepted by the marketplace, making difficult their own funding to enable them to continue their business. At PCT, the current market and our existing contracts principally consist of providing manufacturing of cell and tissue-based therapeutic products in clinical trials and processing of stem cell products for transplantation programs. The number of people who may use cell or tissue-based therapies and thus the demand for stem cell processing services is difficult to forecast. If cell therapies under development by us or by others to treat disease are not proven effective, demonstrate unacceptable risks or side effects or, where required, fail to receive regulatory approval, our PCT business will be significantly impaired. While the therapeutic application of cells to treat serious diseases is currently being explored by a number of companies, to date there are only a handful of approved products in the United States. Ultimately, our success in developing our contract development and manufacturing business depends on the development and growth of a broad and profitable global market for cell- and tissue-based therapies and services and our ability to capture a share of this market through PCT.

PCT's revenues may vary dramatically from period to period making it difficult to forecast future results.

The nature and duration of PCT's contracts with customers often involve regular renegotiation of the scope, level and price of the services we are providing. If our customers reduce the level of their spending on research and development or marketing or are unsuccessful in attaining or retaining product sales due to market conditions, reimbursement issues or other factors, our results of operations may be materially impacted. In addition, other factors, including the rate of enrollment for clinical studies, will directly impact the level and timing of the products and services we deliver. As such, the levels of our revenues and profitability can fluctuate significantly from one period to another and it can be difficult to forecast the level of future revenues with any certainty.

We have a finite manufacturing capacity at PCT, which could inhibit the long-term growth prospects of this business.

We currently provide services and produce materials for clinical trials at our existing manufacturing facilities in Allendale, New Jersey and Mountain View, California, which we have designed and operated to be compliant with FDA cGMP, and cGTP requirements. While we believe these facilities provide us with sufficient capacity to meet our expected near term demand, it is possible that the demand for our services and products could exceed our existing manufacturing capacity. It may become necessary or desirable for us to expand our manufacturing capabilities for cell therapy services and products in the future, which may require us to invest significant amounts of capital and to obtain regulatory approvals. In this regard, we are reviewing plans for commercial and European manufacturing capabilities which we expect to have in place in 2013. If we are unable to meet rising demand for products and services on a timely basis or unable to maintain cGMP compliance standards, then it is likely that our clients and potential clients will elect to obtain the products and services from competitors, which could materially and adversely affect the level of our revenues and our prospects for growth.

Components of therapeutic products approved for commercial sale or used in late-stage clinical trials must be manufactured in accordance with cGMP. Manufacturers of cell-based product candidates such as AMR-001 also must comply with the cGTP. In addition, therapeutic products may be required to modify their manufacturing process from time to time in response to FDA requests. Manufacture of live cellular-based products is complex and subjects companies to significant regulatory burdens that

may change over time. We may encounter difficulties in the production of our product candidates due to our limited manufacturing experience.

We will need to improve manufacturing efficiency at PCT if we are to realize meaningful gains in PCT's profitability.

Together with our customers, PCT is working to develop new processes and instruments to improve manufacturing efficiency and the profitability of the business. We cannot provide assurances that we will be able to develop process enhancements that are acceptable to the FDA, on a timely basis, on commercially reasonable terms, or at all, or that any expected improvement in profitability will be realized. If we are unsuccessful in our efforts to develop these improvements, we may be unable to profitably operate the PCT business and could face significantly higher capital expenditures, increased facility and personnel costs and other increased operating expenses.

We have a limited marketing staff and budget for our PCT operations, which could limit our ability to grow this business.

The degree of market acceptance of our products and services depends upon a number of factors, including the strength of our sales and marketing support. If our marketing is not effective, our ability to generate revenues could be significantly impaired. Due to capital constraints, our marketing and sales activities at PCT are limited, and the failure to attract a sufficient base of customers will affect our ability to increase our revenues and operate profitably.

The logistics associated with the distribution of materials produced by PCT for third parties and us, including AMR-001, are significant, complex and expensive and may negatively impact our ability to generate and meet future demand for our products and improve profitability.

Current cell therapy products and product candidates, including AMR-001, have a limited shelf life, in certain instances limited to less than 12 hours. Thus, it is necessary to minimize the amount of time between when the cell product is extracted from a patient, arrives at one of our facilities for processing, and is delivered for re-infusion in the patient.

To do so, we need our cell therapy facilities to be located in major population centers in which patients are likely to be located and within close proximity of major airports. In the future, it may be necessary to build new facilities, which would require a significant commitment of capital and may not then be available to us. Even if we are able to establish such new facilities, we may experience challenges in ensuring that they are compliant with cGMP, other FDA requirements, and/or applicable state or local regulatory requirements. We cannot be certain that we would be able to recoup the costs of establishing a facility in a given market. Given these risks, we may choose not to expand our cell processing and manufacturing services into new geographic markets which will limit our future growth prospects.

To effectively and efficiently deliver cell therapy product, we also need to establish and maintain cost-effective relationships with reliable and experienced transportation carriers. Existing transportation carriers are not optimally designed for the transportation of cell therapy products. For example, these carriers generally lack a true point-to-point chain of control, have non-controlled X-ray and inspection, do not guarantee package orientation, handling or storage conditions and, in many cases, lack a standard, documented and tracked operating procedures. While reliable ground carriers with experience in the transport of blood products exist in major U.S. metropolitan areas, air carriers meeting such needs are limited. If our current carrier should cease its medical shipping operations or otherwise be unable to properly meet our transportation needs, the lack of access to safe, reliable and effective transportation options could adversely affect our ability to meet our customers' needs.

RISK RELATED TO OUR CORD BLOOD AND STEM CELL STORAGE BUSINESS

There is no guarantee that the market for our cord blood and adult stem cell collection and storage business will develop, and it exposes us to risks inherent in the long-term storage of these products.

Through NeoStem Family Storage, we provide services related to the collection and storage of umbilical cord blood units and adult stem cells, which we store at our Allendale, New Jersey facility. There currently is no significant global market for stem cell processing or collection and storage, nor is there any guarantee that such markets will develop in the near future, or at all. Major medical institutions currently do not generally recommend private storage, and we believe that the medical community is supportive of the public cord blood collection system. Patients can donate their cord blood to the public cord blood collection system without charge. In addition, the value of our cord blood storage services is related to the higher success rate of autologous cord blood transplants over unrelated ones. If medical research discovers new and more effective medical procedures that make allogeneic cord blood transplants safer and more effective, the clinical advantage of storing a child's umbilical cord blood for his or her own future therapeutic use may significantly decline.

The operation of a cord blood and adult stem cell storage system also exposes us to a number of risks. For example, adverse outcomes or limitations of our stem cell or cord blood collection and storage services, the damage, destruction or a failure in the performance of the cryopreservation storage facility or systems of our service providers, could harm our reputation and business and expose us to significant liability from customers. While we believe that we have procured insurance to cover certain of these risks, we may in fact have insufficient insurance to cover losses beyond the limits on its policies, which could have a material adverse effect on our financial condition.

RISKS RELATED TO GOVERNMENT REGULATION

The development and commercialization of our product candidates is subject to extensive regulation by the FDA and other regulatory agencies in the United States and abroad, and the failure to receive regulatory approvals for AMR-001 or our other product candidates would likely have a material and adverse effect on our business and prospects.

To date, we have not received regulatory approval to market any of our product candidates in any jurisdiction. If we seek approval of AMR-001, we will be required to submit to FDA and European regulatory authorities extensive preclinical and clinical data supporting its safety and efficacy, as well as information about the AMR-001 manufacturing process and to undergo inspection of our PCT manufacturing facilities, among other things. The process of obtaining FDA and other regulatory approvals is expensive, generally takes many years and is subject to numerous risks and uncertainties, particularly with complex and/or novel product candidates such as AMR-001. Changes in regulatory approval policies during the development period, changes in or the enactment of additional statutes or regulations, or changes in regulatory review for each submitted product application, may cause delays in the approval or rejection of an application or may make it easier for our competitors to gain regulatory approval to enter the marketplace. Ultimately, the FDA and other regulatory agencies have substantial discretion in the approval process and may refuse to accept any application or may decide that our product candidate data are insufficient for approval without the submission of additional preclinical, clinical or other studies. In addition, varying agency interpretations of the data obtained from preclinical and clinical testing could delay, limit or prevent regulatory approval of a product candidate. Any regulatory approval we ultimately obtain may be limited or subject to restrictions or post-approval commitments that render the approved product not commercially viable.

Any of the following factors, among others, could cause regulatory approval for our product candidates to be delayed, limited or denied:

- Ÿ the product candidates require significant clinical testing to demonstrate safety and effectiveness before applications for marketing approval can be filed with the FDA and other regulatory authorities;
- Ÿ data obtained from preclinical and nonclinical animal testing and clinical trials can be interpreted in different ways, and regulatory authorities may not agree with our respective interpretations or may require us to conduct additional testing;
- Ÿ negative or inconclusive results or the occurrence of serious or unexpected adverse events during a clinical trial could cause us to delay or terminate development efforts for a product candidate; and/or
- Ÿ FDA and other regulatory authorities may require expansion of the size and scope of the clinical trials.

Any difficulties or failures that we encounter in securing regulatory approval for our product candidates would likely have a substantial adverse impact on our ability to generate product sales, and could make any search for a collaborative partner more difficult.

We may be unsuccessful in our efforts to comply with applicable federal, state and international laws and regulations, which could result in loss of licensure, certification or accreditation or other government enforcement actions or impact our ability to secure regulatory approval of our product candidates.

Although we seek to conduct our business in compliance with applicable governmental healthcare laws and regulations, these laws and regulations are exceedingly complex and often subject to varying interpretations. The cell therapy industry is the topic of significant government interest, and thus the laws and regulations applicable to our business are subject to frequent change and/or reinterpretation. As such, there can be no assurance that we will be able, or will have the resources, to maintain compliance with all such healthcare laws and regulations. Failure to comply with such healthcare laws and regulations, as well as the costs associated with such compliance or with enforcement of such healthcare laws and regulations, may have a material adverse effect on our operations or may require restructuring of our operations or impair our ability to operate profitably.

Facilities engaged in the recovery, processing, storage, labeling, packaging or distribution of any HCT/Ps, or the screening or testing of a donor, are required to register with the FDA. Any third party retained by us to process our samples must be similarly registered with the FDA and comply with HCT/P regulations. We also are required to comply with FDA's cGTP regulations. If we fail to register or update registration information in a timely way, or fail to comply with cGTP regulations, we will be out of compliance with FDA regulations which could adversely affect our business.

Our manufacture of certain cellular therapy products for ourselves or at PCT on behalf of our customers triggers additional FDA requirements applicable to HCT/Ps, or products comprised of HCT/Ps, which are regulated as a drug, biological product, or medical device. FDA's cGMP regulations govern the manufacture, processing, packaging and holding of cell therapy products regulated as drugs. FDA's Quality System Regulation, or QSR, similarly governs the manufacture, processing, packaging and holding of cell therapy products regulated as medical devices. We must comply with cGMP or QSR requirements including quality control, quality assurance and the maintenance of records and documentation for certain products. We may be unable to comply with these cGMP or QSR requirements and with other FDA, state and foreign regulatory requirements. These requirements may change over time and we or third-party manufacturers may be unable to comply with the revised requirements.

If we are unable to conduct clinical studies in accordance with regulations and accepted standards, we may be delayed in receiving, or may never receive, regulatory approvals of our product candidates from the FDA and other regulatory authorities.

To obtain marketing approvals for our product candidates in the United States and abroad, we must, among other requirements, complete adequate and well-controlled clinical trials sufficient to demonstrate to the FDA and other regulatory bodies that the product candidate is safe and effective for each indication for which approval is sought. If a serious adverse event occurs during one of our clinical studies, the FDA can place one or more of our clinical trials on hold if, among other reasons, it finds that patients enrolled in the trial are or would be exposed to an unreasonable and significant risk of illness or injury. If safety concerns develop, we may, or the FDA or an institutional review board may require us to, stop the affected trials before completion. Our Phase 1 trial of AMR-001 was subject to a clinical hold following the death of a subject in the study. We presented evidence that the death was the result of ventricular fibrillation attributed to recurrent myocardial infarction from stent thrombosis preceding infusion of AMR-001 and the FDA lifted the clinical hold.

The completion of our clinical trials also may be delayed or terminated for a number of other reasons, including if:

- Ÿ third-party clinical investigators do not perform the clinical trials on the anticipated schedule or consistent with the clinical trial protocol, good clinical practices required by the FDA and other regulatory requirements, or other third parties do not perform data collection and analysis in a timely or accurate manner;
- Ÿ inspections of clinical trial sites by the FDA or by institutional review boards of research institutions participating in the clinical trials, reveal regulatory violations that require the sponsor of the trial to undertake corrective action, suspend or terminate one or more sites, or prohibit use of some or all of the data in support of marketing applications; or
- Ÿ the FDA or one or more institutional review boards suspends or terminates the trial at an investigational site, or precludes enrollment of additional subjects.

Our development costs will increase if there are material delays in our clinical trials, or if we are required to modify, suspend, terminate or repeat a clinical trial. If we are unable to conduct our clinical trials properly, we may never receive regulatory approval to market our product candidates.

We will continue to be subject to extensive FDA regulation following any product approvals, and if we fail to comply with these regulations, we may suffer a significant setback in our business.

Even if we are successful in obtaining regulatory approval of our product candidates, we will continue to be subject to the requirements of and review by, the FDA and comparable regulatory authorities in the areas of manufacturing processes, post-approval clinical data, adverse event reporting, labeling, advertising and promotional activities, among other things. In addition, any marketing approval we receive may be limited in terms of the approved product indication or require costly post-marketing testing and surveillance. Discovery after approval of previously unknown problems with a product, manufacturer or manufacturing process, or a failure to comply with regulatory requirements, may result in actions such as:

- Ÿ warning letters or other actions requiring changes in product manufacturing processes or restrictions on product marketing or distribution;
- Ÿ product recalls or seizures or the temporary or permanent withdrawal of a product from the market; and
- Ÿ fines, restitution or disgorgement of profits or revenue, the imposition of civil penalties or criminal prosecution.

The occurrence of any of these actions would likely cause a material adverse effect on our business, financial condition and results of operations.

Health care companies have been the subjects of federal and state investigations, and we could become subject to investigations in the future.

Both federal and state government agencies have heightened civil and criminal enforcement efforts. There are numerous ongoing investigations of health care companies, as well as their executives and managers. In addition, amendments to the Federal False Claims Act, including under Healthcare Reform, have made it easier for private parties to bring "*qui tam*" (whistleblower) lawsuits against companies under which the whistleblower may be entitled to receive a percentage of any money paid to the government. The Federal False Claims Act provides, in part, that an action can be brought against any person or entity that has knowingly presented, or caused to be presented, a false or fraudulent request for payment from the federal government, or who has made a false statement or used a false record to get a claim approved. The government has taken the position that claims presented in violation of the federal anti-kickback law, Stark Law or other healthcare-related laws, including laws enforced by the FDA, may be considered a violation of the Federal False Claims Act. Penalties include substantial fines for each false claim, plus three times the amount of damages that the federal government sustained because of the act of that person or entity and/or exclusion from the Medicare program. In addition, a majority of states have adopted similar state whistleblower and false claims provisions.

We are not aware of any government investigations involving any of our facilities or management. While we believe that we are in material compliance with applicable governmental healthcare laws and regulations, any future investigations of our business or executives could cause us to incur substantial costs, and result in significant liabilities or penalties, as well as damage to our reputation.

It is uncertain to what extent the government, private health insurers and third-party payors will approve coverage or provide reimbursement for the therapies and products to which our services relate. Availability for such reimbursement may be further limited by an increasing uninsured population and reductions in Medicare and Medicaid funding in the United States.

To the extent that health care providers cannot obtain coverage or reimbursement for our therapies and products, they may elect not to provide such therapies and products to their patients and, thus, may not need our services. Further, as cost containment pressures are increasing in the health care industry, government and private payors may adopt strategies designed to limit the amount of reimbursement paid to health care providers.

Similarly, the trend toward managed health care and bundled pricing for health care services in the United States, which may accelerate under the healthcare reform legislation approved by Congress on March 23, 2010 and thereafter signed into law ("Healthcare Reform"), could significantly influence the purchase of healthcare services and products, resulting in lower prices and reduced demand for our therapeutic products under development.

We may receive a portion of our revenues from services rendered to patients enrolled in federal health care programs, such as Medicare, and we may also directly or indirectly receive revenues from federal health care programs. Federal health care programs are subject to changes in coverage and reimbursement rules and procedures, including retroactive rate adjustments. These contingencies could materially decrease the range of services covered by such programs or the reimbursement rates paid directly or indirectly for our products and services. To the extent that any health care reform favors the reimbursement of other therapies over our therapeutic products under development, such reform could affect our ability to sell our services, which may have a material adverse effect on our revenues.

The limitation on reimbursement available from private and government payors may reduce the demand for, or the price of, our services, which could have a material adverse effect on our revenues. Additional legislation or regulation relating to the health care industry or third-party coverage and reimbursement may be enacted in the future which could adversely affect the revenues generated from the sale of our products and services.

Furthermore, there has been a trend in recent years towards reductions in overall funding for Medicare and Medicaid. There has also been an increase in the number of people who do not have any form of health care coverage in recent years and who are not eligible for or enrolled in Medicare, Medicaid or other governmental programs. The extent to which the reforms brought about under Healthcare Reform may be successful in reducing the number of such uninsured is unclear, and the reduced funding of governmental programs and increase in uninsured populations could have a negative impact on the demand for our services to the extent they relate to products and services which are reimbursed by government and private payors.

Unintended consequences of recently adopted healthcare reform legislation in the U.S. may adversely affect our business.

The healthcare industry is undergoing fundamental changes resulting from political, economic and regulatory influences. In the U.S., comprehensive programs are under consideration that seek to, among other things, increase access to healthcare for the uninsured and control the escalation of healthcare expenditures within the economy. On March 23, 2010, healthcare reform legislation was approved by Congress and has been signed into law. While we do not believe this legislation will have a direct impact on our business, the legislation has only recently been enacted and requires the adoption of implementing regulations, which may have unintended consequences or indirectly impact our business. For instance, the scope and implications of the recent amendments pursuant to the Fraud Enforcement and Recovery Act of 2009 ("FERA"), have yet to be fully determined or adjudicated and as a result it is difficult to predict how future enforcement initiatives may impact our business. Also, in some instances our clients may be health insurers that will be subject to limitations on their administrative expenses and new federal review of "unreasonable" rate increases that could impact the prices they pay for our services. If the legislation causes such unintended consequences or indirect impact, it could have a material adverse effect on our business, financial condition and results of operations.

RISKS RELATED TO OUR INTELLECTUAL PROPERTY

We may be unable able to obtain or maintain patent protection for our products and product candidates, which could have a material adverse effect on our business.

Our commercial success will depend, in part, on obtaining and maintaining patent protection for new technologies, product candidates, products and processes and successfully defending such patents against third party challenges. To that end, we file patent applications, and have been issued patents, that are intended to cover certain methods and uses of stem cells, including very small embryonic-like stem cells, as well as compositions and methods relating to T regulatory cells and hematopoietic stem cells. These patent applications may never result in the issuance of patents.

The patent positions of biotechnology companies can be highly uncertain and involve complex legal, scientific and factual questions and recent court decisions have introduced significant uncertainty regarding the strength of patents in the industry. Moreover, the legal systems of some foreign countries do not favor the aggressive enforcement of patents and may not protect our intellectual property rights to the same extent as the laws of the United States. Any of the issued patents we own or license may be challenged by third parties and held to be invalid, unenforceable or with a narrower or different scope of coverage that what we currently believe, effectively reducing or eliminating protection we believed we had against competitors with similar products or technologies. If we ultimately engage in and lose any such patent disputes, we could be subject to competition and/or significant liabilities, we could be required to enter into third-party licenses or we could be required to cease using the disputed technology or product. In addition, even if such licenses are available, the terms of any license requested by a third party could be unacceptable to us.

The claims of any current or future patents that may issue or be licensed to us may not contain claims that are sufficiently broad to prevent others from utilizing the covered technologies and thus may provide us with little commercial protection against competing products. For instance, patents relating to our AMR-001 product candidate are limited to an isolated and non-expanded population of autologous mononuclear cells enriched for $CD34^+$ cells, which further contains a subpopulation of potent $CD34^+/CXCR4^+$ cells that have CXCR4-mediated chemotactic activity. Products that do not contain enriched $CD34^+/CXCR4^+$ cells, or which contain populations of cells that derive efficacy from a different mechanism of action, may not infringe the existing AMR-001 patents. Consequently, our competitors may independently develop competing products that do not infringe our patents or other intellectual property. To the extent a competitor can develop similar products using a different chemistry, our patents and patent applications may not prevent others from directly competing with us.

Product development and approval timelines in our biotechnology industry are very lengthy. As such, it is possible that any patents that may cover an approved product may have expired at the time of commercialization or only have a short remaining period of exclusivity, thereby reducing the commercial advantages of the patent. In such case, we would then rely solely on other forms of exclusivity, such as regulatory exclusivity provided by the Federal Food, Drug and Cosmetic Act, which may provide less protection to our competitive position.

Litigation relating to intellectual property is expensive, time consuming and uncertain, and we may be unsuccessful in our efforts to protect against infringement by third parties or defend ourselves against claims of infringement.

To protect our intellectual property, we may initiate litigation or other proceedings. In general, intellectual property litigation is costly, time-consuming, diverts the attention of management and technical personnel and could result in substantial uncertainty regarding our future viability, even if we ultimately prevail. Some of our competitors may be able to sustain the costs of such litigation or other proceedings more effectively than can we because of their substantially greater financial resources. The loss or narrowing of our intellectual property protection, the inability to secure or enforce our intellectual property rights or a finding that we have infringed the intellectual property rights of a third party could limit our ability to develop or market our

products and services in the future or adversely affect our revenues. Furthermore, any public announcements related to such litigation or regulatory proceedings could adversely affect the price of our Common Stock.

Third parties may allege that the research, development and commercialization activities we conduct infringe patents or other proprietary rights owned by such parties. While we do not believe any of our current activities infringe the rights of others, we have not conducted an exhaustive search or analysis of third-party patent rights to determine whether our pre-clinical or clinical research and development or activities may infringe or be alleged to infringe any third-party patent rights. If we are found to have infringed the patents of a third party, we may be required to pay substantial damages; we also may be required to seek from such party a license, which may not be available on acceptable terms, if at all, to continue our activities. A judicial finding or infringement or the failure to obtain necessary licenses could prevent us from commercializing our products, which would have a material adverse effect on our business, operating results and financial condition.

If we are unable to maintain our licenses, patents or other intellectual property we could lose important protections that are material to continuing our operations and our future prospects.

To obtain and maintain patent protection and licensing rights under certain of our license agreement, we must, among other things, ensure the timely payment of all applicable filing and maintenance fees. Any failure to do so could result in the loss of some or all of our rights to proprietary technology or the inability to secure or enforce intellectual property protection.

Additionally, our license agreements require us to meet certain diligence obligations in the development of the licensed products. Our failure to meet these diligence obligations could result in the loss of some or all of our rights, which could materially and adversely affect our business and future prospects.

If we are unable to protect the confidentiality of trade secrets, our competitive position could be impaired.

A significant amount of our technology, especially regarding manufacturing processes, is unpatented and is maintained as trade secrets. We expend significant efforts in an effort to protect these trade secrets, including through the use of confidentiality agreement. Even so, improper use or disclosure of our confidential information could occur and in such case adequate remedies may not exist. The disclosure of our trade secrets could impair our Company's competitive position.

In certain countries, patent holders may be required to grant compulsory licenses, which would likely have a significant and detrimental effect on any future revenues in such country.

Many countries, including some countries in Europe, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, most countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may be limited to monetary relief and may be unable to enjoin infringement, which could materially diminish the value of the patent. Compulsory licensing of life-saving products is also becoming increasingly popular in developing countries, either through direct legislation or international initiatives. Such compulsory licenses could be extended to our product candidates, which may limit our potential revenue opportunities, including with respect to any future revenues that may result from AMR-001.

Changes to U.S. Patent Law may have a material adverse effect on our intellectual property rights.

The Leahy-Smith America Invents Act (AIA), which was signed into law on September 16, 2011, significantly changes United States patent law. It may take some time to establish what the law means, since regulations that will govern how the new law is implemented have not yet been established, and since the law has not yet been implemented, it has not yet been interpreted by the lower courts, and reviewed by either the Federal Circuit Court of Appeals or the Supreme Court, a process that will take years. The first major change is that AIA switches the U.S. patent system from a “first to invent” system to a “first to file” system. Once the first to file system is in effect, there is a risk that another company may independently develop identical or similar patents at approximately the same time, and be awarded the patents instead of us. Once “first to file” is implemented, there will no longer be a need to determine who is the inventor of an invention. As a result, for the second major change, AIA abolishes interference proceedings, and establishes derivation proceedings to replace interference proceedings in all cases in which the time period for instituting an interference proceeding has not lapsed where an inventor named in an earlier application derived the claimed invention from a named inventor. Once derivation proceedings are in effect, there is a risk that the inventorship of any pending patent application can be challenged for reasons of derivation. The third major change is that AIA establishes post-grant opposition proceedings that will apply to patent applications filed after “first to file” becomes effective. Post-grant opposition will enable a person who is not the patent owner to initiate proceedings in the Patent office within 9 months after the grant of a patent that can result in cancellation of a patent as invalid. Therefore there is a risk that any of our patents once granted after the effective date of these provisions of the new law (March 16, 2013) may be subject to post-grant opposition, which will increase uncertainty on

the validity of any newly granted patent or may ultimately result in cancellation of the patent.

USE OF PROCEEDS

Assuming the exercise of all of the November 2010 $1.85 Warrants and Series E Warrants, we may receive estimated gross proceeds of approximately $7,985,264. We intend to use any proceeds received from the exercise of the warrants for working capital, including research and development of cell therapeutic product candidates, including AMR-001, expansion of business units, strategic transactions and other general corporate purposes. We will incur all costs associated with this registration statement and prospectus, which we anticipate to be approximately $36,089. There is no assurance that the holders of the warrants will elect to exercise any or all of the warrants.

PLAN OF DISTRIBUTION

We are offering shares of Common Stock having an aggregate offering price of $7,985,264, which Common Stock is issuable upon the exercise of outstanding warrants previously issued by us in November 2010 as follows:

- shares of Common Stock having an aggregate offering price of $5,224,706 issuable upon the exercise of November 2010 $1.85 Warrants to purchase an aggregate of 2,824,165 shares of Common Stock at an exercise price of $1.85 per share; and

- shares of Common Stock having an aggregate offering price of $2,760,558 issuable upon the exercise of Series E Warrants to purchase an aggregate of 1,930,460 shares of Common Stock (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof) at an exercise price of $1.43 per share (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof).

The Common Stock issuable upon the exercise of the warrants will not be offered through underwriters, or brokers or dealers. We will not pay any compensation in connection with the offering of the shares upon exercise of the warrants. Pursuant to the terms of the applicable November 2010 $1.85 Warrant or Series E Warrant, the shares of Common Stock will be distributed to those warrant holders who exercise their warrants by delivering to us, in the case of the Series E Warrants, or in care of our warrant agent Continental Stock Transfer & Trust Company, in the case of the November 2010 $1.85 Warrants, a duly executed exercise form and payment of the respective aggregate exercise price, in accordance with the terms of the respective warrant. We may call the warrants under certain circumstances as described under the captions “Description of Securities - November 2010 $1.85 Warrants” and “Description of Securities - Series E Warrants”, beginning on page 23 and 24, respectively.

DESCRIPTION OF SECURITIES

We are offering shares of Common Stock having an aggregate offering price of $7,985,264, which Common Stock is issuable upon the exercise of outstanding warrants previously issued by us in November 2010 as follows:

- shares of Common Stock having an aggregate offering price of $5,224,706 issuable upon the exercise of November 2010 $1.85 Warrants to purchase an aggregate of 2,824,165 shares of Common Stock at an exercise price of $1.85 per share; and

- shares of Common Stock having an aggregate offering price of $2,760,558 issuable upon the exercise of Series E Warrants to purchase an aggregate of 1,930,460 shares of Common Stock (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof) at an exercise price of $1.43 per share (as adjusted to date, and subject to further adjustment, in each case pursuant to the anti-dilution provisions thereof).

For a description of the terms of the November 2010 $1.85 Warrants and the Series E Warrants, please see the discussions set forth below under the captions “Description of Securities - November 2010 $1.85 Warrants” and “Description of Securities - Series E Warrants”, beginning on pages 23 and 24, respectively.

The following is a summary of all material characteristics of our capital stock as set forth in our certificate of incorporation and bylaws, and our outstanding warrants. The summary does not purport to be complete and is qualified in its entirety by reference to our certificate of incorporation and bylaws and the Class D warrants, the November 2010 $1.85 Warrants, the Series E Warrants, the warrants issued in connection with the PCT Merger and the Amorcyte Merger, the Series NA Warrants, the warrants issued in our March 2012 underwritten offering, the warrants issued in our May-July 2012 Private Placement, the July 2012 New Warrants issued upon exercise of certain of our May-July 2012 Private Placement Warrants, the warrants issued in our August 2012 private placement and the warrants issued in our November 2012 Unit private placement, all of which are incorporated by reference as exhibits to (or as exhibits to documents incorporated by reference into) the registration statement of which this prospectus is a part, and to the provisions of the General Corporation Law of the State of Delaware, as amended.

Common Stock

We are authorized to issue 500,000,000 shares of common stock, par value $0.001 per share (“Common Stock”). Holders of our Common Stock are entitled to one vote per share in the election of directors and on all other matter on which stockholders are entitled or permitted to vote. Holders of our Common Stock are not entitled to cumulative voting rights. Therefore, holders of a majority of the shares voting for the election of directors can elect all of the directors. Subject to the terms of any outstanding series of preferred stock, the holders of our Common Stock are entitled to dividends in the amounts and at times as may be declared by the Board of Directors out of funds legally available. Upon liquidation or dissolution, holders of our Common Stock are entitled to share ratably in all net assets available for distribution to stockholders after payment of any liquidation preferences to holders of our preferred stock. Holders of our Common Stock have no redemption, conversion or preemptive rights.

As of May 6, 2013, we had 193,799,542 shares of Common Stock issued and outstanding, exclusive of existing convertible preferred stock, options and warrants and the shares to be issued in this offering.

Preferred Stock

We are authorized to issue up to 20,000,000 shares of preferred stock, par value $0.01 per share, with such designations, rights, and preferences as may be determined from time to time by our Board of Directors. Accordingly, our Board of Directors is empowered, without stockholder approval, to issue preferred stock with dividend, liquidation, conversion, voting, or other rights that could adversely affect the voting power or other rights of the holders of our Common

Stock. The issuance of preferred stock could have the effect of restricting dividends on our Common Stock, diluting the voting power of our Common Stock, impairing the liquidation rights of our Common Stock, or delaying or preventing a change in control of our company, all without further action by our stockholders.

As of May 6, 2013, there were 10,000 shares of our Series B Convertible Redeemable Preferred Stock, $0.01 par value per share ("Series B Preferred Stock"), issued and outstanding.

Series B Preferred Stock

The Series B Preferred Stock ranks pari passu with our Common Stock with respect to the payment of dividends and to the distribution of assets upon liquidation, dissolution or winding up.

So long as any shares of the Series B Preferred Stock are outstanding, no dividend shall be declared or paid or set aside for payment or other distribution declared or made upon our Common Stock or upon any other stock ranking junior to, or on a parity with, the Series B Preferred Stock as to dividends or upon liquidation, dissolution or winding up, unless, in the case of our preferred stock, the same dividend is declared, paid or set aside for payment on all outstanding shares of the Series B Preferred Stock or in the case of our Common Stock, ten times such dividend per share is declared, paid or set aside for payment on each outstanding share of the Series B Preferred Stock.

Except as otherwise provided by law, each share of the Series B Preferred Stock has the same voting rights as ten shares of our Common Stock and the holders of the Series B Preferred Stock and the Common Stock shall vote together as one class on all matters.

The holder of any share of Series B Preferred Stock has the right, at such holder's option, to convert such share into one fully paid and non-assessable share of our Common Stock, subject to adjustment.

In the event of any voluntary or involuntary dissolution, liquidation or winding up of our Company, after any distribution of assets is made to the holders of any other class or series of stock that ranks prior to the Series B Preferred Stock in respect of distributions upon the liquidation of our company, the holder of each share of Series B Preferred Stock then outstanding shall be entitled to be paid out of our assets available for distribution to our stockholders, an amount on a pari passu basis equal to ten times the amount per share distributed to the holders of our Common Stock. After payment of the full amount of the distribution to which they are entitled, the holders of shares of the Series B Preferred Stock will not be entitled to any further participation in any distribution of assets by the corporation.

Shares of Series B Preferred Stock issued and reacquired by us shall have the status of authorized and unissued shares of preferred stock, undesignated as to series, subject to later issuance.

Holders of shares of Series B Preferred Stock are not entitled to any preemptive or subscription rights in respect of any securities of the corporation.

Options

As of May 6, 2013, we had outstanding options to purchase an aggregate of 26,510,147 shares of our Common Stock with exercise prices ranging from $0.35 to $15.00 per share, with an approximate weighted average exercise price of $1.16 per share. The shares of our Common Stock underlying all such options are registered with the SEC.

Warrants

As of May 6, 2013, we had outstanding warrants to purchase an aggregate of 55,160,001 shares of our Common Stock with exercise prices ranging from $0.36 to $7.00 per share, with an approximate weighted average exercise price of $1.56 per share. The shares of Common Stock underlying the vast majority of such warrants have been registered for resale.

Class D Warrants

Each Class D warrant entitles the holder to purchase one share of our Common Stock at an exercise price per share of $2.50. The exercise price per share of each Class D warrant is subject to adjustment upon the occurrence of certain events as provided in the Class D warrant certificate and summarized below. The Class D warrants may be exercised at any time during their five year term, or eight year term in the case of a Class D warrant to purchase an aggregate of 4,000,000 shares held by RimAsia Capital Partners, L.P., a Cayman Islands exempted limited partnership and an affiliate of NeoStem ("RimAsia"), unless redeemed. The Class D warrants which have not been previously exercised will expire at the expiration date. A Class D warrant holder will not be deemed to be a holder of the underlying Common Stock for any purpose until the Class D warrant is exercised.

In the event our Common Stock is trading at a per share price equal to or exceeding the redemption threshold of $3.50, or $5.00 in the case of the Class D warrant held by RimAsia, for twenty consecutive trading days, we have the option to call the Class D warrants. If the holders of Class D warrants have not exercised the Class D Warrants within 30 days of the written notice to call, we may redeem the Class D warrants at $0.001 per warrant. We will send the written notice of call by first class mail to Class D warrant holders at their last known addresses appearing on the registration records maintained by the transfer agent of the Class D warrants. No other form of notice by publication or otherwise will be required. If we call any Class D Warrants for redemption, they will be exercisable until close of business on the business day next preceding the specified redemption date.

The exercise price and redemption price of the Class D warrants are subject to adjustment in specified circumstances, including in the event we declare any stock dividend to stockholders or effect any split or reverse split with respect to our Common Stock after the issuance thereof. Therefore, if we effect any stock split or reverse split with respect to our Common Stock, the exercise price in effect immediately prior to such stock split or reverse split will be proportionately reduced or increased, respectively. Any adjustment of the exercise price will also result in an adjustment of the number of shares purchasable upon exercise of a Class D warrant or, if we elect, an adjustment of the number of Class D warrants outstanding. The Class D warrants do not contain provisions protecting against dilution resulting from the sale of additional shares of our Common Stock for less than the exercise price of the Class D warrants or the current market price of our Common Stock.

Until exercised, the Class D warrants will have no voting, dividend or other stockholder rights.

November 2010 $1.85 Warrants

On November 19, 2010, in connection with a public offering of our Common Stock and certain warrants, we issued (i) 6,337,980 shares of our Common Stock and (ii) warrants to purchase up to 3,168,993 shares of our Common Stock (the "November 2010 Common Stock Offering"). The material terms and provisions of the warrants issued in connection with our November 2010 Common Stock Offering (the "November 2010 $1.85 Warrants") are summarized below.

Term; Exercise Price and Exercisability. In our November 2010 Common Stock Offering we issued November 2010 $1.85 Warrants representing the rights to purchase up to an aggregate of 3,168,993 shares of our Common Stock (with 2,824,165 of such warrants remaining outstanding as of May 6, 2013). Each November 2010 $1.85 Warrant has exercise price of $1.85 per share, became exercisable six months after issuance and expires five years from the date of issuance. The number of warrant shares that may be acquired by any holder upon any exercise of the warrant will be limited to the extent necessary to insure that, following such exercise (or other issuance), the total number of shares of our Common Stock then beneficially owned by such holder and its affiliates and any other persons whose beneficial ownership of common stock would be aggregated with the holder's for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, does not exceed 4.99% of the total number of issued and outstanding shares of our Common Stock (including for such purpose the shares of our Common Stock issuable upon such exercise), which is referred to as the "beneficial ownership limitation." The holder may elect to change this beneficial ownership limitation from 4.99% to 9.99% of the total number of issued and outstanding shares of our Common Stock (including for such purpose the shares of our Common Stock issuable upon such exercise) upon providing us with not less than 61 days' prior written notice.

Call Provision. Subject to certain exceptions, while the November 2010 $1.85 Warrants are outstanding, if the volume weighted average price of a share of our Common Stock for each of 20 consecutive Trading Days (the "Measurement Period," which 20 consecutive Trading Day period shall not have commenced until after the Initial Exercise Date) exceeds 3.70 (subject to adjustment), (i) the average daily volume for such Measurement Period exceeds $100,000 per Trading Day (subject to adjustment) and (ii) the holder is not in possession of any information that constitutes, or might constitute, material non-public information which was provided by us, then we may, within 1 Trading Day of the end of such Measurement Period, upon notice, call for cancellation of all or any portion of the warrants (a "Call") for consideration equal to $0.001 per share. Our right to Call the November 2010 $1.85 Warrants shall be exercised ratably among the holders based on each holder's initial purchase of warrants from us.

Fundamental Transaction. If, at any time while the November 2010 $1.85 Warrants are outstanding, (1) we consolidate or merge with or into another corporation, (2) we sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our assets, (3) any purchase offer, tender offer or exchange offer (whether by us or another individual or entity) is completed pursuant to which holders of our Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of our outstanding Common Stock or (4) we effect any reclassification or recapitalization of our Common Stock or any compulsory share exchange pursuant to which our Common Stock is converted into or exchanged for other securities, cash or property (each, a "Fundamental Transaction"), then upon any subsequent exercise of the warrants, each holder thereof will have the right to receive the same amount and kind of securities, as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of the number of warrant shares then issuable upon exercise of the warrant, and any additional consideration payable as part of the Fundamental Transaction; *provided, however*, that in the event of a change of control transaction (as defined in the warrant) other than one in which the successor entity is a publicly traded corporation whose stock is listed or quoted for trading on the New York Stock Exchange, NASDAQ markets or the NYSE MKT and results in the warrants being exercisable for publicly traded common stock of such successor entity, at the request of a holder of a warrant delivered before the 90th calendar day after consummation of such change of control transaction, we (or the successor entity) will purchase the warrant by paying to the holder, cash in an amount equal to the Black Scholes value, as described in the warrant, of the remaining unexercised portion of the warrant on the date of consummation of such change of control transaction.

Certain Adjustments. The exercise price and the number of shares of our Common Stock purchasable upon the exercise of the November 2010 $1.85 Warrants are subject to adjustment upon the occurrence of specific events, including stock dividends, stock splits, combinations and reclassifications of our Common Stock. Additionally, the exercise price of the warrants issued to the investors is subject to certain adjustments if we (i) issue rights, options or warrants to all holders of our Common Stock (and not to the warrant holder) entitling them to subscribe for or purchase shares of our Common Stock at a price per share less than the volume weighted average price (the "VWAP") of our Common Stock on the record date for the determination of stockholders entitled to receive such rights, options or warrants, or (ii) distribute to all holders of our Common Stock (and not to the warrant holder) evidences of our indebtedness or assets (including cash and cash dividends) or rights or warrants to purchase any security.

Fractional Shares. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of the November 2010 $1.85 Warrants. As to any fraction of a share which the holder would otherwise be entitled to purchase upon such exercise, we will, at our election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the exercise price or round up to the next whole share.

The description of the November 2010 $1.85 Warrants contained herein does not purport to be complete and is qualified in its entirety by reference to the form of warrant, which was filed as Exhibit 4.1 to our Current Report on Form 8-K filed with the SEC on November 16, 2010 in connection with such offering.

Series E Warrants

On November 19, 2010, in connection with a registered direct placement of certain preferred stock, warrants and Common Stock, we issued (i) 10,582,011 shares of our formerly outstanding Series E Preferred Stock (all shares of such class remaining outstanding on October 25, 2012 were redeemed on such date), (ii) warrants to purchase up to 1,322,486 shares of our Common Stock (subject to adjustment) ("Series E Warrants") and (iii) 164,418 shares of our Common Stock (the "November 2010 Preferred Stock Offering"). The material terms and provisions of the Series E Warrants are summarized below.

Term; Exercise Price and Exercisability. As of May 6, 2013, the Series E Warrants issued in our November 2010 Preferred Stock Offering represent the rights to purchase up to an aggregate of 1,930,460 shares of our Common Stock (as adjusted). Each Series E Warrant has an exercise price of $1.43 per share (as adjusted), and will expire three years from the date of issuance. The number of warrant shares that may be acquired by any holder upon any exercise of the warrant will be limited to the extent necessary to insure that, following such exercise, the total number of shares of our Common Stock then beneficially owned by such holder and its affiliates and any other persons whose beneficial ownership of our Common Stock would be aggregated with the holder's for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, does not exceed 4.9% of the then issued and outstanding shares of our Common Stock (including for such purpose the shares of our Common Stock issuable upon such exercise), which is referred to as the "beneficial ownership limitation." However, in the event of the announcement of a Change in Control Transaction (as defined in the certificate of designations with respect to our formerly outstanding Series E Preferred Stock), the holder will have the right to (A) at any time and from time to time immediately reduce the beneficial ownership limitation and (B) (subject to waiver) at any time and from time to time, increase the beneficial ownership limitation immediately.

Exercise Elected by Us. Subject to certain exceptions, while the Series E Warrants are outstanding, if the daily volume weighted average price (the "Daily VWAP") of a share of our Common Stock for each of 20 trading days out of 30 consecutive trading days (the "Trigger Period") has remained at least 100%

above the exercise price, then we may, subject to certain conditions, require the holder to exercise the Series E Warrants in full upon not less than 10 business days prior written notice (the "Mandatory Notice Period"). Notwithstanding such a notice, the holder may exercise the warrant at any time during the Mandatory Notice Period. Our right to require the exercise of the warrants is subject to the following additional conditions: (i) during each trading day of the Trigger Period and during each trading day of the Mandatory Notice Period, the Equity Conditions (as defined below) shall be satisfied; and (ii) the Daily VWAP of our Common Stock has remained at or above 100% of the exercise price during all trading days in the Mandatory Notice Period.

"Equity Conditions" means each of the following: (i) on each day of the Trigger Period and on each day of the Mandatory Notice Period, all warrant shares shall be eligible for resale by the holder without restriction and without need for additional registration under any applicable federal or state securities laws and we shall have no knowledge of any fact that would cause any warrant shares not to be so eligible for resale by the holder without restriction and without the need for additional registration under any applicable federal or state securities laws; (ii) on each day during the Trigger Period and the Mandatory Notice Period, our Common Stock is designated for listing on a Trading Market (as defined in the certificate of designations with respect to our formerly outstanding Series E Preferred Stock) and shall not have been suspended from trading on such Trading Market nor shall delisting or suspension by such exchange or market have been threatened or pending in writing by such Trading Market nor shall there be any Securities and Exchange Commission or judicial stop trade order or trading suspension stop order; (iii) any warrant shares may be issued in full without violating the rules or regulations of the Trading Market or any applicable laws; (iv) on each day during the Trigger Period and the Mandatory Notice Period, there shall not have occurred and be continuing, unless waived by the holder, either (A) a Trigger Event (as defined in the certificate of designations with respect to our formerly outstanding Series E Preferred Stock) or (B) an event that with the passage of time or giving of notice would constitute a Trigger Event; (v) on each day during the Trigger Period and the Mandatory Notice Period, we have not provided the holder with any non-public information; (vi) on each day during the Trigger Period and the Mandatory Notice Period, neither the registration statement, the prospectus supplement nor the prospectus applicable to the November 2010 Preferred Stock Offering contains any untrue statement of a material fact or omits to state a material fact necessary in order to make the statements made therein, in light of the circumstances under which they were made not misleading, and the prospectus supplement and the prospectus comply with all applicable securities laws as to form and substance, (vii) the transfer agent for our Common Stock is participating in the Depository Trust Company ("DTC") Fast Automated Securities Transfer Program; and (viii) all warrants shares are duly authorized and will be validly issued, fully paid and non-assessable upon issuance, free and clear of all liens, claims or encumbrances, and the issuance of the warrant shares will not require any further approvals of our Board of Directors or stockholders.

Certain Adjustments. The exercise price and the number of shares of Common Stock purchasable upon the exercise of the Series E Warrants are subject to adjustment upon the occurrence of specific events, including stock dividends, stock splits, combinations and reclassifications of our Common Stock. Additionally, the exercise price of the Series E Warrants is subject to certain weighted average adjustments if NeoStem issues or sells any additional shares of Common Stock or common stock equivalents at a price per share less than the exercise price then in effect, or without consideration, the exercise price then in effect will be adjusted. Notwithstanding the foregoing, there will be no adjustment to the exercise price with respect to the sale or issuance of certain Excluded Securities, as defined in the certificate of designations with respect to our formerly outstanding Series E Preferred Stock. As of May 6, 2013, (i) the exercise price of the Series E Warrants had been adjusted to $1.43, and (ii) the number of shares of Common Stock purchasable upon the exercise of the Series E Warrants had been adjusted (in the aggregate) to 1,930,460 shares of Common Stock.

Fractional Shares. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of the warrants. As to any fraction of a share which the holder would otherwise be entitled to purchase upon such exercise, we will, at our election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the exercise price or round up to the next whole share.

The description of the Series E Warrants issued in our November 2010 Preferred Offering contained herein does not purport to be complete and is qualified in its entirety by reference to the form of warrant, which was filed as Exhibit 4.2 to our Current Report on Form 8-K filed with the SEC on November 16, 2010.

PCT Merger Warrants

In connection with the closing of the PCT Merger on January 19, 2011 (and in addition to the Common Stock consideration for the PCT Merger which we deposited into an escrow account at such time), we issued seven-year warrants to purchase an aggregate 3,000,000 shares of our Common Stock (collectively, the "PCT Merger Warrants"). The PCT Merger Warrants were delivered in book entry form to the former members of PCT after receipt by us of an appropriate letter of transmittal from the respective former member. The PCT Merger Warrants are divided into three series as follows: (i) warrants to purchase an aggregate 1,000,000 shares of our Common Stock at an exercise price of $3.00 per share (the "$3.00 Warrants"); (ii) warrants to purchase an aggregate 1,000,000 shares of our Common Stock at an exercise price of $5.00 per share (the "$5.00 Warrants"); and (iii) warrants to purchase an aggregate 1,000,000 shares of our Common Stock at an exercise price of $7.00 per share, and which will vest only if the $7.00 Warrant Condition (as defined below) is accomplished within three years of the closing of the PCT Merger (the "$7.00 Warrants"). The material terms and provisions of the PCT Merger Warrants are summarized below.

$3.00 Warrants and $5.00 Warrants

General. Each $3.00 Warrant and $5.00 Warrant entitles the holder to purchase one share of Common Stock at an exercise price per share of $3.00 and $5.00, respectively. The exercise price per share of each $3.00 Warrant and $5.00 Warrant is subject to adjustment upon the occurrence of certain events as provided in the applicable warrant certificate and summarized below. The $3.00 Warrants and $5.00 Warrants may be exercised at any time during their seven year term, unless redeemed. The $3.00 Warrants and $5.00 Warrants which have not been previously exercised will expire at the expiration date. Holders of the warrants will not be deemed to be a holder of the underlying Common Stock for any purpose until such warrant is exercised. As described below, the Warrants are redeemable in certain circumstances. Transfer of the shares issuable upon exercise of the Warrants had been restricted until the one year anniversary of the closing date of the PCT Merger.

Redemption. In the event Common Stock is trading at a per share price equal to or exceeding the redemption threshold of 5.00 with respect to the $3.00 Warrant or $7.00 with respect to the $5.00 Warrant for twenty (20) out of thirty (30) consecutive trading days, NeoStem has the option to call the applicable warrant. If the warrant holders have not exercised the warrants within 14 days of the redemption notice, NeoStem may redeem the warrants at $0.001 per warrant. NeoStem will send the redemption notice by first class mail to warrant holders at their last known addresses appearing on the registration records maintained by the transfer agent of the warrants. No other form of notice by publication or otherwise will be required. If NeoStem calls any warrants for redemption, they will be exercisable until close of business on the business day next preceding the specified redemption date. Notwithstanding the foregoing, NeoStem may not redeem the Warrants unless (i) NeoStem waives the lock-up provisions in the applicable Warrant and (ii) the issuance of the shares underlying the Warrants is covered by an effective registration statement or there is an effective resale registration statement available to the holders of the Warrants with respect to the shares underlying the Warrants.

Adjustments of Exercise Price. The exercise price and redemption price of the warrants are subject to adjustment in specified circumstances, including in the event (i) there is a merger or consolidation and NeoStem is not the surviving corporation; (ii) there is subdivision, combination or reclassification of securities, recapitalization, automatic conversion, or other similar event affecting the number or character of outstanding shares of Common Stock; or (iii) NeoStem declares any stock dividend to stockholders or effects any split or reverse split with respect to the Common Stock after the issuance thereof. The warrants do not contain provisions protecting against dilution resulting from the sale of additional shares of Common Stock for less than the exercise price of the warrants or the current market price of the Common Stock.

No Voting and Dividend Rights. Until exercised, the holders of the warrants will have no voting, dividend or other stockholder rights.

Registration Rights. NeoStem has agreed to use its commercially reasonable efforts to maintain the effectiveness of a registration statement covering the shares underlying the Warrants at any time that both (a) the Warrants are exercisable and (b) the exercise price of the Warrants is less than 105% of the price at which the Common Stock is trading on the NYSE MKT (or, such other stock exchange on which the Common Stock trades). Under certain limited circumstances, if a registration statement is not effective or a prospectus supplement is not available during the last 20 business days prior to the expiration date of the Warrants, the exercise period of the Warrants would be extended for a period of 20 business days following such effectiveness or availability.

$7.00 Warrants

General. Each $7.00 Warrant entitles the holder to purchase one share of Common Stock at an exercise price per share of $7.00. The exercise price per share of each $7.00 Warrant is subject to adjustment upon the occurrence of certain events as provided in the $7.00 Warrant certificate and summarized below. The $7.00 Warrants may be exercised only if the $7.00 Warrant Condition (as defined below) is satisfied and at any time thereafter during their seven year term, unless redeemed. The $7.00 Warrants which have not been previously exercised will expire at the expiration date. A $7.00 Warrant holder will not be deemed to be a holder of the underlying Common Stock for any purpose until the $7.00 Warrant is exercised.

Performance Condition. The $7.00 Warrant Condition is a performance condition that provides that the $7.00 Warrants will not vest and will not become exercisable unless PCT secures, prior to the third annual anniversary of the closing date of the PCT Merger, one or more material binding commercial manufacturing contracts with one or more third parties, each on an arm's length basis, which commercial manufacturing contracts result in aggregate revenues to PCT in excess of $5 million per year over a period of at least 3 years and in the reasonable judgment of NeoStem's Board of Directors the manufacturing contracts will be profitable each year during the term of such contracts in accordance with GAAP.

Redemption. In the event Common Stock is trading at a per share price equal to or exceeding the redemption threshold of 9.00 for twenty (20) out of thirty (30) consecutive trading days, NeoStem has the option to call the $7.00 Warrants. If the holders of $7.00 Warrants have not exercised the $7.00 Warrants within 14 days of the redemption notice, NeoStem may redeem the $7.00 Warrants at $0.001 per warrant. NeoStem will send the redemption notice by first class mail to $7.00 Warrant holders at their last known addresses appearing on the registration records maintained by the transfer agent of the $7.00 Warrants. No other form of notice by publication or otherwise will be required. If NeoStem calls any $7.00 Warrants for redemption, they will be exercisable until close of business on the business day next preceding the specified redemption date. Notwithstanding the foregoing, NeoStem may not redeem the $7.00 Warrants unless (i) NeoStem waives the lock-up provisions in the applicable Warrant, (ii) the issuance of the shares of Common Stock underlying the $7.00 Warrants is covered by an effective registration statement or there is an effective resale registration statement available to the holders of the $7.00 Warrants with respect to such shares and (iii) the $7.00 Warrant Condition has been achieved or NeoStem waives the $7.00 Warrant Condition concurrently with its provision of the redemption notice.

Adjustments of Exercise Price. The exercise price and redemption price of the $7.00 Warrants are subject to adjustment in specified circumstances, including in the event (i) there is a merger or consolidation and NeoStem is not the surviving corporation; (ii) there is subdivision, combination or reclassification of securities, recapitalization, automatic conversion, or other similar event affecting the number or character of outstanding shares of Common Stock; or (iii) NeoStem declares any stock dividend to stockholders or effect any split or reverse split with respect to the Common Stock after the issuance thereof. The $7.00 Warrants do not contain provisions protecting against dilution resulting from the sale of additional shares of Common Stock for less than the exercise price of the $7.00 Warrants or the current market price of the Common Stock.

No Voting and Dividend Rights. Until exercised, the $7.00 Warrants will have no voting, dividend or other stockholder rights.

Registration Rights. NeoStem has agreed to use its commercially reasonable efforts to maintain the effectiveness of a registration statement covering the shares underlying the Warrants at any time that both (a) the Warrants are exercisable and (b) the exercise price of the Warrants is less than 105% of the price at which the Common Stock is trading on the NYSE MKT (or, such other stock exchange on which the Common Stock trades). Under certain limited circumstances, if a registration statement is not effective or a prospectus supplement is not available during the last 20 business days prior to the expiration date of the Warrants, the exercise period of the Warrants would be extended for a period of 20 business days following such effectiveness or availability.

The above description of the PCT Merger Warrants does not purport to be complete and is qualified in its entirety by reference to the Warrant Agreement (with the forms of $3.00 Warrant, $5.00 Warrant and $7.00 Warrant attached thereto), which was filed as Exhibit 4.1 to our Current Report on Form 8-K dated January 18, 2011 and filed with the SEC on January 24, 2011 in connection with the closing of the PCT Merger.

Series NA Warrants

Background. On July 22, 2011, we completed an underwritten offering of 13,750,000 units, with each unit consisting of one share of our Common Stock and a warrant to purchase 0.75 of a share of our Common Stock (each, a “Series NA Warrant”). The Series NA Warrants issued in connection with the July 2011 underwritten offering covered, in the aggregate, up to 10,312,500 shares of our Common Stock (with Series NA Warrants covering 9,787,500 shares of our Common Stock remaining outstanding as of May 6, 2013). The material terms and provisions of the Series NA Warrants are summarized below.

Warrant Agreement. Pursuant to the terms of the underwriting entered into in connection with the July 2011 offering, the Series NA Warrants may be issued through DTC and evidenced by a “Global Warrant” or may be delivered in physical or other appropriate form. The Series NA Warrants are governed by a warrant agreement (the “Warrant Agreement”), dated as of July 22, 2011, between us and Continental Stock Transfer & Trust Company, as our agent in respect of the Series NA Warrants. Book-entry form Series NA Warrants may be exercised by notifying a broker who is a DTC participant prior to the expiry of such warrants and providing payment of the exercise price for the number of shares of our Common Stock for which such warrants are being exercised. The following description of the terms of the Warrant Agreement is subject to the detailed provisions of such Warrant Agreement, the form of which is filed as Exhibit 2.1 to our Current Report on Form 8-K dated July 19, 2011.

Term; Exercise Price and Exercisability. Series NA Warrants representing the rights to purchase up to an aggregate of 9,787,500 shares of our Common Stock remain outstanding as of May 6, 2013. Each warrant has an exercise price of $1.45 per share, was immediately exercisable upon issuance, and will

expire on July 18, 2016. The number of warrant shares that may be acquired by any holder upon any exercise of the warrant will be limited to the extent necessary to insure that, following such exercise (or other issuance), the total number of shares of our Common Stock then beneficially owned by such holder and its affiliates and any other persons whose beneficial ownership of our Common Stock would be aggregated with the holder's for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, does not exceed 4.99% of the total number of issued and outstanding shares of our Common Stock (including for such purpose the shares of our Common Stock issuable upon such exercise), or beneficial ownership limitation. The holder may elect to change this beneficial ownership limitation from 4.99% to 9.99% of the total number of issued and outstanding shares of our Common Stock (including for such purpose the shares of our Common Stock issuable upon such exercise) upon providing us with not less than 61 days' prior written notice.

Manner of Exercise. Holders of the Series NA Warrants may exercise their Series NA Warrants to purchase shares of our Common Stock on or before the expiration date by delivering (i) notice of exercise, appropriately completed and duly signed, and (ii) if such holder is not utilizing the cashless exercise provisions with respect to the warrants, payment of the exercise price by wire transfer or cashier's check drawn on a United States bank, for the number of shares with respect to which the warrant is being exercised. Series NA Warrants may be exercised in whole or in part, but only for full shares of our Common Stock. We provide certain buy-in rights to a holder if we fail to deliver the shares of our Common Stock underlying the Series NA Warrants by the second trading day after the date on which delivery of the stock certificate is required by the Series NA Warrant. The buy-in rights apply if after the second trading day on which delivery of the stock is required by the Series NA Warrant, the holder purchases (in an open market transaction or otherwise) shares of our Common Stock to deliver in satisfaction of a sale by the holder of the warrant shares that the holder anticipated receiving from us upon exercise of the Series NA Warrant. In such event, we will:

- pay in cash to the holder the amount equal to the excess (if any) of the buy-in price (including brokerage commissions, if any) over the product of (A) the number of warrant shares that we were required to deliver to the holder in connection with the exercise at issue, times (B) the price at which the sell order giving rise to holder's purchase obligation was executed; and

- at the election of holder, either (A) reinstate the portion of the Series NA Warrant as to such number of shares of our Common Stock for which such exercise was not honored, or (B) deliver to the holder such number of shares of our Common Stock that would have been exercised had we timely complied with our exercise and delivery obligations.

If the holder of a Series NA Warrant desires to exercise its warrant and sell the shares issuable upon exercise of its warrant and there is no effective registration statement registering, or no current prospectus available for, the issuance or resale of the shares of our Common Stock underlying such warrants, in lieu of exercising its warrant by payment of a wire transfer or cashier's check, the holder may elect to receive shares equal to the value of such holder's warrant by surrender of the warrant to us, together with a properly endorsed notice of exercise. The number of shares to be issued would be determined by a formula based on the total number of shares with respect to which the warrant is being exercised, the volume weighted average price for the shares of our Common Stock on the trading day immediately prior to the date of exercise and the applicable exercise price of the Series NA Warrants.

The shares of our Common Stock issuable on exercise of the Series NA warrants will be, when issued and paid for in accordance with the Series NA Warrants, duly authorized, validly issued and fully paid and non-assessable. We have authorized and reserved at least that number of shares of our Common Stock equal to the number of shares of our Common Stock issuable upon exercise of all outstanding Series NA Warrants.

Fundamental Transaction. If, at any time while the Series NA Warrants are outstanding, (1) we consolidate or merge with or into another corporation, (2) we sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our assets, (3) any purchase offer, tender offer or exchange offer (whether by us or another individual or entity) is completed pursuant to which holders of our Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of our outstanding Common Stock or (4) we effect any reclassification or recapitalization of our Common Stock or any compulsory share exchange pursuant to which our Common Stock is converted into or exchanged for other securities, cash or property (or the occurrence of any analogous proceeding) affecting us (each, a “Fundamental Transaction”), then upon any subsequent exercise of the Series NA Warrants, the holders thereof will have the right to receive the same amount and kind of securities, as they would have been entitled to receive upon the occurrence of such Fundamental Transaction if they had been, immediately prior to such Fundamental Transaction, the holder of the number of warrant shares then issuable upon exercise of the Series NA Warrant, and any additional consideration payable as part of the Fundamental Transaction; *provided*, *however*, that in the event of a change of control transaction (as defined in the warrant) other than one in which the successor entity is a publicly traded corporation whose stock is listed or quoted for trading on the New York Stock Exchange, NASDAQ markets or the NYSE MKT and results in the Series NA Warrants being exercisable for publicly traded common stock of such successor entity, at the request of a holder of a warrant delivered before the 90th calendar day after consummation of such change of control transaction, we (or the successor entity) will purchase the warrant by paying to the holder, cash in an amount equal to the Black Scholes value, as described in the warrant, of the remaining unexercised portion of the warrant on the date of consummation of such change of control transaction.

Certain Adjustments. The exercise price and the number of shares of our Common Stock purchasable upon the exercise of the Series NA Warrants are subject to adjustment upon the occurrence of specific events, including stock dividends, stock splits, combinations and reclassifications of our Common Stock. Additionally, the exercise price of the Series NA Warrants is subject to certain adjustments if we (i) issue rights, options or warrants to all holders of our Common Stock (and not to the warrant holder) entitling them to subscribe for or purchase shares of our Common Stock at a price per share less than the volume weighted average price (the “VWAP”) of our Common Stock on the record date for the determination of stockholders entitled to receive such rights, options or warrants, or (ii) distribute to all holders of our Common Stock (and not to the warrant holder) evidences of our indebtedness or assets (including cash and cash dividends) or rights or warrants to purchase any security.

Delivery of Certificates. Upon the holder's exercise of a Series NA Warrant, we will promptly, but in no event later than three business days after the exercise date (referred to as the “warrant share delivery date”), issue and deliver, or cause to be issued and delivered, a certificate for the shares of our Common Stock issuable upon exercise of the Series NA Warrant. In addition, we will, if the holder provides the necessary information to us, issue and deliver the shares electronically through The Depository Trust Corporation through its Deposit Withdrawal Agent Commission System (DWAC) or another established clearing corporation performing similar functions.

Notice of Corporate Action. We will provide prior notice to holders of the Series NA Warrants in advance of certain record or effective dates (as specified below) in connection with the following corporate events, to provide the holders of the Series NA Warrants with the opportunity to exercise their warrants and hold our Common Stock:

- if we declare a dividend (or any other distribution in whatever form) on our Common Stock;

- if we declare a special nonrecurring cash dividend on or a redemption of our Common Stock;

- if we authorize the granting to all holders of our Common Stock rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights;

- if the approval of any of our stockholders shall be required in connection with any reclassification of our Common Stock, any consolidation or merger to which we are a party, any sale or transfer of all or substantially all of our assets, or any compulsory share exchange whereby our Common Stock is converted into other securities, cash or property; or

- if we authorize the voluntary or involuntary liquidation or winding up of the affairs of our Company, then, in each case, we will mail to the holders of the Series NA Warrants a notice stating:

- the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of our Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined, or

- the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of record of our Common Stock will be entitled to exchange their shares of Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange.

Subject to applicable law, the holder will be provided a reasonable opportunity (which shall be not less than eight (8) calendar days' notice) to exercise the Series NA Warrant prior to the effective date of the event triggering such notice. No holders of the Series NA Warrants will possess any rights as a stockholder under those warrants until the holder exercises those warrants.

Transferability. The Series NA Warrants may be transferred independent of the Common Stock they were issued with, on a form of assignment, subject to all applicable laws.

Fractional Shares. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of the Series NA Warrants. As to any fraction of a share which the holder would otherwise be entitled to purchase upon such exercise, we will, at our election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the exercise price or round up to the next whole share.

The description of the Series NA Warrants contained herein does not purport to be complete and is qualified in its entirety by reference to the Warrant Agreement and the Form of Warrant Certificate, which are filed as Exhibit 4.1 to our Current Report on Form 8-K dated July 19, 2011.

Series AMO Warrants

General. Upon closing the Amorcyte Merger on October 17, 2011, as a portion of the merger consideration we issued Series AMO Warrants to purchase an aggregate of 1,881,008 shares of our Common Stock (the “Series AMO Warrants”). The Series AMO Warrants are evidenced by a “Global Warrant” and were delivered in book entry form to the former stockholders of Amorcyte. Each Series AMO Warrant entitles the holder to purchase one share of our Common Stock at an exercise price of $1.466 per share. The exercise price per share of each Warrant will be subject to adjustment upon the occurrence of certain events as provided in the form of global warrant certificate and summarized below. The Series AMO Warrants may be exercised at any time during their seven year term, unless redeemed; provided, however, that the transfer of any shares of our Common Stock issuable upon exercise of the Series AMO Warrants was restricted until the one year anniversary of the closing date of the Amorcyte Merger. The Series AMO Warrants which have not been previously exercised will expire at the expiration date. A Series AMO Warrant holder will not be deemed to be a holder of the underlying Common Stock for any purpose until the Series AMO Warrant is exercised.

Redemption. In the event our Common Stock is trading at a per share price equal to or exceeding the redemption threshold of $3.466 per share for twenty (20) out of thirty (30) consecutive trading days, we have the option to call the Series AMO Warrants. If the holders of Series AMO Warrants have not exercised their warrants within 14 days of the redemption notice, we may redeem the Series AMO Warrants at $0.0001 per warrant. We will send the redemption notice by first class mail to Series AMO Warrant holders at their last known addresses appearing on the registration records maintained by the transfer agent of the Series AMO Warrants. No other form of notice by publication or otherwise will be required. If we call any Series AMO Warrants for redemption, they will be exercisable until close of business on the business day next preceding the specified redemption date.

Adjustments of Exercise Price. The exercise price and redemption price of the Series AMO Warrants is subject to adjustment in specified circumstances, including in the event (i) there is a merger or consolidation and we are not the surviving corporation; (ii) there is subdivision, combination or reclassification of securities, recapitalization, automatic conversion, or other similar event affecting the number or character of outstanding shares of our Common Stock; or (iii) we declare any stock dividend to stockholders or effect any split or reverse split with respect to our Common Stock. The Series AMO Warrants do not contain provisions protecting against dilution resulting from the sale of additional shares of our Common Stock for less than the exercise price of the Series AMO Warrants or the current market price of our Common Stock.

No Voting and Dividend Rights. Until exercised, the Series AMO Warrants have no voting, dividend or other stockholder rights.

Registration Rights. We shall use commercially reasonable efforts to maintain the effectiveness of the Registration Statement on Form S-4 which covers the shares of our Common Stock underlying the Series AMO Warrants or file and maintain the effectiveness of another registration statement covering the shares of our Common Stock issuable upon exercise of the Series AMO Warrants at any time that both (a) the Series AMO Warrants are exercisable and (b) the exercise price of the Series AMO Warrants is less than 105% of the price at which our Common Stock is trading on the NYSE MKT (or if our Common Stock is no longer trading on the NYSE MKT, such other stock exchange on which such shares trade). In no event will any holder of a Series AMO Warrant be entitled to receive a “net cash settlement” in lieu of physical settlement in shares of our Common Stock regardless of whether we comply with our obligation described in the preceding sentence.

The description of the Series AMO Warrants contained herein does not purport to be complete and is qualified in its entirety by reference to the Warrant Agreement and the Form of Global Series AMO Warrant attached thereto, which is filed as Exhibit 4.1 to our Current Report on Form 8-K dated October 17, 2011.

Warrants Issued in Our March 2012 Underwritten Offering

In connection with a public offering of our Common Stock and certain warrants which closed as to 15,000,000 units on March 30, 2012 (and which closed with respect to an exercise of the underwriter's over-allotment option to the extent of an additional 2,000,000 units on April 4, 2012) (the “March 2012

Underwritten Offering"), we issued warrants to purchase up to an aggregate of 17,000,000 shares of our Common Stock. The material terms and provisions of the warrants issued in connection with our March 2012 Underwritten Offering are summarized below.

Term; Exercise Price and Exercisability. The warrants issued in our March 2012 Underwritten Offering provided for the purchase of up to 17,000,000 shares of our Common Stock in the aggregate (with 11,494,173 of such warrants remaining outstanding as of May 6, 2013). Each warrant has an exercise price of $0.51 per share, became exercisable in April 2012 (the Company having waived the six-month waiting period to exercise the warrants), and will expire five years from the date of issuance. The number of warrant shares that may be acquired by any holder upon any exercise of the warrant will be limited to the extent necessary to insure that, following such exercise (or other issuance), the total number of shares of Common Stock then beneficially owned by such holder and its affiliates and any other persons whose beneficial ownership of Common Stock would be aggregated with the holder's for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, does not exceed 4.99% of the total number of issued and outstanding shares of Common Stock (including for such purpose the shares of Common Stock issuable upon such exercise), or beneficial ownership limitation. The holder may elect to change this beneficial ownership limitation from 4.99% to 9.99% of the total number of issued and outstanding shares of Common Stock (including for such purpose the shares of Common Stock issuable upon such exercise) upon providing us with not less than 61 days' prior written notice.

Manner of Exercise. Holders of the warrants may exercise their warrants to purchase shares of our Common Stock at any time on or after the Initial Exercise Date and on or before the expiration date by delivering (i) notice of exercise, appropriately completed and duly signed, and (ii) payment of the exercise price by wire transfer or cashier's check drawn on a United States bank, for the number of shares with respect to which the warrant is being exercised. Warrants may be exercised in whole or in part, but only for full shares of Common Stock. We provide certain buy-in rights to a holder if we fail to deliver the shares of Common Stock underlying the warrants by the date on which delivery of the warrant shares is required by the warrant. The buy-in rights apply if after the day on which delivery of the warrant shares is required by the warrant, the holder purchases (in an open market transaction or otherwise) shares of our Common Stock to deliver in satisfaction of a sale by the holder of the warrant shares that the holder anticipated receiving from us upon exercise of the warrant. In such event, we will:

- pay in cash to the holder the amount equal to the excess (if any) of the buy-in price (including brokerage commissions, if any) over the product of (A) the number of warrant shares that we were required to deliver to the holder in connection with the exercise at issue, times (B) the price at which the sell order giving rise to holder's purchase obligation was executed; and

- at the election of holder, either (A) reinstate the portion of the warrant as to such number of shares of Common Stock for which such exercise was not honored, or (B) deliver to the holder such number of shares of Common Stock that would have been issued had we timely complied with our exercise and delivery obligations.

If the holder of a warrant desires to exercise its warrant and there is no effective registration statement registering, or no current prospectus available for, the issuance of the shares of Common Stock underlying the warrants, in lieu of exercising its warrant by payment of a wire transfer or cashier's check, the holder may elect to receive shares equal to the value of such holder's warrant by surrender of the warrant to us, together with a properly endorsed notice of exercise. The number of shares to be issued would be determined by a formula based on the total number of shares with respect to which the warrant is being exercised, the volume weighted average price for the shares of our Common Stock on the trading day immediately prior to the date of exercise and the applicable exercise price of the warrants.

The shares of Common Stock issuable on exercise of the warrants will be, when issued and paid for in accordance with the warrants, duly authorized, validly issued and fully paid and non-assessable. We will authorize and reserve at least that number of shares of Common Stock equal to the number of shares of Common Stock issuable upon exercise of all outstanding warrants.

Call Provision. Subject to certain exceptions, while the warrants are outstanding and following the Initial Exercise Date, if the volume weighted average price of a share of our Common Stock for each of 10 consecutive Trading Days (the "Measurement Period," which 10 consecutive Trading Day period shall not have commenced until after the Initial Exercise Date) exceeds $1.53 (subject to adjustment), then we may, within 1 Trading Day of the end of such Measurement Period, upon notice, call for cancellation of all or any portion of the warrants (a "Call") for consideration equal to $0.001 per Share. Our right to Call the warrants shall be exercised ratably among the holders based on each holder's initial purchase of warrants from us.

Fundamental Transaction. If, at any time while the warrants are outstanding, (1) we consolidate or merge with or into another corporation, (2) we sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our assets for consideration which is distributed to the holders of all our Common Stock, (3) any purchase offer, tender offer or exchange offer (whether by us or another individual or entity) is completed pursuant to which holders of our Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of our outstanding Common Stock, (4) we effect any reclassification or recapitalization of our Common Stock or any compulsory share exchange pursuant to which our Common Stock is converted into or exchanged for other securities, cash or property or (5) we consummate a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another individual, entity or group whereby such other individual, entity or group acquires more than 50% of our outstanding stock (or the occurrence of any analogous proceeding) affecting our company (each, a "Fundamental Transaction"), then upon any subsequent exercise of the warrants, the holders thereof will have the right to receive the same amount and kind of securities, as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of the number of warrant shares then issuable upon exercise of the warrant, and any additional consideration payable as part of the Fundamental Transaction; *provided, however,* that in the event of a Fundamental Transaction that is (1) an all cash transaction, (2) a "Rule 13e-3 transaction" as defined in Rule 13e-3 under the Exchange Act, or (3) a Fundamental Transaction (other than as described solely in clause (5) above) involving a person or entity not traded on a national securities exchange, including, but not limited to, the New York Stock Exchange, the NYSE MKT, the Nasdaq Global Select Market, the Nasdaq Global Market, or the Nasdaq Capital Market, we or any Successor Entity (as defined below) shall, at the holder's option, exercisable at any time concurrently with, or within 30 days after, the consummation of the Fundamental Transaction, purchase the warrant from the holder by paying to the holder an amount of cash equal to the Black Scholes Value (as defined in the warrant) of the remaining unexercised portion of the warrant on the date of the consummation of such Fundamental Transaction, and we shall cause any successor entity in a Fundamental Transaction in which we are not the survivor (the "Successor Entity") to assume in writing all of our obligations under the warrant prior to such Fundamental Transaction and shall, at the option of the holder, deliver to the holder in exchange for the warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to the warrants which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the shares of Common Stock acquirable and receivable upon exercise of the warrants (without regard to any limitations on the exercise of the warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price under the warrant to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of the warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the holder.

Certain Adjustments. The exercise price and the number of shares of Common Stock purchasable upon the exercise of the warrants are subject to adjustment upon the occurrence of specific events, including stock dividends, stock splits, combinations and reclassifications of our Common Stock. Additionally, the exercise price of the warrants issued to the investors is subject to certain adjustments if we (i) issue rights, options or warrants to all holders of Common Stock (and not to the warrant holder) entitling them to subscribe for or purchase shares of Common Stock at a price per share less than the volume weighted average price (the "VWAP") of the Common Stock on the record date for the determination of stockholders entitled to receive such rights, options or warrants, or (ii) distribute to all holders of Common Stock (and not to the warrant holder) evidences of our indebtedness or assets (including cash and cash dividends) or rights or warrants to purchase any security.

Delivery of Warrant Shares. Upon the holder's exercise of a warrant, we will promptly, but in no event later than three business days after the exercise date (referred to as the "exercise share delivery date"), issue and deliver, or cause to be issued and delivered, the shares of Common Stock issuable upon exercise of the warrant. If the holder provides the necessary information to us, we will issue and deliver the shares electronically through The Depository Trust Corporation through its Deposit Withdrawal Agent Commission System (DWAC) or another established clearing corporation performing similar functions.

Notice of Corporate Action. We will provide prior notice to holders of the warrants in advance of certain record or effective dates (as specified below) in connection with the following corporate events, to provide the holders of the warrants with the opportunity to exercise their warrants and hold Common Stock:

- if we declare a dividend (or any other distribution in whatever form) on our Common Stock;
- if we declare a special nonrecurring cash dividend on or a redemption of Common Stock;
- if we authorize the granting to all holders of our Common Stock rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights;
- if the approval of any of our stockholders shall be required in connection with any reclassification of our Common Stock, any consolidation or merger to which our Company is a party, any sale or transfer of all or substantially all of our assets, or any compulsory share exchange whereby our Common Stock is converted into other securities, cash or property; or
- if we authorize the voluntary or involuntary liquidation or winding up of the affairs of the Company, then, in each case, we will mail to the holders of the warrants a notice stating:
- the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of our Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined, or
- the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of record of our Common Stock will be entitled to exchange their shares of Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange.

Subject to applicable law, the holder will be provided a reasonable opportunity to exercise the warrant prior to the effective date of the event triggering such notice. No holders of the warrants will possess any rights as a stockholder under those warrants until the holder exercises those warrants.

Transferability. The warrants may be transferred independent of the Common Stock they were issued with, on a form of assignment, subject to all applicable laws.

Fractional Shares. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of the warrants. As to any fraction of a share which the holder would otherwise be entitled to purchase upon such exercise, we will, at our election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the exercise price or round up to the next whole share.

Exchange Listing. We do not plan on making an application to list the warrants on the NYSE MKT or any other national securities exchange or recognized trading system. The Common Stock underlying the warrants is listed on the NYSE MKT.

The above description of the warrants issued in our March 2012 Underwritten Offering does not purport to be complete and is qualified in its entirety by reference to the form of warrant, which was filed as Exhibit 4.1 to our Current Report on Form 8-K filed with the SEC on March 29, 2012 in connection with such offering.

Warrants Issued in Connection With Our May-July 2012 Private Placement

May-July 2012 Private Placement Warrants. In closings occurring from May through August 2012, we issued in a private placement an aggregate of 4,126,322 units, with each unit consisting of (i) one share of our Common Stock and (ii) a warrant to purchase one share of our Common Stock at an exercise price of $0.51 per share, exercisable during the five-year period following the date of issuance (our board of directors having waived the six month waiting period provided for in the form of warrant) (each, a "May-July 2012 Private Placement Warrant"). As of May 6, 2013, May-July 2012 Private Placement Warrants covering an aggregate of 1,318,182 shares of our Common Stock remained outstanding. In the event the average closing price of our Common Stock equals or exceeds 1.00 per share for 20 out of 30 consecutive trading days, we have the option to call the May-July 2012 Private Placement Warrants by mailing a notice to the registered holders thereof at least 10 business days prior to the date fixed by us for redemption (the "Redemption Date"). Any May-July 2012 Private Placement Warrants not exercised by 5:00 p.m. on the business day immediately preceding the Redemption Date shall terminate, with the holder of such terminated warrants having no further rights except to receive, upon surrender of the warrants, the redemption price of $.0001 per warrant.

July 2012 New Warrants. In July 2012, an aggregate of 2,808,140 of the May-July 2012 Private Placement Warrants were exercised, and in consideration for such exercises, we issued to each exercising holder a new five-year warrant (each, a "July 2012 New Warrant") to purchase the identical number of shares of our Common Stock as had been covered by such portion of the old May-July 2012 Private Placement Warrant as had been exercised. Each July 2012 New Warrant is exercisable for five years and is subject to substantially the same terms as the old May-July 2012 Private Placement Warrants that were exercised, except that the per share exercise price of each July 2012 New Warrant is between $0.66 and $0.69, the closing price of our Common Stock on the date the

old May-July 2012 Private Placement Warrant was exercised. We have issued July 2012 New Warrants covering an aggregate of 2,808,140 shares of our Common Stock.

Warrants Issued in Connection With Our August 2012 Private Placement

In an August 2012 private placement, we issued an aggregate of 4,173,897 units, with each Unit consisting of (a) one share of common stock and (b) a warrant (each, an "August 2012 Private Placement Warrant") to purchase one share of Common Stock at exercise prices ranging from $0.51 to $0.74, expiring five years from the date of issuance and are exercisable immediately upon issuance. In the event the average closing price of our Common Stock equals or exceeds, ranging from $1.00 to $1.50 per share for 20 out of 30 consecutive trading days, we have the option to redeem these warrants by mailing a notice to the registered holders thereof at least 10 business days prior to the date fixed by us for redemption (the "Redemption Date"). Any such warrants not exercised by 5:00 p.m. on the business day immediately preceding the Redemption Date shall terminate, with the holder of such terminated warrants having no further rights except to receive, upon surrender of the warrants, the redemption price of $.0001 per warrant.

Warrants Issued in Connection With Our November 2012 Unit Private Placement

In a November 2012 private placement, we issued an aggregate of 833,333 shares of Common Stock and warrants to purchase an aggregate of 625,000 shares of Common Stock. The warrants have an exercise price to $0.75 per share, become exercisable six months after issuance and expire five years from the date of issuance. In the event the average closing price of our Common Stock equals or exceeds $1.25, per share for 20 out of 30 consecutive trading days, we have the option to redeem these warrants by mailing a notice to the registered holders thereof at least 10 business days prior to the date fixed by us for redemption (the "Redemption Date"). Any such warrants not exercised by 5:00 p.m. on the business day immediately preceding the Redemption Date shall terminate, with the holder of such terminated warrants having no further rights except to receive, upon surrender of the warrants, the redemption price of $.0001 per warrant.

Anti-Takeover Effects of Certain Provisions of Delaware Law and Our Certificate of Incorporation and Bylaws

Our Amended and Restated Certificate of Incorporation and bylaws contain some provisions that could make our acquisition by means of a tender or exchange offer, a proxy contest or otherwise more difficult. These provisions are summarized below.

Special Meetings. Our bylaws provide that special meetings of our stockholders may, unless otherwise prescribed by law, be called by our Chairman of the Board (if any), our Board of Directors or our Chief Executive Officer and shall be held at such place, on such date and at such time as shall be fixed by our Board of Directors or the person calling the meeting. Business transacted at any special meeting shall be limited to matters relating to the purpose or purposes stated in the notice of the meeting.

Undesignated Preferred Stock. The ability to authorize undesignated preferred stock makes it possible for our Board of Directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to acquire us. The ability to issue preferred stock may have the effect of deferring hostile takeovers or delaying changes in control or management of our company.

Delaware Anti-Takeover Statute. We are subject to the provisions of Section 203 of the Delaware General Corporation Law regulating corporate takeovers. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a business combination with an interested stockholder for a period of three years following the date the person became an interested stockholder unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding (1) shares owned by persons who are directors and also officers and (2) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; and
- on or subsequent to the date of the transaction, the business combination is approved by the board and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock which is not owned by the interested stockholder.

Generally, a business combination includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. An interested stockholder is a person who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, owned 15% or more of a corporation's outstanding voting securities. We expect the existence of this provision to have an anti-takeover effect with respect to transactions our Board of Directors does not approve in advance. We also anticipate that Section 203 may discourage attempted acquisitions that might result in a premium over the market price for the shares of our Common Stock held by stockholders.

The provisions of Delaware law, our Amended and Restated Certificate of Incorporation and our bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our Common Stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

Potential Effects of Authorized but Unissued Stock

We have shares of Common Stock and preferred stock available for future issuance without stockholder approval. We may utilize these additional shares for a variety of corporate purposes, including future public offerings to raise additional capital, to facilitate corporate acquisitions or payment as a dividend on the capital stock.

The existence of unissued and unreserved Common Stock and preferred stock may enable our Board of Directors to issue shares to persons friendly to current management or to issue preferred stock with terms that could render more difficult or discourage a third-party attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise, thereby protecting the continuity of our management. In addition, the Board of Directors has the discretion to determine designations, rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences of each series of preferred stock, all to the fullest extent permissible under the Delaware General Corporation Law and

subject to any limitations set forth in our certificate of incorporation. The purpose of authorizing the Board of Directors to issue preferred stock and to determine the rights and preferences applicable to such preferred stock is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing desirable flexibility in connection with possible financings, acquisitions and other corporate purposes, could have the effect of making it more difficult for a third party to acquire, or could discourage a third party from acquiring, a majority of our outstanding voting stock.

Limitations of Director Liability and Indemnification of Directors, Officers and Employees

Section 145 of the Delaware General Corporation Law, permits indemnification of directors, officers, agents and controlling persons of a corporation under certain conditions and subject to certain limitations. Section 145 empowers a corporation to indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding whether civil, criminal, administrative or investigative, by reason of the fact that he or she is or was a director, officer or agent of the corporation or another enterprise if serving at the request of the corporation. Depending on the character of the proceeding, a corporation may indemnify against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding if the person indemnified acted in good faith and in a manner he or she reasonably believed to be in or not opposed to, the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful. In the case of an action by or in the right of the corporation, no indemnification may be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or the court in which such action or suit was brought shall determine that despite the adjudication of liability such person is fairly and reasonably entitled to indemnity for such expenses which the court shall deem proper. Section 145 further provides that to the extent a present or former director or officer of a corporation has been successful in the defense of any action, suit or proceeding referred to above or in the defense of any claim, issue or matter therein, such person shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection therewith.

Indemnification Agreements

We have entered into indemnification agreements with each of our Chief Executive Officer, Chief Financial Officer, General Counsel, certain other employees and each of our directors pursuant to which we have agreed to indemnify such party to the full extent permitted by law, subject to certain exceptions, if such party becomes subject to an action because such party is our director, officer, employee, agent or fiduciary.

Transfer Agent

The transfer agent and registrar for our Common Stock is Continental Stock Transfer & Trust Company. Its address is 17 Battery Place, New York, New York, 10004 and its telephone number is (212) 509-4000.

NYSE MKT Listing

Our Common Stock is traded on the NYSE MKT under the symbol “NBS.”

LEGAL MATTERS

The validity of the shares of Common Stock offered by this prospectus will be passed upon for us by Lowenstein Sandler LLP, Roseland, New Jersey. Lowenstein Sandler LLP owns 300,000 shares of the Company's Common Stock.

EXPERTS

The consolidated financial statements as of and for the years ended December 31, 2012 and 2011, incorporated in this prospectus and elsewhere in the registration statement of which this prospectus forms a part, by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2012, have been audited by Grant Thornton LLP, an independent registered public accounting firm, as stated in their report, which is incorporated herein by reference. Such consolidated financial statements have been so incorporated in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

We have elected to “incorporate by reference” certain information into this prospectus. By incorporating by reference, we can disclose important information to you by referring you to another document we have filed separately with the SEC. The information incorporated by reference is deemed to be part of this prospectus, except for information incorporated by reference that is superseded by information contained in this prospectus. This prospectus incorporates by reference the documents set forth below that we have previously filed with the SEC:

- Our Annual Report on Form 10-K for the fiscal year ended December 31, 2012, filed with the SEC on March 11, 2013;
- Our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2013, filed with the SEC on May 9, 2013;
- Our Current Reports on Form 8-K filed with the SEC on February 11, 2013, March 20, 2013, April 29, 2013, April 30, 2013 and May 1, 2013 (excluding any information deemed furnished pursuant to Item 2.02 or Item 7.01 of any such Current Report on Form 8-K); and
- The description of our common stock set forth in our Registration Statement on Form 8-A, declared effective on August 8, 2007 (including any amendment or report filed with the SEC for the purpose of updating such description).

All documents subsequently filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act between the date of this prospectus and the termination of the offering shall be deemed to be incorporated by reference into this prospectus.

We will provide to each person, including any beneficial owner, to whom this prospectus is delivered, a copy of any or all documents that are incorporated by reference into this prospectus but not delivered with this prospectus, excluding exhibits to such documents unless such exhibits have been specifically incorporated by reference into the documents that this prospectus incorporates. We will provide this information at no cost to the requester, upon written or oral request made to:

NeoStem, Inc.
420 Lexington Avenue, Suite 350
New York, NY 10170
(212) 584-4180
Attention: Catherine M. Vaczy, Esq., Vice President and General Counsel

The information relating to us contained in this prospectus does not purport to be comprehensive and should be read together with the information contained in the documents incorporated or deemed to be incorporated by reference in this prospectus.

You should rely only on the information contained in this prospectus or any supplement and in the documents incorporated by reference above. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus or any supplement or in the documents incorporated by reference is accurate on any date other than the date on the front of those documents. The information we incorporate by reference is an important part of this prospectus, and any information that we file later with the SEC will automatically update and supersede this information.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the information requirements of the Exchange Act and we therefore file periodic reports, proxy statements and other information with the SEC relating to our business, financial statements and other matters. The reports, proxy statements and other information we file may be inspected and copied at prescribed rates at the SEC's Public Reference Room located at 100 F Street, N.E., Washington, D.C. 20549. You may obtain information on the operation of the SEC's Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also maintains an Internet site that contains reports, proxy and information statements and other information regarding issuers like us that file electronically with the SEC. The address of the SEC's Internet site is *www.sec.gov*. You may also view our filings with the SEC on our Internet site at *www.neostem.com*.

This prospectus constitutes part of a registration statement on Form S-3 filed under the Securities Act with respect to the securities. As permitted by the SEC's rules, this prospectus omits some of the information, exhibits and undertakings included in the registration statement. You may read and copy the information omitted from this prospectus but contained in the registration statement, as well as the periodic reports and other information we file with the SEC, at the public reference facilities maintained by the SEC in Washington, D.C.

Statements contained in this prospectus as to the contents of any contract or other document are not necessarily complete, and in each instance we refer you to the copy of the contract or document filed or incorporated by reference as an exhibit to the registration statement or as an exhibit to our Exchange Act filings, each such statement being qualified in all respects by such reference.

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following table sets forth the various expenses to be incurred in connection with the registration of the securities being registered hereby, all of which will be borne by us. All amounts shown are estimates.

SEC registration fee	$	1,089 *
Legal fees and expenses	$	25,000
Accounting fees and expenses	$	10,000
	$	36,089

*Previously paid. See the Explanatory Note following the cover page of this Registration Statement.

Item 15. Indemnification of Directors and Officers.

We are incorporated under the laws of the State of Delaware. Under the General Corporation Law of the State of Delaware (the "DGCL"), a corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation), by reason of the fact that he or she is or was our director, officer, employee or agent, or is or was serving at our request as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding if he or she acted in good faith and in a manner he or she reasonably believed to be in or not opposed to our best interests, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful.

In addition, the DGCL also provides that we also may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in our right to procure a judgment in our favor by reason of the fact that he or she is or was our director, officer, employee or agent, or is or was serving at our request as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against expenses (including attorneys' fees) actually and reasonably incurred by him or her in connection with the defense or settlement of such action or suit if he or she acted in good faith and in a manner he or she reasonably believed to be in or not opposed to our best interests. However, in such an action by or on our behalf, no indemnification may be made in respect of any claim, issue or matter as to which the person is adjudged liable to us unless and only to the extent that the court determines that, despite the adjudication of liability but in view of all the circumstances, the person is fairly and reasonably entitled to indemnity for such expenses which the court shall deem proper.

Our certificate of incorporation is consistent with the DGCL. Each of our directors, officers, employees and agents will be indemnified to the extent permitted by the DGCL. We also maintain insurance on behalf of our directors and officers against liabilities asserted against such persons and incurred by such persons in such capacities, whether or not we would have the power to indemnify such persons under the DGCL.

We have entered into indemnification agreements with our Chief Executive Officer, Chief Financial Officer, General Counsel, certain other employees and each of our directors pursuant to which we have agreed to indemnify such party to the full extent permitted by law, subject to certain exceptions, if such party becomes subject to an action because such party is a our director, officer, employee, agent or fiduciary.

Item 16. Exhibits.

Exhibit	Description
2.1	Equity Purchase Agreement, dated as of June 18, 2012, by and among NeoStem, Inc., China Biopharmaceuticals Holdings, Inc., Fullbright Finance Limited, Suzhou Erye Economy & Trading Co., Ltd., and Suzhou Erye Pharmaceutical Co., Ltd. (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K dated June 18, 2012).
2.2	Amendment to Equity Purchase Agreement, dated as of August 14, 2012, by and among NeoStem, Inc., China Biopharmaceuticals Holdings, Inc., Highacheive Holdings Limited, Fullbright Finance Limited, Suzhou Erye Economy & Trading Co., Ltd. and Suzhou Erye Pharmaceutical Co., Ltd. (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K dated August 23, 2012).
2.3	Agreement and Plan of Merger, dated as of July 13, 2011, by and among NeoStem, Inc., Amorcyte, Inc., Amo Acquisition Company I, Inc. and Amo Acquisition Company II, LLC (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K dated July 11, 2011).
2.4	Agreement and Plan of Merger, dated as of September 23, 2010, by and among NeoStem, Inc., NBS Acquisition Company LLC, and Progenitor Cell Therapy, LLC (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K dated September 23, 2010).
3.1	Amended and Restated Certificate of Incorporation, as amended (as certified March 25, 2011) (incorporated by reference to Exhibit 3.1 to the Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2010 as filed with the SEC on April 6, 2011).
3.2	Certificate of Amendment to Amended and Restated Certificate of Incorporation, filed with the Secretary of State of the State of Delaware on October 14, 2011 (incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K dated October 14, 2011).
3.3	Certificate of Elimination of the Series E 7% Senior Convertible Preferred Stock of NeoStem, Inc., filed with the Secretary of State of the State of Delaware on October 25, 2012 (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K dated October 25, 2012).
3.4	Amended and Restated By-Laws dated August 31, 2006 (incorporated by reference to Exhibit 3.2 to the Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2010 as filed with the SEC on April 6, 2011).
4.1	Specimen Certificate for Common Stock (incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-3, File No. 333-145988, filed with the SEC on September 11, 2007).
4.2	Form of Warrant from the November 2010 Common Stock Offering (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K dated and filed with the SEC on November 16, 2010).
4.3	Form of Warrant from the November 2010 Preferred Stock Offering (incorporated by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K dated and filed with the SEC on November 16, 2010).
5.1	Opinion of Lowenstein Sandler LLP†
23.1	Consent of Grant Thornton LLP†
23.2	Consent of Lowenstein Sandler LLP (contained in Exhibit 5.1)†
24.1	Power of Attorney (included on the signature page to this Registration Statement)†

† Filed herewith.

Item 17. Undertakings.

The undersigned registrant hereby undertakes:

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

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

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

(iii) To include any material information with respect to the plan of distribution not previously disclosed in this registration statement or any material change to such information in this registration statement;

provided, however, that paragraphs (i), (ii) and (iii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

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

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

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

(i) If the registrant is relying on Rule 430B,

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

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5) or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii) or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date; or

(ii) If the registrant is subject to Rule 430C, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness; provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.

(5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the registrant undertakes that in a primary offering of securities of the registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about an undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by an undersigned registrant to the purchaser.

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

(7) To deliver or cause to be delivered with the prospectus, to each person to whom the prospectus is sent or given, the latest annual report to security holders that is incorporated by reference in the prospectus and furnished pursuant to and meeting the requirements of Rule 14a-3 or Rule 14c-3 under the Securities Exchange Act of 1934; and, where interim financial information required to be presented by Article 3 of Regulation S-X are not set forth in the prospectus, to deliver, or cause to be delivered to each person to whom the prospectus is sent or given, the latest quarterly report that is specifically incorporated by reference in the prospectus to provide such interim financial information.

(8) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of New York, State of New York, on May 9, 2013.

NEOSTEM, INC.

By: /s/ Robin L. Smith, M.D.
Name: Robin L. Smith, M.D.
Title: Chief Executive Officer

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Robin L. Smith and Catherine M. Vaczy, and either of them, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) and supplements to this registration statement (or any other registration statement for the same offering that is effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933, as amended) and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of said attorneys-in-fact and agents, or his or her substitute or substitutes, may do or cause to be done by virtue hereof.

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

Signature	Title	Date
/s/ Robin L. Smith, M.D. Robin L. Smith, M.D.	Director, Chief Executive Officer and Chairman of the Board (Principal Executive Officer)	May 9, 2013
/s/ Larry A. May Larry A. May	Chief Financial Officer (Principal Financial Officer)	May 9, 2013
/s/ Joseph Talamo Joseph Talamo	Vice President, Corporate Controller and Chief Accounting Officer (Principal Accounting Officer)	May 9, 2013
/s/ Richard Berman Richard Berman	Director	May 9, 2013
/s/ Steven S. Myers Steven S. Myers	Director	May 9, 2013
/s/ Drew Bernstein Drew Bernstein	Director	May 9, 2013
/s/ Eric Wei Eric Wei	Director	May 9, 2013
/s/ Stephen W. Potter Stephen W. Potter	Director	May 9, 2013
/s/ Andrew L. Pecora, M.D. Andrew L. Pecora, M.D.	Director	May 9, 2013
/s/ Martyn D. Greenacre Martyn D. Greenacre	Director	May 9, 2013

Exhibit 5.1

May 9, 2013

NeoStem, Inc.
420 Lexington Avenue, Suite 350
New York, New York 10170

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have served as special counsel in connection with the preparation of your Registration Statement on Form S-3 (the "Registration Statement") filed with the Securities and Exchange Commission under the Securities Act of 1933, as amended (the "Act"), covering shares of common stock, par value $0.001 per share, having an aggregate offering price of $7,985,264 (the "Shares"), of NeoStem, Inc., a Delaware corporation (the "Company"), that are issuable upon exercise of two classes of warrants previously issued by the Company in November 2010 as more particularly described in the Registration Statement.

We have examined such corporate records, certificates and other documents and such questions of law as we have considered necessary and appropriate for the purposes of this opinion.

Upon the basis of such examination, we advise you that, in our opinion, the Shares covered by the Registration Statement have been duly authorized and, when issued in accordance with the terms and conditions of the respective warrant (including the due payment of any exercise price therefor specified in the respective warrant), will be validly issued, fully paid and non-assessable.

Our opinion herein is expressed solely with respect to the federal laws of the United States and the General Corporation Law of the State of Delaware. Our opinion is based on these laws as in effect on the date hereof.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement and to the references to this firm in the Registration Statement. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Act.

Very truly yours,

/s/ LOWENSTEIN SANDLER LLP

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our report dated March 8, 2013 with respect to the consolidated financial statements included in the Annual Report on Form 10-K for the year ended December 31, 2012 of NeoStem, Inc. and subsidiaries, which is incorporated by reference in this Registration Statement. We consent to the incorporation by reference in the Registration Statement of the aforementioned report, and to the use of our name as it appears under the caption “Experts.”

/s/ GRANT THORNTON LLP

New York, New York

May 9, 2013