BIOTIME INC
Form 424B5
June 17, 2016
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Filed Pursuant to Rule 424(b)(5)
Registration No. 333-201824

PROSPECTUS SUPPLEMENT
(To Prospectus dated February 12, 2015)

7,322,176 Shares

Common Stock

We are offering 7,322,176 shares of our common stock, no par value. Our common stock is listed on the NYSE MKT and on the Tel Aviv Stock Exchange under the symbol BTX. On June 15, 2016, the last reported sale price for our common stock on the NYSE MKT was $2.60 per share.

One of our significant stockholders is purchasing approximately $6.5 million shares of our common stock in this offering at the price to the public.

Investing in our common stock involves risks. See Risk Factors beginning on page S-5 of this prospectus supplement, on page 6 of the accompanying prospectus and in the documents incorporated by reference into this prospectus supplement.

	Per Share	Total
Public Offering Price	$ 2.39	$ 17,500,000.64
Underwriting discounts and commissions(1)	$ 0.1434	$ 1,050,000.04
Proceeds to us, before expenses	$ 2.2466	$ 16,450,000.60

(1) We have also agreed to reimburse the underwriters for certain of their expenses. See Underwriting on page S-27 of this prospectus supplement for more information about these arrangements.

We have granted an over-allotment option to the underwriters. Under this option, the underwriters may elect to purchase a maximum of 1,098,326 additional shares of common stock from us within 30 days following the date of this prospectus supplement to cover over-allotments. If the underwriters exercise the option in full, the total underwriting discount payable by us will be $1,207,499.99, and the total proceeds to us, before expenses, will be $18,917,499.79.

We expect to deliver the shares against payment on or about June 21, 2016.

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

Sole Book-Running Manager

Oppenheimer & Co.

Co-Manager

Chardan

The date of this prospectus supplement is June 16, 2016

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You should rely only on the information contained or incorporated by reference in this prospectus supplement, the accompanying prospectus and any free writing prospectuses we may provide to you in connection with this offering. We have not, and the underwriters have not, authorized any other person to provide you with any information that is different. If anyone provides you with different or inconsistent information, you should not rely on it. We are not making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. The information contained in this prospectus supplement, the accompanying prospectus, the

documents incorporated by reference herein and any free writing prospectuses we may provide to you in connection with this offering is accurate only as of their respective dates. Our business, financial condition, results of operations and prospects may have changed since those dates. You should not consider this prospectus supplement or the accompanying prospectus to be an offer or solicitation relating to the securities in any jurisdiction in which such an offer or solicitation relating to the securities is not authorized. Persons outside the United States who come into possession of this prospectus supplement must inform themselves about, and observe any restrictions relating to, the offering of the securities and the distribution of this prospectus supplement outside the United States. Furthermore, you should not consider this prospectus supplement or the accompanying prospectus to be an offer or solicitation relating to the securities if the person making the offer or solicitation is not qualified to do so, or if it is unlawful for you to receive such an offer or solicitation.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are part of a registration statement that we filed with the U.S. Securities and Exchange Commission, or SEC, utilizing a shelf registration process. This document is in two parts. The first part is this prospectus supplement, which describes the terms of the offering of the securities offered hereby and also adds to and updates the information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The second part is the accompanying prospectus, which provides more general information, some of which may not apply to this offering and some of which may have been supplemented or superseded by information in this prospectus supplement or documents incorporated or deemed to be incorporated by reference in this prospectus supplement that we filed with the SEC subsequent to the date of the prospectus. To the extent that there is any conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus or any document incorporated by reference herein or therein, on the other hand, you should rely on the information in this prospectus supplement.

You should rely only on the information contained in this prospectus supplement, contained in the accompanying prospectus or incorporated herein or therein by reference. We have not authorized anyone to provide you with information that is different. We are offering to sell, and seeking offers to buy, the securities offered hereby only in jurisdictions where offers and sales are permitted. The information contained, or incorporated by reference, in this prospectus supplement and contained, or incorporated by reference, in the accompanying prospectus is accurate only as of the respective dates thereof, regardless of the time of delivery of this prospectus supplement and the accompanying prospectus, or of any sale of our shares of common stock. It is important for you to read and consider all information contained in this prospectus supplement and the accompanying prospectus, including the documents we have referred you to in the section entitled Where You Can Find More Information and Incorporation of Certain Information by Reference below.

We own or have rights to trademarks or trade names that we use in conjunction with the operation of our business. Each trademark, trade name or service mark of any other company appearing in this prospectus supplement or the accompanying prospectus belongs to its holder. Use or display by us of other parties trademarks, trade names or service marks is not intended to and does not imply a relationship with, or endorsement or sponsorship by us of, the trademark, trade name or service mark owner.

The industry and market data contained or incorporated by reference in this prospectus supplement are based either on our management s own estimates or on independent industry publications, reports by market research firms or other published independent sources. Although we believe these sources are reliable, we have not independently verified the information and cannot guarantee its accuracy and completeness, as industry and market data are subject to change and cannot always be verified with complete certainty due to limits on the availability and reliability of raw data, the voluntary nature of the data gathering process and other limitations and uncertainties inherent in any statistical survey of market shares. Accordingly, you should be aware that the industry and market data contained or incorporated by reference in this prospectus supplement, and estimates and beliefs based on such data, may not be reliable. Unless otherwise indicated, all information contained or incorporated by reference in this prospectus supplement concerning our industry in general or any segment thereof, including information regarding our general expectations and market opportunity, is based on management s estimates using internal data, data from industry related publications, consumer research and marketing studies and other externally obtained data.

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PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights certain information about this offering and selected information contained elsewhere in or incorporated by reference into this prospectus supplement. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our shares of common stock. You should read this entire prospectus supplement and the accompanying prospectus carefully, including the Risk Factors section contained in this prospectus supplement and the other documents incorporated by reference into this prospectus supplement and in the accompanying prospectus. References to we, us , and our mean BioTime, Inc. and our subsidiaries unless the context otherwise indicates. In this regard, references to we, us , and our in the context of rights or obligations under any contract or agreement mean BioTime, Inc. only and not our subsidiaries.

Business Overview

We are a clinical-stage biotechnology company focused on developing and commercializing novel therapies in the field of regenerative medicine. Regenerative medicine utilizes advances in stem cell biology, biomaterials, lab-generated cells and tissues, and biologics to engineer and provide healthy cells, tissues and organs to patients with chronic degenerative diseases. To that end, we have obtained a collection of pluripotent stem cell assets and the technology for the delivery and engraftment of such cells. Pluripotent stem cells are capable of becoming any cell type in the human body. Pluripotent stem cells allow for the manufacture of all human cell types on an industrial-scale. Unlike adult stem cells, our focus is on clinical grade master cell banks of pluripotent stem cells that propagate indefinitely as a source of product. Cell types derived from pluripotent stem cells have potential application in many areas of medicine with large unmet patient needs, including various age-related degenerative diseases and degenerative conditions for which there presently are no cures. Unlike pharmaceuticals which almost always require a molecular target, therapeutic strategies based on the use of cell types derived from pluripotent stem cells are generally aimed at regenerating or replacing affected cells and tissues, and therefore may have broader applicability than pharmaceutical products. Our collection of pluripotent stem cell assets is complemented by our *HyStem*® technology, which delivers and engrafts cells derived from pluripotent stem cells or the patient s own somatic or adult stem cells, to or at the desired location.

In order to efficiently advance product candidates through the clinical trial process, we have historically created operating subsidiaries for each program and product line. Our management believes this approach has fostered efficient use of resources and reduced shareholder dilution as compared to strategies commonly deployed by the biotechnology industry, as the various programs and product lines have advanced through basic research and animal studies. As a result, we have been able to develop multiple clinical-stage products rather than being dependent on a single product program. We and some of our subsidiaries have also received substantial amounts of non-dilutive financial support from government and nonprofit organizations that are seeking, based on rigorous scientific review processes, to identify and accelerate the development of potential breakthroughs in the treatment of various major diseases.

As of March 31, 2016, we held, directly and indirectly through subsidiaries and equity method investments, interests in 10 operating entities located throughout the world. In the United States, we own interests in Ascendance Biotechnology, Inc., or Ascendance, Asterias Biotherapeutics, Inc., or Asterias, (NYSE MKT: AST), LifeMap Sciences, Inc., or LifeMap Sciences, LifeMap Solutions, Inc., or LifeMap Solutions, OncoCyte Corporation, or OncoCyte, (NYSE MKT: OCX), OrthoCyte Corporation, or OrthoCyte, and ReCyte Therapeutics, Inc., or ReCyte.

We hold an approximate 46% interest in Ascendance, a company that manufactures and sells proprietary products and services that assay new drug candidates for potential toxicity, including *HepatoPac*® and *HepatoMune*®, and other products for use as research tools by a range of customers, including several leading global pharmaceutical companies.

We hold an approximate 49% interest in Asterias, whose principal field of business involves therapeutic products derived from pluripotent stem cells, and immunotherapy products. Asterias clinical programs include AST-OPC1 for spinal cord injury, AST-VAC1 for acute myelogenous leukemia and AST-VAC2 for non-small cell lung cancer. We hold an approximate 78% interest in LifeMap Sciences, whose principal field of business involves biomedical, gene, disease, and stem cell databases and research tools. We indirectly hold interests in LifeMap Solutions, a mobile health software company, and LifeMap Sciences, Ltd., a company located in Israel that develops biomedical, gene, disease, and stem cell databases and research tools, each of which are wholly-owned subsidiaries of LifeMap Sciences.

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We hold an approximate 58% interest in OncoCyte, whose principal field of business involves proprietary non-invasive, liquid biopsy and diagnostics for lung, breast and bladder cancers. We wholly own OrthoCyte, whose principal field of business involves bone grafting products for orthopedic diseases and injuries. Lastly, we hold an approximate 95% interest in ReCyte, whose principal field of business involves stem cell-derived endothelial and cardiovascular related progenitor cells for the treatment of vascular disorders, ischemic conditions and brown adipocytes for type-2 diabetes and obesity.

In Singapore, we wholly own ES Cell International Pte Ltd., or ES Cell, an entity that utilizes stem cell products for research, including clinical grade cell lines produced under current good manufacturing procedures.

In Israel, we hold an approximate 63% interest in Cell Cure Neurosciences Ltd., or Cell Cure Neurosciences, an entity that develops products to treat age-related macular degeneration, or AMD, and other neurological diseases. According to the Angiogenesis Foundation, AMD afflicts over 30 million people worldwide. AMD takes two forms, a dry form and a wet form. The dry form of AMD occurs when the light-sensitive cells in the macula of the eye break down due to the death of a supporting cell type called retinal pigment epithelial cells, impairing central vision and sometimes leading to blindness. Approximately 90% of AMD prevalence is the dry form of the disease, while the wet form afflicts only about 10% of patients. Nevertheless, the market for therapeutics for the wet form of AMD is approximately $5 billion globally. According to the National Institutes of Health, the dry form of AMD is a leading cause of blindness in people over age 60. In addition, it is estimated that approximately 1.6 million new cases of the dry form of AMD develop in the United States each year. Cell Cure Neurosciences lead product is *OpRegen*®, which is a potential therapy derived from pluripotent stem cells for the treatment of the dry form of AMD.

In addition, we are currently developing *Renevia*® as a potential treatment for HIV related facial lipoatrophy, a syndrome that occurs in HIV-infected patients who are being treated with antiretroviral medications. Approximately 350,000 people in Europe have HIV-related lipoatrophy or facial wasting. We plan to apply for CE Mark approval in Europe in the second quarter of 2017. In addition, we intend to complete enrollment for a pivotal trial in the United States during the third quarter of 2016 and initiate that trial during the first half of 2017. *Renevia*® may address an immediate need in cosmetic and reconstructive surgeries and other procedures by improving the process of transplanting adipose fat derived cells or other cells. Cell types such as adipose stem cells obtained from a patient through liposuction can be transplanted back into the same patient at another location in the body, without the risk of rejection associated with the transplant of donor tissues. Over time, we may discover that *Renevia*® has much broader applications beyond its use in patients with HIV. It is estimated that the global facial aesthetics market was valued at $2.5 billion in 2013 and is expected to reach $5.4 billion by 2020. In addition, in 2014 there were approximately 1 million augmentation or reconstruction surgical procedures performed in the United States. We believe there are approximately half a million procedures per year in which *Renevia*® could possibly be utilized apart from the current developed use as a potential treatment for HIV related facial lipoatrophy. Such procedures include approximately 70,000 facial fat transfer procedures, approximately 220,000 liposuction procedures, approximately 125,000 rhytidectomy procedures, and approximately 125,000 abdominoplasty procedures. In addition, we believe *Renevia*® may be able to serve as a premium alternative to dermal fillers, of which approximately 2.3 million procedures are performed in the United States per year. We believe *Renevia*® has the potential for better, long-lasting and more natural outcome than fillers by enabling the growth of new facial tissue.

This revolution in medical science changes the focus from treating the symptoms of chronic and degenerative diseases to providing actual cures. There is no general approval path for use of pluripotent stem cells, however, there is uniformity for product and genotype. Together with our subsidiaries, we are advancing two late-stage pivotal trials and a robust pipeline which includes the following programs:

- *OpRegen*® is in a Phase I/IIa clinical trial to treat the dry form of AMD.
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AST-OPC1, a potential therapy derived from pluripotent stem cells, is in a Phase I/IIa trial for spinal cord injury rehabilitation and AST-VAC2 is advancing toward clinical development for non-small cell lung cancer, both pluripotent stem cell-based therapies being developed by Asterias.

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- Our collaborator Cancer Research UK is preparing to initiate a Phase I/II clinical trial of AST-VAC2 in non-small cell lung cancer representing a second generation, allogeneic approach to cancer immunotherapy.
- Other therapies derived from pluripotent stem cells that are in pre-clinical development include an innovative bone grafting therapy and potential treatments for a variety of cardiovascular and related ischemic disorders.
- AST-VAC1, a cancer immunotherapy with promising Phase II clinical trial data in acute myeloid leukemia, or AML. Asterias currently plans to submit a request for a Special Protocol Assessment, or SPA, to the U.S. Food and Drug Administration, or FDA, to confirm the primary endpoint and other design elements of this pivotal Phase 3 trial.
- *Renevia*® is currently in a pivotal clinical trial in Europe to assess its efficacy in restoring normal skin contours in patients whose subcutaneous fat, or adipose tissue, has been lost due to antiviral drug treatment for HIV. If the clinical trial proceeds as anticipated, *Renevia*® has the potential to obtain regulatory approval in Europe in the second half of 2017.
- OncoCyte is developing a next generation of diagnostic tests that will be liquid biopsies using blood or urine samples. Its initial liquid biopsy products will be confirmatory diagnostics for detecting lung, bladder and breast cancer. OncoCyte's diagnostic tests are based on a proprietary set of genetic markers broadly expressed in numerous types of cancer.
- LifeMap Sciences is currently developing and marketing technology healthcare solutions, such as an integrated online database and other software research tools for biomedical and stem cell research. LifeMap Solutions is also developing mobile health (mHealth) products.
- cGMP-compliant human embryonic stem cell lines are available for research and clinical studies through our subsidiary ES Cell.
- *Hextend*®, our FDA-approved blood plasma expander, is marketed in collaboration with Hospira, Inc. in the United States and under an agreement with CJ Corporation in South Korea.

Company Information

We were incorporated in the State of California on November 30, 1990. Our common stock is listed on the NYSE MKT and the Tel Aviv Stock Exchange under the symbol BTX. The address of our principal executive office is 1010 Atlantic Avenue, Suite 102, Alameda, California 94501, and our phone number at that address is 510-521-3390. Our corporate website address is www.biotimeinc.com. The information contained on our website is not a part of, and should not be construed as being incorporated by reference into, this prospectus supplement.

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THE OFFERING

Shares of common stock offered
7,322,176 shares
Underwriters overallotment option
1,098,326 shares
Shares of common stock to be outstanding after this offering
102,216,316 shares
Use of proceeds
We intend to use the net proceeds from this offering to fund our research and development activities and for working capital and other general corporate purposes. See Use of Proceeds on page S-24.
Risk factors
See Risk Factors beginning S-5 of this prospectus supplement, on page 6 of the accompanying prospectus and in the documents incorporated by reference into this prospectus supplement for a discussion of factors you should consider carefully before investing in our common stock.
NYSE MKT Symbol
BTX
Unless we indicate otherwise, all information in this prospectus supplement is based on 94,894,140 shares of common stock issued and outstanding as of March 31, 2016 and excludes as of that date:

- warrants to purchase 9,394,862 shares of common stock at a weighted average exercise price of $4.55 per share;
- options under our 2002 Stock Option Plan and our 2012 Equity Incentive Plan to purchase 5,453,979 shares of common stock, with a weighted average exercise price of $3.81 per share; and
- 4,898,879 shares of common stock available for issuance under our 2002 Stock Option Plan and our 2012 Equity Incentive Plan.

Unless otherwise indicated, all information in this prospectus supplement assumes no exercise by the underwriters of their overallotment option.

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RISK FACTORS

Investing in our common stock involves risk. Before deciding whether to invest in our shares of common stock, you should consider carefully the risks and uncertainties described below and discussed under the section entitled Risk Factors on page 5 of the accompanying prospectus. You should also consider the risks, uncertainties and assumptions discussed under the heading Risk Factors included in our most recent annual report on Form 10-K, as amended, as revised or supplemented by our most recent quarterly report on Form 10-Q, each of which are on file with the SEC and are incorporated herein by reference, and which may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future. There may be other unknown or unpredictable economic, business, competitive, regulatory or other factors that could have material adverse effects on our future results. If any of these risks actually occurs, our business, business prospects, financial condition or results of operations could be seriously harmed. This could cause the trading price of our shares of common stock to decline, resulting in a loss of all or part of your investment. Please also read carefully the section below entitled Disclosure Regarding Forward- Looking Statements.

Risks Related to This Offering

You will experience immediate and substantial dilution in the book value per share of the shares of common stock you purchase and may experience further dilution in the future.

The public offering price of the common stock offered pursuant to this prospectus supplement is substantially higher than the net tangible book value per share of our common stock. Therefore, if you purchase shares of common stock in this offering, you will incur immediate and substantial dilution in the pro forma net tangible book value per share of common stock from the price per share that you pay for the common stock. See the section entitled Dilution below for a more detailed discussion of the dilution you will incur if you purchase shares in this offering. Furthermore, we expect that we will seek to raise additional capital from time to time in the future. Such financings may involve the issuance of equity and/or securities convertible into or exercisable or exchangeable for our equity securities. We also expect to continue to utilize equity-based compensation. To the extent the warrants and options are exercised or we issue common stock, preferred stock, or securities such as warrants that are convertible into, exercisable or exchangeable for, our common stock or preferred stock in the future, you may experience further dilution.

Management will have broad discretion as to the use of the proceeds from this offering, and may not use the proceeds effectively.

Our management will have broad discretion as to the application of the net proceeds from this offering. Our management may, among other possible uses of proceeds, use proceeds to finance clinical trials of products we are developing, to finance our research and develop programs, to acquire one or more businesses or new business assets, and for general working capital, and we may invest proceeds in one or more of our existing subsidiaries, or in any new subsidiaries that we may form. We may use the proceeds for purposes that are not contemplated at the time of the offering. All of these potential uses of proceeds involve risks and may not improve the performance or prospects of our business or the business or prospects of our subsidiaries, and may not increase the market value of our shares of common stock.

Risks Related to Our Business Operations

We have incurred operating losses since inception and we do not know if we will attain profitability.

Our total comprehensive losses for the fiscal years ended December 31, 2015, 2014, and 2013 were $47.8 million, $36.4 million, and $43.8 million, respectively, and we had an accumulated deficit of $246.3 million as of March 31,

2016. We primarily finance our operations through the sale of equity securities, licensing fees, royalties on product sales by our licensees, research grants, subscription fees and advertising revenue from database products. Ultimately, our ability to generate sufficient operating revenue to earn a profit depends upon our success in developing and marketing or licensing our product candidates. If we are unable to do so, our results of operations will be materially harmed and the value of our common stock could decrease.

We need to spend a substantial amount of our capital on research and development but we might not succeed in developing products and technologies that are accepted by the market.

We are developing new medical products and technologies. Many of our product candidates and technologies have not been applied in human medicine and have only been used in laboratory studies *in vitro* or in animals. These new products and technologies might not prove to be safe and efficacious in the human medical applications for which they were developed.

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Our development efforts are costly, time consuming, and uncertain as to their results. We incurred research and development expenses of $42.6 million, $37.5 million, and $26.6 million during the fiscal years ended December 31, 2015, 2014, and 2013, respectively, excluding $17.5 million charged as acquired in process research and development expenses during 2013 in connection with Asterias acquisition of certain assets from Geron Corporation, or Geron. If we are successful in developing a new technology or product, refinement of the new technology or product and definition of the practical applications and limitations of the technology or product may take years and require the expenditure of large sums of money. Future clinical trials of new therapeutic products, particularly those products that are regulated as drugs or biological, will be very expensive and will take years to complete. We may not have the financial resources to fund clinical trials on our own and we may have to enter into licensing or collaborative arrangements with larger, well-capitalized pharmaceutical companies in order to bear the cost. Any such arrangements may be dilutive to our ownership or economic interest in the products we develop, and we might have to accept a royalty payment on the sale of the product rather than receiving the gross revenues from product sales.

We will need to issue additional equity or debt securities in order to raise additional capital needed to pay our operating expenses.

We plan to continue to incur substantial research and product development expenses and we and our subsidiaries will need to raise additional capital to pay operating expenses until we are able to generate sufficient revenues from product sales, royalties, and license fees.

It is likely that additional sales of equity or debt securities will be required to meet our short-term capital needs, unless we receive substantial revenues from the sale of our new products or we are successful at licensing or sublicensing the technology that we develop or acquire from others and we receive substantial licensing fees and royalties.

Our ability, and the ability of our subsidiaries, to raise additional equity or debt capital will depend not only on progress made in developing new products and technologies, but also will depend on access to capital and conditions in the capital markets. We may not be able to raise capital at times and in amounts needed to finance product development, clinical trials, and general operations. Even if capital is available, it may not be available on terms that we or our shareholders would consider favorable. Sales of additional equity securities could result in the substantial dilution for our shareholders. If we were to incur debt to finance our operations, it could have restrictions on our business operations.

The operations of OncoCyte Corporation, or OncoCyte, could result in an increase in our operating expenses and losses on a consolidated basis.

While we no longer are required to consolidate our operations with that of Aseterias, we are still required to consolidate our operations with OncoCyte. The expansion of OncoCyte will involve substantial expense, including but not limited to hiring additional research and management personnel, and marketing personnel if it successfully completes the development of its initial cancer diagnostic tests, and those expenses will add to our losses on a consolidated basis for the near future. OncoCyte is public company and will incur costs associated with audits of its financial statements, filing annual, quarterly, and other periodic reports with the SEC, holding annual shareholder meetings, listing their common stock for trading, and public relations and investor relations. These costs will be in addition to those incurred by us for similar purposes.

Patents pertaining to the manufacture of retinal pigment epithelium, or RPE, products from pluripotent cells recently issued to one of our competitors and could impact the rights of Cell Cure Neurosciences Ltd., or Cell Cure Neurosciences, to manufacture and commercialize OpRegen®.

The U.S. Patent and Trademark Office, or USPTO, issued certain RPE-related patents to Ocata Therapeutics, or Ocata, in 2015, with claims directed to methods of producing RPE cell compositions for human therapy. If the process used by Cell Cure Neurosciences to manufacture RPE cells for *OpRegen*® were to be determined to infringe the issued claims and if the patented claims were to be determined to be valid, Cell Cure Neurosciences might not be permitted to manufacture *OpRegen*® and commercialize that product in the United States or in other countries in which such patent claims may have issued.

Our success depends in part on the uncertain growth of the stem cell industry, which is still in its infancy.

The success of Ascendance Biotechnology, Inc. s, or Ascendance, business of selling products for use in stem cell research depends on the growth of stem cell research, without which there may be no market or only a very

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small market for our products and technology. The likelihood that stem cell research will grow depends upon the successful development of stem cell products that can be used to treat disease or injuries in people or that can be used to facilitate the development of other therapeutic products.

The growth in stem cell research also depends upon the availability of funding through private investment and government research grants. In the event of a failed trial of a proposed stem cell product by us or by another company, for reasons of efficacy or safety, it could be increasingly difficult to secure funding or have future investigational new drugs, or INDs, cleared by the U.S. Food and Drug Administration, or FDA.

Safe and efficacious human medical applications may not be developed using stem cells or related technology. If serious adverse events related to cell therapy products were to arise in clinical trials or after marketing approval, the FDA or foreign regulators could impose more restrictive safety requirements on cell therapy products generally, including in the manner of use and manufacture, could require safety warnings in product labeling, and could limit, restrict or deny permission for new cell therapy products to enter clinical trials or to be marketed.

We are providing funding for the development of new software products.

Our subsidiary, LifeMap Sciences, Inc., or LifeMap Sciences, has formed a new subsidiary, LifeMap Solutions, Inc., or LifeMap Solutions, to develop new personal mobile health software products intended to connect users with their complex personal health information and other big data. The field of mobile health products, including both hardware and software products, is new, and LifeMap Solutions may not be successful in developing its planned new products or in commercializing any products that it does develop.

LifeMap Solutions has not yet launched any commercial products, and we would need to continue to provide funding for the development and commercialization of the planned products, unless it is able to obtain financing from other sources. The field of mobile health products is subject to increasing competition, including from large computer and internet technology companies that have much greater financial and marketing resources than we and LifeMap Solutions have.

The FDA has also taken an interest in the field of on-line or mobile health products and there is a risk that the FDA could determine that LifeMap Solutions products should be regulated as medical devices under existing laws and regulations, or the FDA could promulgate new regulations that might subject LifeMap Solutions products to FDA clinical trial and approval procedures, as a prerequisite for permission to use and market the new mobile health products in the United States. Foreign regulatory authorities could make similar determinations or could adopt their own rules regulating the use and marketing of LifeMap Solution s products.

We face significant competition in an environment of rapid technological change, and there is a possibility that our competitors may achieve regulatory approval before us or develop therapies that are safer or more advanced or effective than ours, which may harm our financial condition and our ability to successfully market or commercialize any product candidates we may develop.

The biotechnology industry is intensely competitive and any therapies developed by us or our subsidiaries would compete with existing therapies or therapies in development. There are many biotechnology companies, public and private universities, government agencies and research organizations that compete with us in developing various approaches to therapies in the field of regenerative medicine. Moreover, other companies are also working on the development of stem cell based therapies for the same diseases and disorders that are the focus of the research and development programs of our subsidiaries. Some or all of these companies may have greater financial resources, larger technical staffs and larger research budgets than we have, as well as greater experience in developing products and running clinical trials. We expect to continue to experience significant and increasing levels of competition in the

future.

Additionally, technologies developed by our competitors may render our potential product candidates uneconomical or obsolete, and we may not be successful in marketing our product candidates against competitors. In order to compete with other products, particularly those that sell at lower prices, our products will have to provide medically significant advantages. There also is a risk that our competitors may succeed at developing safer or more effective products that could render our products and technologies obsolete or noncompetitive. If such products are proven to be safe and effective, they may reach the market ahead of our product candidates. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market.

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Sales of Hextend® have been adversely affected by safety and use labeling changes required by the FDA.

Sales of *Hextend®* have been adversely affected by certain safety labeling changes required by the FDA for the entire class of hydroxyethyl starch products, including *Hextend®*. The labeling changes were approved by the FDA in November 2013 and include a boxed warning stating that the use of hydroxyethyl starch products, including *Hextend®*, increases the risk of mortality and renal injury requiring renal replacement therapy in critically ill adult patients, including patients with sepsis, and that *Hextend®* should not be used in critically ill adult patients, including patients with sepsis. New warning and precaution information is also required along with new information about contraindications, adverse reactions, and information about certain recent studies. The new warning and precautions include statements to the effect that the use of *Hextend®* should be avoided in patients with pre-existing renal dysfunction, and the coagulation status of patients undergoing open heart surgery in association with cardiopulmonary bypass should be monitored as excess bleeding has been reported with hydroxyethyl starch solutions in that population and use of *Hextend®* should be discontinued at the first sign of coagulopathy. The liver function of patients receiving hydroxyethyl starch products, including *Hextend®* should also be monitored. The approved revised label may adversely affect *Hextend®* sales since some users of plasma volume expanders might elect to abandon the use of all hydroxyethyl starch products, including *Hextend®*.

Any cell-based products that receive regulatory approval may be difficult and expensive to manufacture on a commercial scale.

Pluripotent stem derived therapeutic cells have only been produced on a small scale and not in quantities and at levels of purity and viability that will be needed for wide scale commercialization. If we are successful in developing products that consist of pluripotent stem cells or other cells or products derived from pluripotent stem or other cells, we will need to develop, alone or in collaboration with one or more pharmaceutical companies or contract manufacturers, technology for the commercial production of those products.

Pluripotent stem cell or other cell based products are likely to be more expensive to manufacture on a commercial scale than most other drugs on the market today. The high cost of manufacturing a product will require that we charge our customers a high price for the product in order to cover our costs and earn a profit. If the price of our products is too high, hospitals and physicians may be reluctant to purchase our products, especially if lower priced alternative products are available, and we may not be able to sell our products in sufficient volumes to recover our costs of development and manufacture or to earn a profit.

We and our subsidiaries will have certain obligations and may incur liabilities arising from clinical trials, and we do not yet know the scope of any resulting expenses that might arise.

We or our subsidiaries that conduct clinical trials of product candidates face the risk of incurring liabilities to patients if they incur any injuries as a result of their participation in the clinical trials. We or our subsidiaries will also be obligated to obtain information and prepare reports about the health of the clinical trial patients. In addition, Asterias has assumed Geron s obligations to obtain information and prepare reports about the health of patients, and has assumed any liabilities to those patients that might arise from any injuries they may have incurred, as a result of their participation in the clinical trials of Geron s GRN-OPC1 cell replacement therapy for spinal cord damage and its GRN-VAC1 immunological therapy for certain cancers. We are not aware of any claims by patients alleging injuries suffered as a result of any of our clinical trials or the Geron clinical trials, but if any claims are made and if liability can be established, the amount of any liability that we or our subsidiaries may incur, depending upon the nature and extent of any provable injuries, could exceed any insurance coverage that we or our subsidiaries may obtain, and the amount of the liability could be material to our financial condition.

Our business could be adversely affected if we lose the services of the key personnel upon whom we depend.

Our stem cell research programs, and to a lesser extent, the programs of our subsidiaries, are directed primarily by our Co-Chief Executive Officers, Dr. Michael West and Adi Mohanty. Our subsidiaries are directed by their respective management teams. The loss of the services of Dr. West, Mr. Mohanty or other members of senior management of us or of our subsidiaries could have a material adverse effect on us.

If we make strategic acquisitions, we will incur a variety of costs and might never realize the anticipated benefits.

We may attempt to acquire approved products, additional drug candidates, diagnostic tests, technologies, or businesses that we believe are a strategic fit with our business. If we pursue any transaction of that sort, the

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process of negotiating the acquisition and integrating an acquired product, drug candidate, diagnostic test, technology, or business might result in operating difficulties and expenditures and might require significant management attention that would otherwise be available for ongoing development of our business, whether or not any such transaction is ever consummated. Moreover, we might never realize the anticipated benefits of any acquisition. Future acquisitions could result in potentially dilutive issuances of equity securities, the incurrence of debt, contingent liabilities, or impairment expenses related to goodwill, and impairment or amortization expenses related to other intangible assets, which could harm our financial condition.

We may experience losses due to product liability claims, product recalls or corrections.

The design, development, manufacture and sale of medical products involve an inherent risk of product liability or other claims by patients and other third parties. The pharmaceutical and cell-based products, medical devices, and diagnostic tests that we license or acquire may cause, or may appear to cause, serious adverse side effects or potentially dangerous drug interactions if misused, improperly prescribed, improperly implanted or subject to faulty surgical technique. While we carry product liability insurance, which includes coverage for ongoing and future clinical trials we conduct, this insurance may not be sufficient to cover all claims. Insurance coverage is expensive and may be difficult to obtain. If we become liable for any product liability claims in excess of coverage or outside of coverage, the cost and expense of such liability could cause earnings and financial condition to suffer, which could lead to losses for us.

The FDA and similar foreign governmental authorities have the authority to require the recall of certain types of commercialized products in the event of material deficiencies or defects in design or manufacture. In the case of the FDA regulation of devices, the authority to require a recall must be based on an FDA finding that there is a reasonable probability that the device would cause serious injury or death. Manufacturers of any FDA-regulated product may, under their own initiative, recall a product if any material deficiency in a device is found. A government-mandated or voluntary recall by us or our licensors could occur as a result of component failures, manufacturing errors, design or labeling defects or other deficiencies and issues. Recalls of any of our products would divert managerial and financial resources and could adversely affect our business.

Failure of our internal control over financial reporting could harm our business and financial results.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is a process to provide reasonable assurance regarding the reliability of financial reporting for external purposes in accordance with accounting principles generally accepted in the United States. Internal control over financial reporting includes maintaining records that in reasonable detail accurately and fairly reflect our transactions; providing reasonable assurance that transactions are recorded as necessary for preparation of the financial statements; providing reasonable assurance that receipts and expenditures of our assets are made in accordance with management authorization; and providing reasonable assurance that unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements would be prevented or detected on a timely basis. Because of its inherent limitations, internal control over financial reporting is not intended to provide absolute assurance that a misstatement of our financial statements would be prevented or detected. Our growth and entry into new products, technologies and markets will place significant additional pressure on our system of internal control over financial reporting. Any failure to maintain an effective system of internal control over financial reporting could limit our ability to report our financial results accurately and timely or to detect and prevent fraud.

Operating our business through subsidiaries, some of which are located in foreign countries, also adds to the complexity of our internal control over financial reporting and adds to the risk of a system failure, an undetected improper use or expenditure of funds or other resources by a subsidiary, or a failure to properly report a transaction or

financial results of a subsidiary. We allocate certain expenses among us and one or more of our subsidiaries, which creates a risk that the allocations we make may not accurately reflect the benefit of an expenditure or use of financial or other resources by us as the parent company and the subsidiaries among which the allocations are made. An inaccurate allocation may impact our consolidated financial results, particularly in the case of subsidiaries that we do not wholly own since our financial statements include adjustments to reflect the minority ownership interests in our subsidiaries held by others.

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We are exposed to risks related to our international operations and failure to manage these risks may adversely affect our operating results and financial condition.

Through our subsidiaries, we have operations both inside and outside the United States, and we expect to expand our international operations in the future. We may, therefore, be denied access to our customers or suppliers or denied the ability to ship any acquired product, drug candidate, diagnostic test, technology, or business products as a result of a closing of the borders of the countries in which our operations are located, due to economic, legislative, political and military conditions in such countries.

International operations are subject to a number of other inherent risks, and our future results could be adversely affected by a number of factors, including:

- differing existing or future regulatory and certification requirements;
- management communication and integration problems resulting from cultural and geographic dispersion;
- greater difficulty in collecting accounts receivable and longer collection periods;
- difficulties and costs of staffing and managing non-U.S. operations;
- the uncertainty of protection for intellectual property rights in some countries;
- tariffs and trade barriers, export regulations and other regulatory and contractual limitations on our ability to sell potential products;
- more stringent data protection standards in some countries;
- greater risk of a failure of foreign employees to comply with both U.S. and foreign laws, including export and antitrust regulations, the U.S. Foreign Corrupt Practices Act and any trade regulations ensuring fair trade practices;
- heightened risk of unfair or corrupt business practices in certain geographies and of improper or fraudulent sales arrangements that may impact financial results and result in restatements of, or irregularities in, financial statements;
- foreign currency exchange rates;
- potentially adverse tax consequences, including multiple and possibly overlapping tax structures; and
- political and economic instability, political unrest and terrorism.

Our multi-subsidiary corporate structure may give rise to administrative inefficiencies and may add to our administrative expenses.

The operation of our business through multiple subsidiaries will result in certain administrative expense that we would not incur if all of our operations were conducted within our company itself. Our subsidiaries generally provide compensation to their own executive management teams and members of their boards of directors who are not employees of us or of one of our subsidiaries. Other expenses arise from more complex record keeping and internal procedures for allocating various operating expenses, such as rent, equipment, utilities, and shared personnel, among us and our subsidiaries, and from the obligations of Asterias and OncoCyte to prepare and file their own periodic financial and informational reports and proxy materials with the SEC and to hold annual meetings of their shareholders.

We may also face conflicts of interest in managing, financing, engaging in transactions with, or allocating business opportunities to, subsidiaries that are not wholly-owned by us. Our directors and those of our subsidiaries will consider their fiduciary duties to us and our subsidiaries, and in certain circumstances decisions making may be delegated to committees of directors who are independent under the rules of the NYSE MKT. We or our subsidiaries also may engage the services of independent financial advisers to provide valuations and other advice with respect to certain proposed transactions.

Our business and operations could suffer in the event of computer system failures.

Despite the implementation of security measures, our internal computer systems and those of our contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism,

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war and telecommunication and electrical failures. Such events could cause interruption of our operations. For example, the loss of data for our product candidates could result in delays in our regulatory filings and development efforts and significantly increase our costs. To the extent that any disruption or security breach was to result in a loss of or damage to our data, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the development of our product candidates could be delayed.

Our ability to use our net operating loss carryforwards and certain other tax attributes may be limited.

Under Section 382 of the Internal Revenue Code of 1986, as amended, or the Code, if a corporation undergoes and ownership change, generally defined as a greater than 50% change (by value) in its equity ownership over a three-year period, the corporation s ability to use its pre-change net operating loss carryforwards, or NOLs, and other pre-change tax attributes, such as research tax credits, to offset its post-change income may be limited. As of December 31, 2015, we had $166.1 million and $105.3 million of federal and state NOLs, respectively, available to offset our future taxable income, if any. In addition, as of December 31, 2015, we had research tax credit carryforwards for federal and state tax purposes of $4.1 million and $4.2 million, respectively. The federal tax credits expire between 2018 and 2035, while the state tax credits have no expiration date. As of December 31, 2015, our subsidiaries have foreign net operating loss carryforwards of approximately $59.7 million which carry forward indefinitely. We may experience ownership changes in the future as a result of subsequent shifts in our stock ownership. As a result, if we earn net taxable income, our ability to use our pre-change NOLs to offset U.S. federal taxable income may be subject to limitations, which could potentially result in increased future tax liability to us.

Our ownership interest in several of our operating subsidiaries is less than 100% and may fluctuate over time, and shares in our subsidiaries may be sold to third parties at the discretion of management of each of those subsidiaries.

As of March 31, 2016, we held, directly and indirectly through subsidiaries, interests in 10 operating entities located throughout the world. Our ownership interest in several of our operating subsidiaries is less than 100%. Any issuance of shares of a subsidiary to third parties is at the discretion of management of that subsidiary and may dilute our percentage ownership in that subsidiary and our proportionate right to any dividends paid by that subsidiary or any net gain on the occurrence of any liquidation event. In addition, if our percentage ownership drops to too low a level, we may have difficulty controlling the operations of the subsidiary or controlling it in circumstances where law or operative agreements require a majority or super-majority vote of stockholders in order to exercise control. In addition, in circumstances where we control a subsidiary, to the extent there are minority investors in the subsidiary we owe them various duties of fair dealing under applicable state laws, and they may be able to take the subsidiary to court or seek to be bought out of their investments at prices favorable to them if they are sufficiently dissatisfied with our control of the subsidiary. If we are unable to adequately manage the capital structure of our subsidiaries, our operations and results may be substantially affected. In addition, we may transfer shares in our subsidiaries to third parties if and when we determine that the benefits to us as a whole from such transfer outweighs the considerations against reducing our ownership in our subsidiaries.

Risks Related to Our Industry

If we do not receive regulatory approvals we will not be permitted to sell our therapeutic and medical device products.

The therapeutic and medical device products that we and our subsidiaries develop cannot be sold until the FDA and corresponding foreign regulatory authorities approve the products for medical use. The need to obtain regulatory approval to market a new product means that:

- We will have to conduct expensive and time-consuming clinical trials of new products. The full cost of conducting and completing clinical trials necessary to obtain FDA and foreign regulatory approval of a new product cannot be presently determined, but could exceed our current financial resources.
- Clinical trials and the regulatory approval process for a pharmaceutical or cell-based product can take several years to complete. As a result, we will incur the expense and delay inherent in seeking FDA and foreign regulatory approval of new products, even if the results of clinical trials are favorable.

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- Data obtained from preclinical and clinical studies is susceptible to varying interpretations that could delay, limit, or prevent regulatory agency approvals. Delays in the regulatory approval process or rejections of an application for approval of a new product may be encountered as a result of changes in regulatory agency policy.
- Because the therapeutic products we are developing with pluripotent stem cell technology involve the application of new technologies and approaches to medicine, the FDA or foreign regulatory agencies may subject those products to additional or more stringent review than drugs or biologicals derived from other technologies.
- A product that is approved may be subject to restrictions on use.
- The FDA can recall or withdraw approval of a product if problems arise.
- We will face similar regulatory issues in foreign countries.

We may not receive the necessary clearances or approvals for our future products, and failure to timely obtain necessary clearances or approvals for our future products would adversely affect our ability to grow our business.

Our *Renevia*® product candidate may require premarket approval, or PMA, before it could be sold in the United States. In the PMA, process, the FDA must determine that a proposed device is safe and effective for its intended use based, in part, on extensive data, including, but not limited to, technical, pre-clinical, clinical trial, manufacturing and labeling data. The PMA process is typically required for devices that are deemed to pose the greatest risk, such as life-sustaining, life-supporting or implantable devices.

In addition, modifications to products that are approved through a PMA application generally require FDA approval. The PMA approval process can be expensive, lengthy and uncertain. The process of obtaining a PMA can be costly and generally takes from one to three years, or even longer, from the time the application is filed with the FDA. In addition, a PMA generally requires the performance of one or more clinical trials. Despite the time, effort and cost, a device may not be approved or cleared by the FDA. Any delay or failure to obtain necessary regulatory approvals could harm our business. Furthermore, even if we are granted regulatory clearances or approvals, they may include significant limitations on the indicated uses for the device, which may limit the market for the device.

In addition, the FDA may change its clearance and approval policies, adopt additional regulations or revise existing regulations, or take other actions, which may prevent or delay approval of our future products under development or impact our ability to modify our currently cleared product on a timely basis.

Obtaining Fast Track designation from the FDA for Cell Cure Neurosciences product candidate OpRegen® does not guarantee faster approval.

Cell Cure Neurosciences received Fast Track designation from the FDA for OpRegen® for the treatment of dry-AMD. Fast Track designation is a process designed to facilitate the development and expedite the review of new drugs intended to treat serious or life-threatening diseases or conditions and that have the potential to address an unmet medical need for such disease or condition. Fast Track designation applies to the product and the specific indication for which it is being studied. Once a Fast Track designation is obtained, the FDA may consider for review on a rolling basis sections of the NDA before the complete application is submitted if the applicant provides and the FDA approves a schedule for the submission of the sections of the NDA and the applicant pays applicable user fees upon submission of the first section of the NDA. However, the time period specified in the Prescription Drug User Fee Act, which governs the time period goals the FDA has committed to reviewing an application, does not begin until the complete application is accepted for filing. Although Cell Cure Neurosciences received Fast Track designation for OpRegen® for the treatment of dry-AMD, the FDA may later decide that OpRegen® no longer meets the conditions for qualification. In addition, Fast Track designation may not provide us with a material commercial advantage.

Clinical trial failures can occur at any stage of the testing and we may experience numerous unforeseen events during, or as a result of, the clinical trial process that could delay or prevent commercialization of our current or future product candidates.

Clinical trial failures or delays can occur at any stage of the trials, and may be directly or indirectly caused by a variety of factors, including but not limited to:

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- delays in securing clinical investigators or trial sites for our clinical trials;
- delays in obtaining institutional review board and other regulatory approvals to commence a clinical trial;
- slower than anticipated rates of patient recruitment and enrollment, or failing to reach the targeted number of patients due to competition for patients from other trials;
- limited or no availability of coverage, reimbursement and adequate payment from health maintenance organizations and other third party payors for the use of agents used in our clinical trials;
- negative or inconclusive results from clinical trials;
- unforeseen side effects interrupting, delaying or halting clinical trials of our product candidates and possibly resulting in the FDA or other regulatory authorities denying approval of our product candidates;
- unforeseen safety issues;
- uncertain dosing issues;
- approval and introduction of new therapies or changes in standards of practice or regulatory guidance that render our clinical trial endpoints or the targeting of our proposed indications obsolete;
- inability to monitor patients adequately during or after treatment or problems with investigator or patient compliance with the trial protocols;
- inability to replicate in large controlled studies safety and efficacy data obtained from a limited number of patients in uncontrolled trials;
- inability or unwillingness of medical investigators to follow our clinical protocols; and
- unavailability of clinical trial supplies.

Government-imposed bans or restrictions and religious, moral, and ethical concerns about the use of hES cells could prevent us from developing and successfully marketing stem cell products.

Government-imposed bans or restrictions on the use of embryos or hES cells in research and development in the United States and abroad could generally constrain stem cell research, thereby limiting the market and demand for our products. During March 2009, President Obama lifted certain restrictions on federal funding of research involving the use of hES cells, and in accordance with President Obama s Executive Order, the National Institutes of Health has adopted new guidelines for determining the eligibility of hES cell lines for use in federally funded research. The central focus of the proposed guidelines is to assure that hES cells used in federally funded research were derived from human embryos that were created for reproductive purposes, were no longer needed for this purpose, and were voluntarily donated for research purposes with the informed written consent of the donors. The hES cells that were derived from embryos created for research purposes rather than reproductive purposes, and other hES cells that were not derived in compliance with the guidelines, are not eligible for use in federally funded research.

California law requires that stem cell research be conducted under the oversight of a stem cell review oversight committee, or SCRO. Many kinds of stem cell research, including the derivation of new hES cell lines, may only be conducted in California with the prior written approval of the SCRO. A SCRO could prohibit or impose restrictions on the research that we plan to do.

The use of hES cells gives rise to religious, moral, and ethical issues regarding the appropriate means of obtaining the cells and the appropriate use and disposal of the cells. These considerations could lead to more restrictive government regulations or could generally constrain stem cell research, thereby limiting the market and demand for our products.

If we are unable to obtain and enforce patents and to protect our trade secrets, others could use our technology to compete with us, which could limit opportunities for us to generate revenues by licensing our technology and selling products.

Our success will depend in part on our ability to obtain and enforce patents and maintain trade secrets in the United States and in other countries. If we are unsuccessful at obtaining and enforcing patents, our competitors

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could use our technology and create products that compete with our products, without paying license fees or royalties to us. The preparation, filing, and prosecution of patent applications can be costly and time consuming. Our limited financial resources may not permit us to pursue patent protection of all of our technology and products throughout the world.

Even if we are able to obtain issued patents covering our technology or products, we may have to incur substantial legal fees and other expenses to enforce our patent rights in order to protect our technology and products from infringing uses. We may not have the financial resources to finance the litigation required to preserve our patent and trade secret rights.

In addition to interference proceedings, the USPTO can re-examine issued patents at the request of a third party seeking to have the patent invalidated. This means that patents owned or licensed by us may be subject to re-examination and may be lost if the outcome of the re-examination is unfavorable to us. Our patents may be subject to *inter partes* review (replacing the prior *inter partes* reexamination proceeding), a proceeding in which a third party can challenge the validity of one of our patents.

There is no certainty that our pending or future patent applications will result in the issuance of patents.

We have filed patent applications for technology that we have developed, and we have obtained licenses for a number of patent applications covering technology developed by others, that we believe will be useful in producing new products, and which we believe may be of commercial interest to other companies that may be willing to sublicense the technology for fees or royalty payments. In the future, we may also file additional new patent applications seeking patent protection for new technology or products that we develop ourselves or jointly with others. However, our licensed patent applications, or any patent applications that we have filed or that we may file in the future covering our own technology, either in the United States or abroad, may not result in the issuance of patents.

In Europe, there is uncertainty about the eligibility of hES cell subject matter for patent protection. The European Patent Convention prohibits the granting of European patents for inventions that concern uses of human embryos for industrial or commercial purposes. A recent decision at the Court of Justice of the European Union interpreted parthenogeneticly produced hES cells as patentable subject matter. Consequently, the European Patent Office now recognizes that human pluripotent stem cells (including human ES cells) can be created without a destructive use of human embryos as of June 5, 2003, and patent applications relating to hES cell subject matter with a filing and priority date after this date are no longer automatically excluded from patentability under Article 53 (a) EPC and Rule 28(c) EPC.

The Supreme Court decisions in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.* and *Association for Molecular Pathology v. Myriad Genetics* will need to be considered in determining whether certain diagnostic methods and reagents can be patented, since the Court denied patent protection for the use of a mathematical correlation of the presence of a well-known naturally occurring metabolite as a means of determining proper drug dosage, and found that DNA sequences isolated from humans were not patent eligible. Our subsidiary OncoCyte is developing cancer diagnostic tests based on the presence of certain genetic markers and proteins for a variety of cancers. Because OncoCyte s planned diagnostic tests combine an innovative methodology with newly discovered compositions of matter, we are hopeful that the Supreme Court decision will not preclude the availability of patent protection for the diagnostic tests that OncoCyte is developing. However, like other developers of diagnostic products, OncoCyte is evaluating the Supreme Court decision and interim guidelines issued by the USPTO for the patenting of products that test for biological substances.

The process of applying for and obtaining patents can be expensive and slow.

The preparation and filing of patent applications, and the maintenance of patents that are issued, may require substantial time and money.

A patent interference proceeding may be instituted with the USPTO for patents or applications filed before March 16, 2013 when more than one person files a patent application covering the same technology, or if someone wishes to challenge the validity of an issued patent. At the completion of the interference proceeding, the USPTO may determine which competing applicant is entitled to the patent, or whether an issued patent is valid. Patent interference proceedings are complex, highly contested legal proceedings, and the USPTO s decision is subject to appeal. This means that if an interference proceeding arises with respect to any of our patent

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applications, we may experience significant expenses and delay in obtaining a patent, and if the outcome of the proceeding is unfavorable to us, the patent could be issued to a competitor rather than to us.

A derivation proceeding may be instituted by the USPTO or an inventor alleging that a patent or application was derived from the work of another inventor. Post Grant Review under the new Leahy-Smith America Invents Act makes available opposition-like proceedings in the United States. As with the USPTO interference proceedings, Post Grant Review proceedings will be very expensive to contest and can result in cancellation of a patent.

Oppositions to the issuance of patents may be filed under European patent law and the patent laws of certain other countries. As with the USPTO interference proceedings, these foreign proceedings can be very expensive to contest and can result in significant delays in obtaining a patent or can result in a denial of a patent application

We may be subject to patent infringement claims that could be costly to defend, which may limit our ability to use disputed technologies, and which could prevent us from pursuing research and development or commercialization of some of our products, require us to pay licensing fees to have freedom to operate, and/or result in monetary damages or other liability for us.

The success of our business depends significantly on our ability to operate without infringing patents and other proprietary rights of others. If the technology that we use infringes a patent held by others, we could be sued for monetary damages by the patent holder or its licensee, or we could be prevented from continuing research, development, and commercialization of products that rely on that technology, unless we are able to obtain a license to use the patent. The cost and availability of a license to a patent cannot be predicted, and the likelihood of obtaining a license at an acceptable cost would be lower if the patent holder or any of its licensees is using the patent to develop or market a product with which our product would compete. If we could not obtain a necessary license, we would need to develop or obtain rights to alternative technologies, which could prove costly and could cause delays in product development, or we could be forced to discontinue the development or marketing of any products that were developed using the technology covered by the patent.

If we fail to meet our obligations under license agreements, we may lose our rights to key technologies on which our business depends.

Our business depends on several critical technologies that are based in part on technology licensed from third parties. Those third-party license agreements impose obligations on us, including payment obligations and obligations to pursue development of commercial products under the licensed patents or technology. If a licensor believes that we have failed to meet our obligations under a license agreement, the licensor could seek to limit or terminate our license rights, which could lead to costly and time-consuming litigation and, potentially, a loss of the licensed rights. During the period of any such litigation, our ability to carry out the development and commercialization of potential products, and our ability to raise any capital that we might then need, could be significantly and negatively affected. If our license rights were restricted or ultimately lost, we would not be able to continue to use the licensed technology in our business.

The price and sale of our products and diagnostic tests may be limited by health insurance coverage and government regulation.

Success in selling our pharmaceutical and cell-based products, medical devices, and diagnostic tests may depend in part on the extent to which health insurance companies, HMOs, and government health administration authorities such as Medicare and Medicaid will pay for the cost of the products, tests, and related treatment. Presently, most health insurance plans and HMOs will pay for *Hextend*® when it is used in a surgical procedure that is covered by the plan. However, until we actually introduce a new product or diagnostic test into the medical marketplace, we will not know

with certainty whether adequate health insurance, HMO, and government coverage will be available to permit the product or test to be sold at a price high enough for us to generate a profit. In some foreign countries, pricing or profitability of health care products is subject to government control, which may result in low prices for our products. In the United States, there have been a number of federal and state proposals to implement similar government controls, and new proposals are likely to be made in the future.

The implementation of the Patient Protection and Affordable Care Act, or ACA, in the United States may adversely affect our business.

As a result of the adoption of the ACA, in the United States, substantial changes are being made to the current system for paying for healthcare in the United States, including programs to extend medical benefits to millions of individuals who currently lack insurance coverage. The changes contemplated by the ACA are subject to

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rule-making and implementation timelines that extend for several years, as well as initiatives in Congress to amend or repeal the law, and this uncertainty limits our ability to forecast changes that may occur in the future. However, implementation of the ACA has already begun with respect to certain significant cost-saving measures, including changes to several government healthcare programs that may cover the cost of our future products and diagnostic tests, including Medicaid, Medicare Parts B and D, and these efforts could have a materially adverse impact on our future financial prospects and performance. For example, with respect to Medicaid, in order for a manufacturer s products to be reimbursed by federal funding under Medicaid, the manufacturer must enter into a Medicaid rebate agreement with the Secretary of the United States Department of Health and Human Services, and must pay certain rebates to the states based on utilization data provided by each state to the manufacturer and to the Centers for Medicare and Medicaid Services, or CMS, and based on pricing data provided by the manufacturer to the federal government. The states share this savings with the federal government, and sometimes implement their own additional supplemental rebate programs. Under the Medicaid drug rebate program, the rebate amount for most branded drug products was previously equal to a minimum of 15.1% of the Average Manufacturer Price, or AMP, or the AMP less Best Price, whichever is greater. Effective January 1, 2010, the ACA generally increased the size of the Medicaid rebates paid by manufacturers for single source and innovator multiple source (brand name) drug product from a minimum of 15.1% to a minimum of 23.1% of the AMP, subject to certain exceptions, for example, for certain clotting factors, the increase is limited to a minimum of 17.1% of the AMP. For non-innovator multiple source (generic) products, the rebate percentage is increased from a minimum of 11.0% to a minimum of 13.0% of AMP. These increases in required rebates may adversely affect our future financial prospects and performance. The ACA also creates new rebate obligations for products under Medicare Part D, a partial, voluntary prescription drug benefit created by the United States federal government primarily for persons 65 years old and over. The Part D drug program is administered through private insurers that contract with CMS. Beginning in 2011, the healthcare reform law generally requires that in order for a drug manufacturer s products to be reimbursed under Medicare Part D, the manufacturer must enter into a Medicare Coverage Gap Discount Program agreement with the Secretary of the United States Department of Health and Human Services, and reimburse each Medicare Part D plan sponsor an amount equal to 50% savings for the manufacturer s brand name drugs and biologics which the Part D plan sponsor has provided to its Medicare Part D beneficiaries who are in the donut hole (or a gap in Medicare Part D coverage for beneficiaries who have expended certain amounts for drugs). The Part D plan sponsor is responsible for calculating and providing the discount directly to its beneficiaries and for reporting these amounts paid to CMS s contractor, which notifies drug manufacturers of the rebate amounts it must pay to each Part D plan sponsor. The rebate requirement could adversely affect our future financial performance, particularly if contracts with Part D plans cannot be favorably renegotiated or the Part D plan sponsors fail to accurately calculate payments due in a manner that overstates our rebate obligation.

The ACA also introduced a biosimilar pathway that will permit companies to obtain FDA approval of generic versions of existing biologics based upon reduced documentation and data requirements deemed sufficient to demonstrate safety and efficacy than are required for the pioneer biologics. The new law provides that a biosimilar application may be submitted as soon as four years after the reference product is first licensed, and that the FDA may not make approval of an application effective until 12 years after the reference product was first licensed. With the likely introduction of biosimilars in the United States, we expect in the future to face greater competition from biosimilar products, including a possible increase in patent challenges. The FDA has reported meeting with sponsors who are interested in developing biosimilar products, and is developing regulations to implement the abbreviated regulatory review pathway. Regarding access to our products, the ACA established and provided significant funding for a Patient-Centered Outcomes Research Institute to coordinate and fund Comparative Effectiveness Research, or CER. While the stated intent of CER is to develop information to guide providers to the most efficacious therapies, outcomes of CER could influence the reimbursement or coverage for therapies that are determined to be less cost-effective than others. Should any of our products be determined to be less cost effective than alternative therapies, the levels of reimbursement for these products, or the willingness to reimburse at all, could be impacted, which could materially impact our future financial prospects and results.

CMS recently proposed a new plan to alter Medicare Part B, which pays for medications administered in doctors officers or outpatient hospital clinics. The new plan aims to eliminate incentives for doctors to use the most expensive drugs. Under the current plan, Medicare Part B reimburses doctors or clinics for the cost of the medication plus a 6% fee. CMS plans to test a reimbursement formula that would pay the cost of the drug, plus

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a 2.5% surcharge and a flat fee of $16.80. CMS hopes that the proposed plan would cut costs by eliminating incentives to choose high priced drugs over ones that may be more appropriate. CMS is planning to test various value-based pricing ideas that would pay for drugs according how well they work. For example, if a medication is effective in eliminating one condition but is also used on a second condition with less success, Medicare would pay less when it is used for the second condition than the first. Certain private health insurance plans are also implementing similar new reimbursement procedures for physicians administered medications that will base reimbursements on the effectiveness of the selected drug. CMS proposed plans are open for public comment until May 9, 2016, and field tests will begin upon completion of the comment period. While the ultimate adoption of the proposals is uncertain, if adopted, the plans could affect doctors utilization of any therapeutic products that we may successfully develop.

Risks Related to our Dependence on Third Parties

Asterias could lose its grant from the California Institute of Regenerative Medicine, or CIRM, if Asterias fails to meet the clinical trial milestones that are a condition to CIRM s obligation to provide funding.

Asterias depends on its grant from CIRM as a source of financing for the costs of conducting its Phase I/IIa clinical trial and process development of AST-OPC1. Under the terms of the CIRM grant, Asterias must meet certain efficacy and progress milestones pertaining to the clinical trial. If Asterias fails to meet any of the milestones within the specified time frame, CIRM may discontinue providing grant funds to Asterias, which could force Asterias to postpone, delay, or discontinue the clinical trial and development work for the product.

If we fail to enter into and maintain successful strategic alliances for our therapeutic product candidates, we may have to reduce or delay our product development or increase our expenditures.

An important element of our strategy for developing, manufacturing and commercializing our therapeutic product candidates will be entering into strategic alliances with pharmaceutical companies or other industry participants to advance our programs and enable us to maintain our financial and operational capacity. We will face significant competition in seeking appropriate alliances. We may not be able to negotiate alliances on acceptable terms, if at all. If we fail to create and maintain suitable alliances, we may have to limit the size or scope of, or delay, one or more of our product development or research programs, or we will have to increase our expenditures and will need to obtain additional funding, which may be unavailable or available only on unfavorable terms.

If we are able to enter into product development and marketing arrangements with pharmaceutical companies, we may license product development, manufacturing, and marketing rights to the pharmaceutical company or to a joint venture company formed with the pharmaceutical company. Under such arrangements we might receive only a royalty on sales of the products developed or an equity interest in a joint venture company that develops the product. As a result, our revenues from the sale of those products may be substantially less than the amount of revenues and gross profits that we might receive if we were to develop, manufacture, and market the products ourselves.

We may become dependent on possible future collaborations to develop and commercialize many of our product candidates and to provide the regulatory compliance, sales, marketing and distribution capabilities required for the success of our business.

We may enter into various kinds of collaborative research and development and product marketing agreements to develop and commercialize our products. The expected future milestone payments and cost reimbursements from collaboration agreements could provide an important source of financing for our research and development programs, thereby facilitating the application of our technology to the development and commercialization of our products, but there are risks associated with entering into collaboration arrangements.

There is a risk that we could become dependent upon one or more collaborative arrangements. A collaborative arrangement upon which we might depend might be terminated by our collaboration partner or a partner might determine not to actively pursue the development or commercialization of our products. A collaboration partner also may not be precluded from independently pursuing competing products and drug delivery approaches or technologies.

There is a risk that a collaboration partner might fail to perform its obligations under the collaborative arrangements or may be slow in performing its obligations. In addition, a collaboration partner may experience

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financial difficulties at any time that could prevent it from having available funds to contribute to the collaboration. If a collaboration partner fails to conduct its product development, commercialization, regulatory compliance, sales and marketing or distribution activities successfully and in a timely manner, or if it terminates or materially modifies its agreements with us, the development and commercialization of one or more product candidates could be delayed, curtailed or terminated because we may not have sufficient financial resources or capabilities to continue such development and commercialization on our own.

We have very limited experience in marketing, selling or distributing our products, and we may need to rely on marketing partners or contract sales companies.

Even if we are able to develop our products and obtain necessary regulatory approvals, we have very limited experience or capabilities in marketing, selling or distributing our products. We rely entirely on Hospira and CJ Health for the sale of *Hextend*®. Ascendance currently has only limited sales, marketing and distribution resources for selling its assay and stem cell research products, and we and our other subsidiaries have no other marketing or distribution resources for selling any of the medical devices or therapeutic products that are being developed. Accordingly, we and our subsidiaries will be dependent on our ability to build our own marketing and distribution capability for our new products, which would require the investment of significant financial and management resources, or we will need to find collaborative marketing partners or sales representatives, or wholesale distributors for the commercial sale of our products.

If we market products through arrangements with third parties, we may pay sales commissions to sales representatives or we may sell or consign products to distributors at wholesale prices. As a result, our gross profit from product sales may be lower than it would be if we were to sell our products directly to end users at retail prices through our own sales force. We may not be able to negotiate distribution or sales agreements with third parties on favorable terms to justify our investment in our products or achieve sufficient revenues to support our operations.

We do not have the ability to independently conduct clinical trials required to obtain regulatory approvals for our product candidates.

We will need to rely on third parties, such as contract research organizations, data management companies, contract clinical research associates, medical institutions, clinical investigators and contract laboratories to conduct any clinical trials that we may undertake for our products. We may also rely on third parties to assist with our preclinical development of product candidates. If we outsource clinical trial we may be unable to directly control the timing, conduct and expense of our clinical trials. If we enlist third parties to conduct clinical trials and they fail to successfully carry out their contractual duties or regulatory obligations or fail to meet expected deadlines, if the third parties need to be replaced or if the quality or accuracy of the data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements or for other reasons, our preclinical development activities or clinical trials may be extended, delayed, suspended or terminated, and we may not be able to obtain regulatory approval for or successfully commercialize our product candidates.

Risks Related to the Asset Contribution Agreement With Geron

We could be liable to indemnify Geron from certain liabilities.

Under the Asset Contribution Agreement, or the Asset Contribution Agreement, through which Asterias acquired Geron s stem cell assets, we and Asterias have agreed to indemnify Geron from and against certain liabilities relating to (a) the distribution of shares of Asterias Series A common stock to Geron stockholders, (b) Asterias distribution of certain of our warrants to the holders of Asterias Series A common stock, and (c) any distribution of securities by Asterias to the holders of the Asterias Series A common stock within one year following Asterias acquisition of

Geron s stem cell assets. That indemnification obligation will last through the fifth anniversary of the expiration, exercise, cancellation or sale of our warrants whichever occurs first.

We and Asterias have also agreed to indemnify Geron, from and against certain expenses, losses, and liabilities arising from, among other things, breaches of our or Asterias representations, warranties and covenants under the Asset Contribution Agreement. The maximum damages that may be recovered by either party for a loss under this indemnification related to representations, warranties and covenants, with certain exceptions, is limited to $2,000,000.

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Asterias operations may divert our management s attention away from ongoing operations and could adversely affect ongoing operations and business relationships.

Now that Asterias has acquired Geron s stem cell assets and is conducting its own research and development programs, our management will be required to provide more management attention to Asterias. The diversion of our management s attention away from our other operations could adversely affect our operations and business relationships that do not relate to Asterias.

Risks Related to OncoCyte s Business Operations

OncoCyte has determined that the initial diagnostic tests that it plans to develop and commercialize will be laboratory developed tests, or LDTs, that will be performed at a diagnostic laboratory that OncoCyte plans to operate. The decision to develop and commercialize LDTs will give rise to certain risks related to the operation of the business of operating a diagnostic laboratory and performing LDTs, including the following risks.

OncoCyte will need to obtain regulatory approval of its diagnostic laboratory facilities.

OncoCyte will need to receive certification for its planned diagnostic laboratory under the Clinical Laboratory Improvement Amendments of 1988, or CLIA. In addition to meeting federal regulatory requirements, each state has its own laboratory certification and inspection requirements for a CLIA laboratory that must be met in order to sell diagnostic tests in the state. CLIA licensed laboratories can lose their licenses if problems arise during periodic regulatory inspections.

The FDA may impose additional regulations for laboratory developed tests such as the ones OncoCyte is developing.

The FDA issued two draft guidance documents that set forth a proposed risk-based regulatory framework that would apply varying levels of FDA oversight to LDTs such as those OncoCyte is developing. If the FDA implements new regulatory measures:

- OncoCyte may be required to obtain pre-market clearance or approval before selling its diagnostic tests;
- As a result of required FDA pre-market review, OncoCyte’s tests may not be cleared or approved on a timely basis, if at all;
- FDA labeling requirements may limit OncoCyte’s claims about its diagnostic tests, which may have a negative effect on orders from physicians;
- The regulatory approval process may involve, among other things, successfully completing additional clinical trials and making a 510(k) submission, or filing a pre-market approval application with the FDA; and,
- If regulatory actions affect any of the reagents OncoCyte obtain from suppliers and use in conducting its tests, its business could be adversely affected in the form of increased costs of testing or delays, limits or prohibitions on the purchase of reagents necessary to perform its testing.

OncoCyte will depend on Medicare and a limited number of private payers for a significant portion of its revenues, and its revenues could decline if these payers fail to provide timely and adequate payment for its diagnostic tests.

OncoCyte expects that a substantial portion of the patients for whom it will perform diagnostic tests will have Medicare as their primary medical insurance. Even if OncoCyte s planned tests are otherwise successful, reimbursement for the Medicare-covered portions of its planned tests might not, without Medicare reimbursement, produce sufficient revenues to enable it to reach profitability and achieve its other commercial objectives.

Medicare and other third-party payers have increased their efforts to control the cost, utilization, and delivery of health care services, and have undertaken measures to reduce payment rates for and decrease utilization of clinical laboratory testing. Because of the cost-trimming trends, any third-party payers that will cover and provide reimbursement for OncoCyte s diagnostic tests may suspend, revoke or discontinue coverage at any time, or may reduce the reimbursement rates payable to OncoCyte. Any such action could have a negative impact on OncoCyte s revenues, which may have a material adverse effect on its financial condition, results of operations and cash flows.

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Changes in healthcare laws and policies may have a material adverse effect on OncoCyte s financial condition, results of operations and cash flows.

The ACA substantially changed the way health care is financed by both governmental and private insurers. Among the ACA s key changes, the ACA reduced payment rates under the Medicare Clinical Laboratory Fee Schedule and established an Independent Payment Advisory Board to reduce the per capita rate of growth in Medicare spending if spending exceeds a target growth rate. Such provisions may negatively impact payment rates for OncoCyte s diagnostic tests.

The Protecting Access to Medicare Act of 2014, or PAMA, significantly altered the payment methodology under the Clinical Laboratory Fee Schedule that determines Medicare coverage for laboratory tests. Under PAMA, clinical laboratories are required to report test payment data for each Medicare-covered clinical diagnostic lab test and beginning in 2017, the Medicare payment rate for each clinical diagnostic lab test will be equal to the weighted median amount for the test from the most recent data collection period.

Congress has proposed on several occasions to impose a 20% coinsurance payment requirement on patients for clinical laboratory tests reimbursed under the Medicare Clinical Laboratory Fee Schedule, which would require OncoCyte to bill patients for these amounts. In the event that Congress were to ever enact such legislation, the cost of billing and collecting for OncoCyte s tests could often exceed the amount actually received from the patient.

On September 25, 2015, CMS released preliminary determinations for the calendar year 2016 for the Medicare Clinical Laboratory Fee Schedule for some test codes, including some for oncology diagnostics, as had been anticipated. These preliminary determinations were based on a cross walk approach rather than a gap-fill approach. A cross walk approach matches a new code for a diagnostic against existing codes to determine the appropriate payment rate; while a gap-fill approach looks at local pricing patterns, including charges for the tests and any discounts on charges and payments determined by other payers. At this point it is not clear what methodology CMS may use in their determinations for future diagnostics.

Beginning January 1, 2017, Medicare payment for any new advanced diagnostic test will be based on the list price or charge. After the test is commercially available for two quarters, the laboratory will be required to report payment and volume information and that data will be used to set payment for the test for the following year.

- If data shows that the list price was greater than 130% of the payment using established methodology (a weighted median), CMS will recoup the difference from the laboratory through a payment claw back.
- Payment will be updated annually based on the weighted median of commercial payer reimbursement.

We cannot predict whether future health care initiatives will be implemented at the federal or state level, or how any future legislation or regulation may affect OncoCyte. The expansion of government s role in the U.S. health care industry as a result of the ACA, and changes to the reimbursement amounts paid by Medicare and other payers for diagnostic tests may have a materially adverse effect on OncoCyte s business, financial condition, results of operations and cash flows.

Because of certain Medicare billing policies, OncoCyte may not receive complete reimbursement for tests provided to Medicare patients.

Medicare has coverage policies that can be national or regional in scope. Coverage means that the test or assay is approved as a benefit for Medicare beneficiaries. If there is no coverage, neither the supplier nor any other party, such as a diagnostic laboratory, may receive reimbursement from Medicare for the service. Regional policies are directed by Medicare s regional Medicare Administrative Contractors, or MACs. Reimbursement for diagnostic testing may be negatively impacted by California MAC policies.

Long payment cycles of Medicare, Medicaid and other third-party payors, or other payment delays, could hurt OncoCyte s cash flows and increase its need for working capital.

Medicare and Medicaid have complex billing and documentation requirements that OncoCyte will have to satisfy in order to receive payment. Failure to comply with these requirements and other laws applicable to billing may result in, among other things, non-payment, refunds, exclusion from government healthcare programs, and civil or criminal liabilities, any of which may have a material adverse effect on OncoCyte s revenues and earnings.

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Similarly, the failure of private health insurers or other private third-party payers to properly process OncoCyte s payment claims in a timely manner could delay its receipt of payment for its diagnostic tests and services, which may have a material adverse effect on its cash flows.

Private health insurance company policies may deny coverage or limit the amount they will reimburse OncoCyte for the performance of its diagnostic tests.

Patients who are not covered by Medicare will generally rely on health insurance provided by private health insurance companies. If OncoCyte is considered a non-contracted provider by a third-party payer, that payer may not reimburse patients for diagnostic tests performed by OncoCyte or doctors within the payer s network of covered physicians may not use its services to perform diagnostic tests for their patients. As a result, OncoCyte may need to enter into contracts with health insurance companies or other private payers to provide diagnostic tests to their insured patients at specified rates of reimbursement which may be lower than the rates OncoCyte might otherwise collect.

Risks Pertaining to Our Common Stock

Our trading price may be volatile which could adversely affect the liquidity of our common stock.

The trading price of our common stock, like that of the shares of many biotechnology companies, has been highly volatile. The price of our shares of common stock may rise rapidly in response to certain events, such as the commencement of clinical trials of an experimental new therapy or diagnostic test, even though the outcome of those trials and the likelihood of ultimate FDA approval of a therapeutic product remain uncertain.

Similarly, price of our shares of common stock may fall rapidly in response to certain events such as unfavorable results of clinical trials or a delay or failure to obtain FDA approval. The failure of our earnings to meet analysts expectations could also result in a significant rapid decline in the market price of our shares of common stock.

These and other external factors have caused and may continue to cause the trading price and demand for our common stock to fluctuate substantially, which may limit or prevent investors from readily selling their shares of common stock, and may otherwise negatively affect the liquidity of our common stock.

Current economic and stock market conditions may adversely affect the price of our shares of common stock.

The stock market has been experiencing extreme price and volume fluctuations which have affected the market price of the equity securities without regard to the operating performance of the issuing companies. Broad market fluctuations, as well as general economic and political conditions, may adversely affect the market price of our shares of common stock.

Because we do not pay dividends, our shares of common stock may not be a suitable investment for anyone who needs to earn dividend income.

We do not pay cash dividends on our shares of common stock. For the foreseeable future, we anticipate that any earnings generated in our business will be used to finance the growth of our business and will not be paid out as dividends to holders of our shares of common stock. This means that our shares of common stock may not be a suitable investment for anyone who needs to earn income from their investments.

Securities analysts may not initiate coverage or continue to cover our shares of common stock and this may have a negative impact on the market price of our shares of common stock.

The trading market for our shares of common stock will depend, in part, on the research and reports that securities analysts publish about our business and our shares of common stock. We do not have any control over these analysts. If securities analysts do not cover our shares of common stock, the lack of research coverage may adversely affect the market price of those shares. If securities analysts do cover our shares of common stock, they could issue reports or recommendations that are unfavorable to the price of our shares of common stock, and they could downgrade a previously favorable report or recommendation, and in either case our share prices could decline as a result of the report. If one or more of these analysts does not initiate coverage, ceases to cover our shares of common stock or fails to publish regular reports on our business, we could lose visibility in the financial markets, which could cause our share prices or trading volume to decline.

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Investors in our shares of common stock may experience dilution of their ownership interests because of the future issuance of additional shares of common stock and preferred shares by us.

In the future, we may issue our authorized but previously unissued equity securities, resulting in the dilution of the ownership interests of our present shareholders. We are currently authorized to issue an aggregate of 127,000,000 shares of capital stock consisting of 125,000,000 shares of common stock and 2,000,000 shares of preferred stock. As of March 31, 2016, there were 94,894,140 shares of common stock issued and outstanding of which 4,472,586 were held by our subsidiaries, no shares of Series A preferred stock outstanding, 5,453,979 shares of common stock reserved for issuance upon the exercise of outstanding options under our employee stock option plans; and 9,394,862 shares reserved for issuance upon the exercise of warrants to purchase common stock, including the publicly traded warrants.

In addition, the operation of some of our subsidiaries has been financed in part through the sale of capital stock in those subsidiaries to private investors. Sales of additional subsidiary shares could reduce our ownership interest in the subsidiaries, and correspondingly dilute our shareholder s ownership interests in our consolidated enterprise. Certain of our subsidiaries also have their own stock option plans and the exercise of subsidiary stock options or the sale of restricted stock under those plans would also reduce our ownership interest in those subsidiaries, with a resulting dilutive effect on the ownership interest of our shareholders in our consolidated enterprise.

We may issue additional shares of common stock or other securities that are convertible into or exercisable for shares of common stock in order to raise additional capital, or in connection with hiring or retaining employees or consultants, or in connection with future acquisitions of licenses to technology or rights to acquire products, or in connection with future business acquisitions, or for other business purposes. The future issuance of any such additional shares of common stock or other securities may create downward pressure on the trading price of our shares of common stock.

We may also issue preferred stock having rights, preferences, and privileges senior to the rights of our shares of common stock with respect to dividends, rights to share in distributions of our assets if we liquidate our company, or voting rights. Any preferred stock may also be convertible into shares of common stock on terms that would be dilutive to holders of shares of common stock. Our subsidiaries may also issue their own preferred shares with a similar dilutive impact on our ownership of the subsidiaries.

The market price of our shares of common stock could be impacted by prices at which we sell shares in our subsidiaries.

The operation of some our subsidiaries has been financed in part through the sale of capital stock in those subsidiaries, and our subsidiaries may sell shares of their capital stock in the future for financing purposes. The prices at which our subsidiaries may sell shares of their capital stock could impact the value of our company as a whole and could impact the price at which our shares of common stock trade in the market. A sale of capital stock of one of our subsidiaries at a price that the market perceives as low could adversely impact the market price of our shares of common stock. Even if our subsidiaries sell their capital stock at prices that reflect arm s length negotiation with investors, those prices may not reflect a true fair market value or the ascribed value of the subsidiaries based on those share prices may not be fully reflected in the market value of our shares of common stock.

We have certain anti-takeover provisions in place.

Certain provisions of our Amended and Restated Articles of Incorporation and the California General Corporation Law could discourage a third-party from acquiring, or make it more difficult for a third-party to acquire, control of our company without approval of our Board of Directors. These provisions could also limit the price that certain investors

might be willing to pay in the future for shares of our common stock. Certain provisions allow the Board of Directors to authorize the issuance of preferred stock with rights superior to those of the common stock. We are also subject to Section 1101(e) of the California General Corporation Law, which, among other things, limits the ability of a majority shareholder holding more than 50% but less than 90% of the outstanding shares of a California corporation from consummating a cash-out merger.

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DISCLOSURE REGARDING FORWARD-LOOKING STATEMENTS

Some of the statements in this prospectus supplement, the accompanying prospectus and in the documents incorporated herein by reference contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These forward-looking statements reflect our current views with respect to future events or our financial performance, and involve certain known and unknown risks, uncertainties and other factors, including those identified below, which may cause our or our industry s actual or future results, levels of activity, performance or achievements to differ materially from those expressed or implied by any forward-looking statements or from historical results. We intend the forward-looking statements to be covered by the safe harbor provisions for forward-looking statements contained in Section 27A of the Securities Act and Section 21E of the Exchange Act. Forward-looking statements include information concerning our possible or assumed future results of operations and statements preceded by, followed by, or that include the words may, will, could, would, should, believe, exp anticipate, intend, estimate, predict, potential or similar expressions.

Forward-looking statements are inherently subject to risks and uncertainties, many of which we cannot predict with accuracy and some of which we might not even anticipate. Although we believe that the expectations reflected in the forward-looking statements are based upon reasonable assumptions at the time made, we can give no assurance that the expectations will be achieved. Future events and actual results, financial and otherwise, may differ materially from the results discussed in the forward-looking statements. Any forward-looking statements are qualified in their entirety by reference to the factors discussed throughout this prospectus supplement. Readers are cautioned not to place undue reliance on these forward-looking statements. We have no duty to update or revise any forward-looking statements after the date of this prospectus supplement or to conform them to actual results, new information, future events or otherwise.

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USE OF PROCEEDS

We estimate that the net proceeds from the sale of 7,322,176 shares of common stock we are offering will be approximately $16.25 million, after deducting underwriting fees and estimated offering expenses payable by us, or approximately $18.71 million if the underwriters exercise their over-allotment option in full. As of the date of this prospectus supplement, we cannot specify with certainty all of the particular uses for the net proceeds that we will have from the sale of the shares of common stock. Accordingly, our management will have broad discretion in the application of the net proceeds. We expect to use the net proceeds for general corporate purposes, including, without limitation, to finance clinical trials of products we are developing, to finance our research and develop programs, and for general working capital. We may also use proceeds of this offering to acquire one or more businesses or new business assets. We may invest proceeds in one or more of our existing subsidiaries or in any new subsidiaries that we may form. We may use the proceeds for purposes that are not contemplated at the time of the offering. Pending the application of the net proceeds, we expect to invest the proceeds in investment grade, interest bearing securities or money market funds.

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DIVIDEND POLICY

We have never paid cash dividends on our common stock and we do not anticipate paying cash dividends in the foreseeable future, but intend to retain our capital resources for reinvestment in our business. Any future determination to pay cash dividends on our common stock will be at the discretion of our Board of Directors and will be dependent upon our financial condition, results of operations, capital requirements and other factors as the Board of Directors deems relevant.

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DILUTION

If you purchase shares of our common stock in this offering, your interest will be diluted to the extent of the difference between the public offering price per share and the net tangible book value per share of our common stock after this offering. We calculate net tangible book value per share by dividing our net tangible assets (tangible assets less total liabilities) by the number of shares of our common stock issued and outstanding as of March 31, 2016.

Our historical net tangible book value at March 31, 2016 was $27.3 million or approximately $0.29 per share. After giving effect to the sale of 7,322,176 shares of common stock in this offering at an offering price of $2.39 per share, and after deducting underwriting discounts, commissions and estimated offering expenses, our adjusted net tangible book value as of March 31, 2016 would have been approximately $43.6 million, or approximately $0.43 per share. This represents an immediate increase in the net tangible book value of $0.14 per share of our common stock to our existing shareholders and an immediate dilution in net tangible book value of approximately $1.96 per share to new investors. The following table illustrates per share dilution:

Public offering price per share			$	2.39
Net tangible book value per share as of March 31, 2016	$	0.29		
Increase in net tangible book value per share attributable to this offering	$	0.14		
Adjusted net tangible book value per share as of March 31, 2016, after giving effect to this offering			$	0.43
Dilution per share to new investors purchasing shares in this offering			$	1.96

If the underwriters exercise in full their option to purchase additional shares of our common stock at a public offering price of $2.39 per share, after deducting underwriting discounts, commissions and estimated offering expenses payable by us, our as adjusted net tangible book value as of March 31, 2016 would have been approximately $46.0 million or approximately $0.45 per share of common stock. This represents an immediate increase in net tangible book value per share of approximately $0.16 per share to existing shareholders, and an immediate dilution of approximately $1.94 per share to investors participating in this offering.

The above discussion and table is based on 94,894,140 shares of our common stock issued and outstanding as of March 31, 2016, and excludes as of that date:

- warrants to purchase 9,394,862 shares of common stock at a weighted average exercise price of $4.55 per share;
- options under our 2002 Stock Option Plan and our 2012 Equity Incentive Plan to purchase 5,453,979 shares of common stock, with a weighted average exercise price of $3.81 per share; and
- 4,898,879 shares of common stock available for issuance under our 2002 Stock Option Plan and our 2012 Equity Incentive Plan.

To the extent that outstanding options or warrants are exercised, or other shares are issued, investors purchasing shares in this offering could experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations, even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of those securities could result in further dilution to our shareholders.

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UNDERWRITING

We have entered into an underwriting agreement with the underwriters named below. Oppenheimer & Co. Inc. is acting as representative of the underwriters.

The underwriting agreement provides for the purchase of a specific number of shares of common stock by each of the underwriters. The underwriters obligations are several, which means that each underwriter is required to purchase a specific number of shares, but is not responsible for the commitment of any other underwriter to purchase shares. Subject to the terms and conditions of the underwriting agreement, each underwriter has severally agreed to purchase the number of shares of common stock set forth opposite its name below:

Underwriter	Number of Shares
Oppenheimer & Co. Inc.	6,406,904
Chardan Capital Markets LLC	915,272
Total	7,322,176

The underwriters have agreed to purchase all of the shares offered by this prospectus supplement (other than those covered by the over-allotment option described below), if any are purchased.

The shares should be ready for delivery on or about June 21, 2016 against payment in immediately available funds. The underwriters are offering the shares subject to various conditions and may reject all or part of any order. The underwriters have advised us that they propose to offer the shares directly to the public at the public offering price that appears on the cover page of this prospectus supplement. After the shares are released for sale to the public, the underwriters may change the offering price and other selling terms at various times.

We have granted the underwriters an over-allotment option. This option, which is exercisable for up to 30 days after the date of this prospectus supplement, permits the underwriters to purchase a maximum of 1,098,326 additional shares from us to cover over-allotments. If any shares are purchased with this over-allotment option, the underwriters will purchase shares in approximately the same proportion as shown in the table above. If the underwriters exercise all or part of this option, they will purchase shares covered by the option at the public offering price that appears on the cover page of this prospectus supplement, less the underwriting discount. If this option is exercised in full, the total price to the public will be approximately $20.12 million and the total proceeds to us will be approximately $18.71 million.

The following table provides information regarding the amount of the discount to be paid to the underwriters by us:

	Without Exercise of Over-Allotment Option	With Full Exercise of Over-Allotment Option
Per Share	$ 0.1434	$ 0.1434
Total	$ 1,050,000.04	$ 1,207,499.99

We estimate that our total expenses of the offering, excluding the underwriting discount, will be approximately $200,000, which includes $50,000 that we have agreed to reimburse the underwriters for the fees incurred by them in connection with the offering. We have engaged Ladenburg Thalmann & Co. Inc. with respect to this offering, and have agreed to pay them a financial advisory fee of up to $126,600.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act of 1933.

We and our executive officers and directors and certain of our shareholders have agreed to a 90-day lock up with respect to shares of capital stock that they beneficially own, including securities that are convertible into shares of common stock and securities that are exchangeable or exercisable for shares of common stock. This means that, subject to certain exceptions, for a period of 90 days following the date of this prospectus supplement, we and such persons may not offer, sell, pledge or otherwise dispose of these securities without the prior written consent of the representative.

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Rules of the SEC may limit the ability of the underwriters to bid for or purchase shares before the distribution of the shares is completed. However, the underwriters may engage in the following activities in accordance with the rules:

- Stabilizing transactions – The underwriters may make bids or purchases for the purpose of pegging, fixing or maintaining the price of the shares, so long as stabilizing bids do not exceed a specified maximum.
- Over-allotments and syndicate covering transactions – The underwriters may sell more shares of our common stock in connection with this offering than the number of shares that they have committed to purchase. This over-allotment creates a short position for the underwriters. This short sales position may involve either covered short sales or naked short sales. Covered short sales are short sales made in an amount not greater than the underwriters' over-allotment option to purchase additional shares in this offering described above. The underwriters may close out any covered short position either by exercising their over-allotment option or by purchasing shares in the open market. To determine how they will close the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market, as compared to the price at which they may purchase shares through the over-allotment option. Naked short sales are short sales in excess of the over-allotment option. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that, in the open market after pricing, there may be downward pressure on the price of the shares that could adversely affect investors who purchase shares in this offering.
- Penalty bids – If the underwriters purchase shares in the open market in a stabilizing transaction or syndicate covering transaction, they may reclaim a selling concession from the selling group members who sold those shares as part of this offering.

Similar to other purchase transactions, the underwriters purchases to cover the syndicate short sales or to stabilize the market price of our common stock may have the effect of raising or maintaining the market price of our common stock or preventing or mitigating a decline in the market price of our common stock. As a result, the price of the shares of our common stock may be higher than the price that might otherwise exist in the open market. The imposition of a penalty bid might also have an effect on the price of the shares if it discourages resales of the shares.

Neither we nor the underwriters make any representation or prediction as to the effect that the transactions described above may have on the price of the shares. These transactions may occur on the NYSE MKT, Tel Aviv Stock Exchange or otherwise. If such transactions are commenced, they may be discontinued without notice at any time.

The underwriters may in the future provide us and our affiliates with investment banking and financial advisory services for which they may in the future receive customary fees.

Electronic Delivery of Prospectus Supplements: A prospectus supplement in electronic format may be delivered to potential investors by the underwriters participating in this offering. The prospectus supplement in electronic format will be identical to the paper version of such prospectus supplement. Other than the prospectus supplement in electronic format, the information on the underwriters web sites and any information contained in any other web site maintained by the underwriters is not part of the prospectus supplement or the registration statement of which this prospectus supplement forms a part.

Notice to Non-US Investors

Belgium

The offering is exclusively conducted under applicable private placement exemptions and therefore it has not been and will not be notified to, and this document or any other offering material relating to the shares has not been and will not be approved by, the Belgian Banking, Finance and Insurance Commission (Commission bancaire, financière et des assurances/Commissie voor het Bank, Financie en Assurantiewezen). Any representation to the contrary is unlawful.

Each underwriter has undertaken not to offer sell, resell, transfer or deliver directly or indirectly, any units, or to take any steps relating/ancillary thereto, and not to distribute or publish this document or any other material

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relating to the units or to the offering in a manner which would be construed as: (a) a public offering under the Belgian Royal Decree of 7 July 1999 on the public character of financial transactions; or (b) an offering of securities to the public under Directive 2003/71/EC which triggers an obligation to publish a prospectus in Belgium. Any action contrary to these restrictions will cause the recipient and the Company to be in violation of the Belgian securities laws.

France

Neither this prospectus supplement nor any other offering material relating to the shares has been submitted to the clearance procedures of the *Autorité des marchés financiers* in France. The shares have not been offered or sold and will not be offered or sold, directly or indirectly, to the public in France. Neither this prospectus supplement nor any other offering material relating to the shares has been or will be: (a) released, issued, distributed or caused to be released, issued or distributed to the public in France; or (b) used in connection with any offer for subscription or sale of the shares to the public in France. Such offers, sales and distributions will be made in France only: (i) to qualified investors (*investisseurs qualifiés*) and/or to a restricted circle of investors (*cercle restreint d investisseurs*), in each case investing for their own account, all as defined in and in accordance with Articles L.411-2, D.411-1, D.411-2, D.734-1, D.744-1, D.754-1 and D.764-1 of the French *Code monétaire et financier*; (ii) to investment services providers authorised to engage in portfolio management on behalf of third parties; or (iii) in a transaction that, in accordance with article L.411-2-II-1°-or-2°-or 3° of the French Code monétaire et financier and article 211-2 of the General Regulations (*Règlement Général*) of the *Autorité des marchés financiers*, does not constitute a public offer (*appel public à l épargne*). Such shares may be resold only in compliance with Articles L.411-1, L.411-2, L.412-1 and L.621-8 through L.621-8-3 of the French *Code monétaire et financier*.

United Kingdom/Germany/Norway/The Netherlands

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a Relevant Member State) an offer to the public of any shares which are the subject of the offering contemplated by this prospectus supplement may not be made in that Relevant Member State other than the offers contemplated in this prospectus supplement in name(s) of Member State(s) where prospectus will be approved or passported for the purposes of a non-exempt offer once this prospectus supplement has been approved by the competent authority in such Member State and published and passported in accordance with the Prospectus Directive as implemented in name(s) of relevant Member State(s) except that an offer to the public in that Relevant Member State of any shares may be made at any time under the following exemptions under the Prospectus Directive, if they have been implemented in that Relevant Member State:

(a) to legal entities which are authorised or regulated to operate in the financial markets or, if not so authorised or regulated, whose corporate purpose is solely to invest in securities;

(b) to any legal entity which has two or more of (1) an average of at least 250 employees during the last financial year; (2) a total balance sheet of more than €43,000,000 and (3) an annual net turnover of more than €50,000,000, as shown in its last annual or consolidated accounts;

(c) by the representative to fewer than 100 natural or legal persons (other than qualified investors as defined in the Prospectus Directive); or

(d) in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of shares shall result in a requirement for the publication by the Company or any underwriter of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an offer to the public in relation to any shares in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase any shares, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State and the expression Prospectus Directive means Directive 2003/71/EC and includes any relevant implementing measure in each Relevant Member State.

Each underwriter has represented, warranted and agreed that:

(a) it has only communicated or caused to be communicated and will only communicate or cause to be communicated any invitation or inducement to engage in investment activity (within the meaning of section 21

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of the Financial Services and Markets Act 2000 (the FSMA)) received by it in connection with the issue or sale of any shares in circumstances in which section 21(1) of the FSMA does not apply to the Company; and

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

Israel

In the State of Israel, the shares offered hereby may not be offered to any person or entity other than the following:

(a) a fund for joint investments in trust (i.e., mutual fund), as such term is defined in the Law for Joint Investments in Trust, 5754-1994, or a management company of such a fund;

(b) a provident fund as defined in Section 47(a)(2) of the Income Tax Ordinance of the State of Israel, or a management company of such a fund;

(c) an insurer, as defined in the Law for Oversight of Insurance Transactions, 5741-1981, (d) a banking entity or satellite entity, as such terms are defined in the Banking Law (Licensing), 5741-1981, other than a joint services company, acting for their own account or for the account of investors of the type listed in Section 15A(b) of the Securities Law 1968;

(d) a company that is licensed as a portfolio manager, as such term is defined in Section 8(b) of the Law for the Regulation of Investment Advisors and Portfolio Managers, 5755-1995, acting on its own account or for the account of investors of the type listed in Section 15A(b) of the Securities Law 1968;

(e) a company that is licensed as an investment advisor, as such term is defined in Section 7(c) of the Law for the Regulation of Investment Advisors and Portfolio Managers, 5755-1995, acting on its own account;

(f) a company that is a member of the Tel Aviv Stock Exchange, acting on its own account or for the account of investors of the type listed in Section 15A(b) of the Securities Law 1968;

(g) an underwriter fulfilling the conditions of Section 56(c) of the Securities Law, 5728-1968;

(h) a venture capital fund (defined as an entity primarily involved in investments in companies which, at the time of investment, (i) are primarily engaged in research and development or manufacture of new technological products or processes and (ii) involve above-average risk);

(i) an entity primarily engaged in capital markets activities in which all of the equity owners meet one or more of the above criteria; and

(j) an entity, other than an entity formed for the purpose of purchasing shares in this offering, in which the shareholders equity (including pursuant to foreign accounting rules, international accounting regulations and U.S. generally accepted accounting rules, as defined in the Securities Law Regulations (Preparation of Annual Financial Statements), 1993) is in excess of NIS 50 million.

Any offeree of the shares offered hereby in the State of Israel shall be required to submit written confirmation that it falls within the scope of one of the above criteria. This prospectus supplement will not be distributed or directed to investors in the State of Israel who do not fall within one of the above criteria.

Italy

The offering of the shares offered hereby in Italy has not been registered with the Commissione Nazionale per la Società e la Borsa (CONSOB) pursuant to Italian securities legislation and, accordingly, the shares offered hereby cannot be offered, sold or delivered in the Republic of Italy (Italy) nor may any copy of this prospectus supplement or any other document relating to the shares offered hereby be distributed in Italy other than to professional investors (*operatori qualificati*) as defined in Article 31, second paragraph, of CONSOB Regulation No. 11522 of 1 July, 1998 as subsequently amended. Any offer, sale or delivery of the shares offered hereby or distribution of copies of this prospectus supplement or any other document relating to the shares offered hereby in Italy must be made:

(a) by an investment firm, bank or intermediary permitted to conduct such activities in Italy in accordance with Legislative Decree No. 58 of 24 February 1998 and Legislative Decree No. 385 of 1 September 1993 (the Banking Act);

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(b) in compliance with Article 129 of the Banking Act and the implementing guidelines of the Bank of Italy; and

(c) in compliance with any other applicable laws and regulations and other possible requirements or limitations which may be imposed by Italian authorities.

Sweden

This prospectus supplement has not been nor will it be registered with or approved by Finansinspektionen (the Swedish Financial Supervisory Authority). Accordingly, this prospectus supplement may not be made available, nor may the shares offered hereunder be marketed and offered for sale in Sweden, other than under circumstances which are deemed not to require a prospectus under the Financial Instruments Trading Act (1991: 980).

Switzerland

The shares offered pursuant to this prospectus supplement will not be offered, directly or indirectly, to the public in Switzerland and this prospectus supplement does not constitute a public offering prospectus as that term is understood pursuant to art. 652a or art. 1156 of the Swiss Federal Code of Obligations. The Company has not applied for a listing of the shares being offered pursuant to this prospectus supplement on the SWX Swiss Exchange or on any other regulated securities market, and consequently, the information presented in this prospectus supplement does not necessarily comply with the information standards set out in the relevant listing rules. The shares being offered pursuant to this prospectus supplement have not been registered with the Swiss Federal Banking Commission as foreign investment funds, and the investor protection afforded to acquirers of investment fund certificates does not extend to acquirers of shares.

Investors are advised to contact their legal, financial or tax advisers to obtain an independent assessment of the financial and tax consequences of an investment in shares.

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LEGAL MATTERS

The validity of the securities offered hereby will be passed upon for us by K&L Gates LLP, Irvine, California. Goodwin Procter LLP, New York, New York, is acting as counsel for the underwriters in connection with this offering.

EXPERTS

OUM & Co. LLP, our independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2015, and the effectiveness of our internal control over financial reporting as of December 31, 2015, as set forth in their reports, which are incorporated by reference in this prospectus and elsewhere in the registration statement. Our consolidated financial statements are incorporated by reference in reliance on OUM & Co. LLP s reports, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus supplement constitutes a part of a registration statement on Form S-3 filed under the Securities Act. As permitted by the SEC s rules, this prospectus supplement, which forms a part of the registration statement, does not contain all the information that is included in the registration statement. You will find additional information about us in the registration statement. Any statements made in this prospectus supplement concerning legal documents are not necessarily complete and you should read the documents that are filed as exhibits to the registration statement or otherwise filed with the SEC for a more complete understanding of the document or matter.

We are subject to the informational requirements of the Exchange Act, and in accordance therewith file quarterly, annual, and current reports and proxy statements and other information with the SEC. You may read and copy any materials we file with SEC at the SEC s Public Reference Room at 100 F Street N.E., Washington, D.C. 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The address of the site is http://www.sec.gov.

We make available free of charge on or through our Internet website www.biotimeinc.com, our annual reports on Form 10–K, quarterly reports on Form 10–Q, current reports on Form 8–K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file the material with, or furnish it to, the SEC.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

This prospectus supplement is part of the registration statement but the registration statement includes and incorporates by reference additional information and exhibits. The SEC permits us to incorporate by reference the information contained in documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents rather than by including them in this prospectus supplement. Information that is incorporated by reference is considered to be part of this prospectus supplement and you should read it with the same care that you read this prospectus supplement and the accompanying prospectus. Information that we file later with the SEC will automatically update and supersede the information that is either contained, or incorporated by reference, in this prospectus supplement, and will be considered to be a part of this prospectus supplement from the date those documents are filed.

We incorporate by reference the documents listed below, all filings filed by us pursuant to the Exchange Act after the date of the registration statement of which this prospectus supplement forms a part, and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the time that all securities covered by this prospectus supplement have been sold; provided, however, that we are not incorporating any information furnished under either Item 2.02 or Item 7.01 of any current report on Form 8-K:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2015, filed with the SEC on March 15, 2016, and Amendment No.1 thereto, filed with the SEC on May 24, 2016;
- our Quarterly Report on Form 10-Q for the three-month period ended March 31, 2016, filed with the SEC on May 10, 2016;

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- our Current Reports on Form 8-K filed with the SEC on January 12, 2016, January 27, 2016, February 18, 2016, March 3, 2016, April 15, 2016, May 19, 2016, June 15, 2016 and June 16, 2016;
- our Schedule 14A filed with the SEC on April 29, 2016; and
- the description of our shares of common stock contained in our registration statement on Form 8-A (File No. 001-12830) filed with the SEC on October 26, 2009, including any amendment or report filed for the purpose of updating such description.

In addition, all documents subsequently filed by us pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act before the date our offering is terminated or completed are deemed to be incorporated by reference into, and to be a part of, this prospectus supplement.

Any statement contained in this prospectus supplement or in a document incorporated or deemed to be incorporated by reference into this prospectus supplement will be deemed to be modified or superseded for purposes of this prospectus supplement to the extent that a statement contained in this prospectus supplement or any other subsequently filed document that is deemed to be incorporated by reference into this prospectus supplement modifies or supersedes the statement. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus supplement.

We will provide to each person, including any beneficial holder, to whom a prospectus supplement is delivered, at no cost, upon written or oral request, a copy of any or all of the information that has been incorporated by reference in the prospectus supplement but not delivered with the prospectus supplement. You should direct any requests for documents to BioTime, Inc., Attention: Secretary, 1010 Atlantic Avenue, Suite 102, Alameda, California 94501; 510-521-3390.

You should rely only on information contained in, or incorporated by reference into, this prospectus supplement and the accompanying prospectus. We have not authorized anyone to provide you with information different from that contained in this prospectus supplement or the accompanying prospectus, or incorporated by reference in this prospectus supplement or the accompanying prospectus. We are is not making offers to sell the securities in any jurisdiction in which such an 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.

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PROSPECTUS

BIOTIME, INC.
$100,000,000
Common Shares
Preferred Shares
Debt Securities
Warrants
Rights
Units

We may, from time to time, offer and sell any combination of common shares and/or preferred shares, various series of debt securities, warrants to purchase any of the securities, and/or rights to purchase our common shares or preferred shares, either individually or in units comprised of any of the securities. The preferred shares, debt securities, warrants and units may be convertible or exercisable or exchangeable for common shares or preferred shares or other securities of ours.

The maximum aggregate offering price for these securities will not exceed $100,000,000. We will describe the terms of any offering in a supplement to this prospectus. Any prospectus supplement may also add, update or change information contained in this prospectus. **This prospectus may not be used by us to consummate a sale of securities unless accompanied by an applicable prospectus supplement.**

We may sell these securities directly to our shareholders or to other purchasers or through agents on our behalf or through underwriters or dealers as designated from time to time. If any agents or underwriters are involved in the sale of any of these securities, the applicable prospectus supplement will provide the names of the agents or underwriters and any applicable fees, commissions or discounts.

Our common shares are listed on the NYSE MKT under the symbol BTX. On January 29, 2015, the last sale price of our common shares as reported on the NYSE MKT was $4.20 per share. You are urged to obtain current market quotations for our common shares.

Investing in our securities involves risks. You should carefully read and consider the risk factors appearing throughout this prospectus and any applicable prospectus supplement, including, without limitation, those appearing under the headings Forward Looking Statements beginning on page 1 of this prospectus and Risk Factors beginning on page 6 of this prospectus, as well as any risk factors that are described in our most recent periodic reports that are incorporated by reference into this prospectus or any applicable prospectus supplement, before making a decision to purchase our securities.

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

The date of this prospectus is February 12, 2015

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You should rely only on the information contained in or incorporated by reference into this prospectus or any prospectus supplement. We have not authorized any person to give any information or to make any representations other than those contained or incorporated by reference in this prospectus and the accompanying prospectus supplement, and, if given or made, you must not rely upon the information or representations as having been authorized. This prospectus and any accompanying supplement to this prospectus do not constitute an offer to sell or the solicitation of an offer to buy securities, nor do this prospectus and any accompanying supplement to this prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation. The information contained in this prospectus and any accompanying prospectus supplement speaks only as of the date set forth on the cover page and may not reflect subsequent changes in our business, financial condition, results of operations and prospects even though this prospectus and any accompanying prospectus supplement is delivered or securities are sold on a later date.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission (the SEC) utilizing a shelf registration, or continuous offering, process. Under this shelf registration statement, we may, from time to time, sell any one or more or a combination of the securities described in this prospectus, either individually or in units comprised of any of those securities, in one or more offerings, for a total maximum offering price not to exceed $100,000,000. This prospectus provides you with a general description of the securities we may offer.

Each time we sell securities, we will provide a prospectus supplement (which term includes, as applicable, the controlled equity offering prospectus filed with the registration statement of which this prospectus forms a part) that will contain specific information about the terms of the securities being offered. The prospectus supplement may add, update or change information contained in this prospectus and may include a discussion of any risk factors or other special considerations that apply to the offered securities. If there is any inconsistency between the information in this prospectus and a prospectus supplement, you should rely on the information in that prospectus supplement. Before making an investment decision, it is important for you to read and consider the information contained in this prospectus and any prospectus supplement, together with the additional information described under the heading Where You Can Find More Information.

The registration statement containing this prospectus, including exhibits to the registration statement, provides additional information about us and the securities offered under this prospectus. The registration statement can be read on the Commission s website or at the Commission s public reading room mentioned under the heading Where You Can Find More Information in this prospectus.

Unless the context otherwise requires, all references in this prospectus to BioTime, Company, registrant, we, or our include BioTime, Inc., a California corporation, and any subsidiaries or other entities controlled by us.

FORWARD-LOOKING STATEMENTS

Some of the statements in this prospectus and in the documents incorporated by reference contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (Securities Act), and Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act). These forward-looking statements reflect our current views with respect to future events or our financial performance, and involve certain known and unknown risks, uncertainties and other factors, including those identified below, which may cause our or our industry s actual or future results, levels of activity, performance or achievements to differ materially from those expressed or implied by any forward-looking statements or from historical results. We intend the forward-looking statements to be covered by the safe harbor provisions for forward-looking statements contained in Section 27A of the Securities Act and Section 21E of the Exchange Act. Forward-looking statements include information concerning our possible or assumed future results of operations and statements preceded by, followed by, or that include the words may, will, could, would, should, believe, expect, plan, anticipate, intend, estimate, predict, potential or si

Forward-looking statements are inherently subject to risks and uncertainties, many of which we cannot predict with accuracy and some of which we might not even anticipate. Although we believe that the expectations reflected in the forward-looking statements are based upon reasonable assumptions at the time made, we can give no assurance that the expectations will be achieved. Future events and actual results, financial and otherwise, may differ materially from the results discussed in the forward-looking statements. Readers are cautioned not to place undue reliance on these forward-looking statements. We have no duty to update or revise any forward-looking statements after the date of this prospectus or to conform them to actual results, new information, future events or otherwise.

The factors described under Risk Factors in this prospectus or any prospectus supplement, and in any documents incorporated by reference into this prospectus or any prospectus supplement, and other factors could cause our or our industry s future results to differ materially from historical results or those anticipated or expressed in any of our forward-looking statements. We operate in a continually changing business environment, and new risk factors emerge from time to time. Other unknown or unpredictable factors also could have material adverse effects on our future results, performance or achievements. We cannot assure you that projected results or events will be achieved or will occur.

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INFORMATION ABOUT THE COMPANY

Our Business

We are a biotechnology company focused on the emerging field of regenerative medicine. Our core technologies center on stem cells capable of becoming all of the cell types in the human body, a property called pluripotency. Products made from these pluripotent stem cells are being developed by us and our subsidiaries, for use in a variety of fields of medicine. Four of our subsidiaries, Asterias Biotherapeutics, Inc. (Asterias), Cell Cure Neurosciences, Ltd (Cell Cure Neurosciences), OrthoCyte Corporation (OrthoCyte), and ReCyte Therapeutics, Inc. (ReCyte) are focused on developing cell based therapeutic products for diseases such as neurological disorders, cancer, age related macular degeneration, orthopedic disorders, and age-related cardiovascular disease. Our commercial strategy targets near-term opportunities such as: *Renevia*™ a product currently in clinical trials in Europe to facilitate cell transplantation; *ReGlyde*™ and *Premvia*™ for tendon and wound-management applications, respectively; *PanC-Dx*™, a family of novel blood and urine-based cancer screens; our current line of research products including *PureStem*® human embryonic progenitor cell lines (hEPCs), associated *ESpan*™ culture media, human embryonic stem cell lines derived by our subsidiary ES Cell International Pte Ltd (ESI) under current good manufacturing practices (cGMP); *HyStem*® hydrogel products; the LifeMap Database Suite and mobile health software products.

Regenerative medicine refers to an emerging field of therapeutic product development that may allow all human cell and tissue types to be manufactured on an industrial scale. This new technology is made possible by the isolation of human embryonic stem (hES) cells, and by the development of induced pluripotent stem (iPS) cells which are created from regular cells of the human body using technology that allows adult cells to be reprogrammed into cells with pluripotency similar to hES-like cells. These pluripotent hES and iPS cells have the unique property of being able to branch out into each and every kind of cell in the human body, including the cell types that make up the brain, the blood, the heart, the lungs, the liver, and other tissues. Unlike adult-derived stem cells that have limited potential to become different cell types, pluripotent stem cells may have vast potential to supply an array of new regenerative therapeutic products, especially those targeting the large and growing markets associated with age-related degenerative disease. Unlike pharmaceuticals that require a molecular target, therapeutic strategies in regenerative medicine are generally aimed at regenerating affected cells and tissues, and therefore may have broader applicability. Regenerative medicine represents a revolution in the field of biotechnology with the promise of providing therapies for diseases previously considered incurable.

The field of regenerative medicine includes a broad range of disciplines, including tissue banking, cellular therapy, gene therapy, and tissue engineering. Our commercial efforts in regenerative medicine include the development and sale of products designed for research applications in the near term as well as products designed for diagnostic and therapeutic applications in the medium and long term.

We have also developed and licensed manufacturing and marketing rights to *Hextend*®, a physiologically balanced blood plasma volume expander used for the treatment of hypovolemia in surgery, emergency trauma treatment, and other applications. Hypovolemia is a condition caused by low blood volume, often from blood loss during surgery or from injury. *Hextend*® maintains circulatory system fluid volume and blood pressure and helps sustain vital organs during surgery or when a patient has sustained substantial blood loss due to an injury. *Hextend*® is the only blood plasma volume expander that contains lactate, multiple electrolytes, glucose, and a medically approved form of starch called hetastarch. *Hextend*® is sterile, so its use avoids the risk of infection. Health insurance reimbursements and HMO coverage now include the cost of *Hextend*® used in surgical procedures. *Hextend*® is manufactured and distributed in the United States by Hospira, Inc., and in South Korea by CJ Health Corporation (CJ Health), a subsidiary of Cheil Jedang Corp., under license from us.

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The following table summarizes the status of our primary research and development programs in stem cell research and regenerative medicine.

Company	Program	Status
Asterias	hES-based cell therapeutic programs	AST-OPC-1 Glial Cells--Phase I/IIa dose escalation trial underway in cervical spinal cord injury. $14.3 million grant obtained from California Institute of Regenerative Medicine to provide matching funds for AST-OPC1 clinical trial and process development. AST-VAC2 Allogeneic Dendritic Cells Loaded with Telomerase antigen-Proof of concept established in multiple *in vitro* systems. Agreement by Cancer Research UK to conduct Phase I/IIa clinical trial of AST-VAC2 in subjects with non-small cell lung cancer. Manufacturing process being developed for transfer to Cancer Research UK for clinical trials.
BioTime[(1)] and ESI	ESI BIO BioTime's new research products operations and marketing program.	BioTime is consolidating its existing portfolio of stem cell research products (including various brands) and its research products operations under one brand and operating division, ESI BIO.
	Existing product consolidation*:* ESI cGMP cell lines; the *HyStem*® hydrogels; and the *PureStem*® cell lines/growth media/reagent kits for stem cell research	Existing product sub-brands being consolidated under ESI BIO including: ESI's cGMP, NIH-approved, hES cell lines; cGMP *HyStem*® hydrogel cell culture matrix products (formally provided under the Glycosan brand); *PureStem*® brand of human progenitor cells; and cell growth media, and reagent cell differentiation kits.
	New product development and new infrastructure development.	Developing, manufacturing and marketing stem cell research products utilizing the latest technologies in cellular reprogramming that are well-matched and complementary to ESI BIO's current product portfolio.
BioTime	Biocompatible hydrogels that mimic the human extracellular matrix	Published a set of scientific reviews featuring pre-clinical data produced by prominent scientists studying the potential clinical use of our *HyStem*® hydrogel extracellular matrix products in combination with progenitor cells to treat stroke, cancer, vocal fold damage, cardiovascular disease and kidney disease. The review articles were published in the international, online, open access, peer-reviewed journal *Biomatter* (Biomatter 3:1, January/February/March 2013). Completed first human clinical safety trial for *Renevia*™ (the trade name for *HyStem*® used in lipotransfer).

Results confirmed that *Renevia*™ was safe in humans at the proposed dosage concentration for this particular use.

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Company	Program	Status
		Received approval to begin a pivotal trial for *Renevia*™ in Europe to show effectiveness of *Renevia*™ in lipotransfer for patients suffering from HIV related lipoatrophy of the face.
	Hextend® - Blood plasma volume expanders	*Hextend*® is currently marketed to hospitals and physicians in the U.S. and Korea.
OncoCyte	*PanC-Dx*™ Diagnostic Tests	Clinical trials to validate proprietary *PanC-Dx*™ tests for bladder, breast and lung cancer. Expected completion in 2015. Initial results met the criteria required to proceed to final stages of the validation steps. Sponsored Research and Material Transfer Agreements with the Wistar Institute to collaboratively develop lung cancer diagnostics. Received IRB approval and initiated a large, prospective multicenter patient study at Scottsdale Medical Imaging Laboratories to assess performance of *PanC-Dx*™ markers in women undergoing mammography. Publication of results relating to *FSIP1*, a marker unique to breast cancer.
OrthoCyte	Cartilage/Intervertebral disc repair using embryonic-derived progenitor cells (Osteoarthritis and chronic back pain)	Identified several cell lines that displayed molecular markers consistent with the production of definitive human cartilage. Confirmed chondrogenic potential in joint defects in rat models of osteoarthritis. Demonstrated *ex vivo* utility of progenitor lines in degenerating rabbit intervertebral disc tissue. Initiated *in vivo* proof of concept study to assess the ability of progenitor cells to repair and regenerate degenerated intervertebral discs in rabbits. Completed proof of concept study demonstrating ability of progenitor cells to modulate pain (allodynia) in a rat model.
	Bone repair using embryonic-derived progenitor cells (Spinal fusion, trauma and cranial maxillo-facial)	Initiated *in vitro* optimization of bone differentiation and induction using progenitor cells.
	cGMP cell production	Initiated large-scale progenitor cell expansion testing in cGMP compliant bioreactor systems.

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Company	Program	Status
ReCyte Therapeutics	Therapeutic products for age related vascular disease, including cardiovascular disorders utilizing its proprietary *ReCyte*™ technology and human pluripotent stem cell derived cells.	Evaluating progenitor stem cell-based and cell-derived therapeutics. Through BioTime, ReCyte Therapeutics has an ongoing collaboration with researchers at Cornell Weill Medical College for derivation and preclinical testing of endothelial progenitor cells for the treatment of age-related vascular disease.
Cell Cure Neurosciences	*OpRegen*® and *OpRegen*®*-Plus* for treatment of age related macular degeneration (AMD).	Received approval from Israel ministry of health and US FDA to begin a Phase I/IIa clinical trial to determine safety and effective dose for OpRegen® in patients with geographic atrophy stage of dry AMD. The trial will enroll at least 15 patients beginning in early 2015. We expect this phase to take several months and then will follow each patient for a minimum of 6 months.
LifeMap Sciences	Online, searchable databases	Marketing searchable, integrated, database products, including: • *GeneCards*®, a database of human genes that provides concise genomic, transcriptomic, genetic, proteomic, functional and disease related information, on all known and predicted human genes; • *MalaCards*, a database of human diseases that is based on the *GeneCards*® platform and contains computerized cards classifying information relating to a wide array of human diseases; and • *LifeMap Discovery*®, a database of embryonic development, stem cell research and regenerative medicine. • *Recently released VarElect, a powerful, yet easy-to-use application for prioritizing gene variants resulting from next generation sequencing experiments.*
	Mobile health software development	LifeMap Solutions developing mobile health software products in conjunction with the Icahn School of Medicine at Mount Sinai.

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RISK FACTORS

Our business is subject to various risks, including those described below. You should consider the following risk factors, together with the risks, uncertainties and assumptions discussed under the heading "Risk Factors" included in our most recent annual report on Form 10- K, as revised or supplemented by our most recent quarterly report on Form 10- Q, each of which are on file with the SEC and are incorporated herein by reference, and which may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future. We may include additional risks related to the securities being offered in the prospectus supplement relating to that offering. There may be other factors that are not mentioned here or of which we are not presently aware that could also affect our business operations and prospects.

Risks Related to Our Business Operations

We have incurred operating losses since inception and we do not know if we will attain profitability

Our comprehensive net losses for the nine months ended September 30, 2014 and for the fiscal years ended December 31, 2013, 2012, and 2011 were $26,044,426, $43,760,366, $21,362,524, and $17,535,587, respectively, and we had an accumulated deficit of $171,606,642 as of September 30, 2014 and $145,778,547, $101,895,712, and $80,470,009, as of December 31, 2013, 2012, and 2011, respectively. We primarily finance our operations through the sale of equity securities, licensing fees, royalties on product sales by our licensees, research grants, and subscription fees and advertising revenue from database products. Ultimately, our ability to generate sufficient operating revenue to earn a profit depends upon our and our subsidiaries success in developing and marketing or licensing products and technology.

We will spend a substantial amount of our capital on research and development but we might not succeed in developing products and technologies that are useful in medicine

- We are attempting to develop new medical products and technologies.
- Many of our experimental products and technologies have not been applied in human medicine and have only been used in laboratory studies *in vitro* or in animals. These new products and technologies might not prove to be safe and efficacious in the human medical applications for which they were developed.
- The experimentation we are doing is costly, time consuming, and uncertain as to its results. We incurred research and development expenses amounting to $26,267,972, during the nine months ended September 30, 2014, and $26,609,423, $18,116,688, and $13,699,691 during the fiscal years ended December 31, 2013, 2012, and 2011, respectively, excluding $17,458,766 charged as in process research and development expenses during 2013 in accordance with ASC 805-50 on account of Asterias' acquisition of certain assets from Geron Corporation ("Geron").
- If we are successful in developing a new technology or product, refinement of the new technology or product and definition of the practical applications and limitations of the technology or product may take years and require the expenditure of large sums of money. Future clinical trials of new therapeutic products, particularly those products that are regulated as drugs or biological, will be very expensive and will take years to complete. We may not have the financial resources to fund clinical trials on our own and we may have to enter into licensing or collaborative arrangements with larger, well-capitalized pharmaceutical companies in order to bear the cost. Any such arrangements may be dilutive to our ownership or economic interest in the products we develop, and we might have to accept a royalty payment on the sale of the product rather than receiving the gross revenues from product sales.

Asterias operations will result in an increase in our operating expenses and losses on a consolidated basis

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Asterias will use the stem cell assets that it has acquired from Geron for the research and development of products for regenerative medicine. Asterias' research and development efforts will involve substantial expense that will add to our losses on a consolidated basis for the near future.

- Asterias has become a public company. As a public company, Asterias will incur costs associated with audits of its financial statements, filing annual, quarterly, and other periodic reports with the SEC, holding annual shareholder meetings, listing its common shares for trading, and public relations and investor relations. These costs will be in addition to those incurred by BioTime for similar purposes.

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- As a developer of therapeutic products derived from hES or iPS cells, Asterias will face substantially the same kind of risks that affect our business, as well as the risks related to our industry generally.

Our success depends in part on the uncertain growth of the stem cell industry, which is still in its infancy

- The success of our business of selling products for use in stem cell research depends on the growth of stem cell research, without which there may be no market or only a very small market for our products and technology. The likelihood that stem cell research will grow depends upon the successful development of stem cell products that can be used to treat disease or injuries in people or that can be used to facilitate the development of other therapeutic products. The growth in stem cell research also depends upon the availability of funding through private investment and government research grants.
- There can be no assurance that any safe and efficacious human medical applications will be developed using stem cells or related technology.
- Government-imposed bans, restrictions and religious, moral, and ethical concerns with respect to use of embryos or hES cells in research and development could have a material adverse effect on the growth of the stem cell industry, even if research proves that useful medical products can be developed using hES cells.

We are providing funding to LifeMap Sciences for the development of new software products

Our subsidiary LifeMap Sciences has formed a new subsidiary, LifeMap Solutions, Inc., to develop new personal mobile health software products intended to connect users with their complex personal health information and other big data. We have agreed to invest at least $5,000,000 in LifeMap Sciences to provide funding for the project, and unless additional financing can be obtained from third parties, we may need to increase our investment significantly during the next few calendar years to fund the development and commercialization of the planned products.

The field of mobile health products, including both hardware and software products, is new, and there is no certainty that LifeMap Solutions will be successful in developing its planned new products or that it will be successful in commercializing any products that it does develop.

The field of mobile health products is subject to increasing competition, including from large computer and internet technology companies that have much greater financial and marketing resources than we and LifeMap Solutions have.

The FDA has also taken an interest in the field of on-line or mobile health products and there is a risk that the FDA could determine that LifeMap Solutions products should be regulated as medical devices under existing laws and regulations, or the FDA could promulgate new regulations that might subject LifeMap Solutions products to FDA clinical trial and approval procedures, as a prerequisite for permission to use and market the new mobile health products in the United States. Foreign regulatory authorities could make similar determinations or could adopt their own rules regulating the use and marketing of LifeMap Solution s products.

Sales of our products to date have not been sufficient to generate an amount of revenue sufficient to cover our operating expenses

- The revenues that we have received from sales of our products have not been sufficient to pay our operating expenses. This means that we need to successfully develop and market or license additional products and earn additional revenues in sufficient amounts to meet our operating expenses.
- We are also bringing our first stem cell research products to the market, but there is no assurance that we will succeed in generating significant revenues from the sale of those products.

Sales of the products we may develop will be adversely impacted by the availability of competing products

- Sales of *Hextend*® have already been adversely impacted by the availability of other products that are commonly used in surgery and trauma care and sell at low prices.

- In order to compete with other products, particularly those that sell at lower prices, our products will have to provide medically significant advantages.

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- Physicians and hospitals may be reluctant to try a new product due to the high degree of risk associated with the application of new technologies and products in the field of human medicine.
- Competing products are being manufactured and marketed by established pharmaceutical companies. For example, B. Braun presently markets *Hespan*®, an artificial plasma volume expander, and Hospira and Teva Pharmaceuticals sell a generic equivalent of *Hespan*®. Hospira also markets *Voluven*®, a plasma volume expander containing a 6% low molecular weight hydroxyethyl starch in saline solution.
- Competing products for the diagnosis and treatment of cancer are being manufactured and marketed by established pharmaceutical companies, and more cancer diagnostics and therapeutics are being developed by those companies and by other smaller biotechnology companies. Other companies, both large and small, are also working on the development of stem cell based therapies for the same diseases and disorders that are the focus of the research and development programs of our subsidiaries.
- There also is a risk that our competitors may succeed at developing safer or more effective products that could render our products and technologies obsolete or noncompetitive.

Sales of Hextend® **have been adversely affected by safety and use labeling changes required by the FDA**

Sales of *Hextend*® have been adversely affected by certain safety labeling changes required by the FDA for the entire class of hydroxyethyl starch products, including *Hextend*®. The labeling changes were approved by the FDA in November 2013 and include a boxed warning stating that the use of hydroxyethyl starch products, including *Hextend*®, increases the risk of mortality and renal injury requiring renal replacement therapy in critically ill adult patients, including patients with sepsis, and that *Hextend*® should not be used in critically ill adult patients, including patients with sepsis. New warning and precaution information is also required along with new information about contraindications, adverse reactions, and information about certain recent studies. The new warning and precautions include statements to the effect that the use of *Hextend*® should be avoided in patients with pre-existing renal dysfunction, and the coagulation status of patients undergoing open heart surgery in association with cardiopulmonary bypass should be monitored as excess bleeding has been reported with hydroxyethyl starch solutions in that population and use of *Hextend*® should be discontinued at the first sign of coagulopathy. The liver function of patients receiving hydroxyethyl starch products, including *Hextend*® should also be monitored. The approved revised label may adversely affect *Hextend*® sales since some users of plasma volume expanders might elect to abandon the use of all hydroxyethyl starch products, including *Hextend*®.

We and our subsidiaries will need to issue additional equity or debt securities in order to raise additional capital needed to pay our operating expenses

- We plan to continue to incur substantial research and product development expenses, largely through our subsidiaries, and we and our subsidiaries will need to raise additional capital to pay operating expenses until we are able to generate sufficient revenues from product sales, royalties, and license fees.
- It is likely that additional sales of equity or debt securities will be required to meet our short-term capital needs, unless we receive substantial revenues from the sale of our new products or we are successful at licensing or sublicensing the technology that we develop or acquire from others and we receive substantial licensing fees and royalties.
- Sales of additional equity securities by us or our subsidiaries could result in the dilution of the interests of present shareholders.

The amount and pace of research and development work that we and our subsidiaries can do or sponsor, and our ability to commence and complete clinical trials required to obtain regulatory approval to market our therapeutic and medical device products, depends upon the amount of money we have

- At September 30, 2014, we had $7,416,235 of cash and cash equivalents on hand. Although we have raised an additional $31,000,314 of equity capital during October 2014, there can be no assurance that we or our subsidiaries will be able to raise funds on favorable terms or at all, or that any funds raised will be sufficient

to permit us or our subsidiaries to develop and market our products and technology. Unless we and our subsidiaries are able to generate sufficient revenue or raise additional funds when needed, it is likely that we will be unable to continue our planned activities, even if we make progress in our research and development projects.

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- We may have to postpone or limit the pace of our research and development work and planned clinical trials of our product candidates unless our cash resources increase through a growth in revenues or additional equity investment or borrowing.

The condition of certain cells, cell lines and other biological materials that Asterias acquired from Geron could impact the time and cost of commencing Asterias research and product development programs

The cells, cell lines and other biological materials that Asterias acquired are being stored under cryopreservation protocols intended to preserve their functionality. Asterias has successfully completed the verification of the viability of three lots of OPC1 cells that it intends to use in clinical trials. However, the functional condition of the other materials cannot be certified until they are tested in an appropriate laboratory setting by qualified scientific personnel using validated equipment. Asterias intends to perform that testing on the cells that it intends to use in its research and development programs as the need arises.

To the extent that the cells Asterias plans to use are not sufficiently functional for its purposes, Asterias would need to incur the time and expense of regenerating cell lines from cell banks, or regenerating cell banks from cell stocks, which could delay and increase the cost of its research and development work using those cells.

Any cell-based products that receive regulatory approval may be difficult and expensive to manufacture on a commercial scale

- hES derived therapeutic cells have only been produced on a small scale and not in quantities and at levels of purity and viability that will be needed for wide scale commercialization. If we are successful in developing products that consist of hES cells or other cells or products derived from hES or other cells, we will need to develop, alone or in collaboration with one or more pharmaceutical companies or contract manufacturers, technology for the commercial production of those products.
- Our hES cell or other cell based products are likely to be more expensive to manufacture on a commercial scale than most other drugs on the market today. The high cost of manufacturing a product will require that we charge our customers a high price for the product in order to cover our costs and earn a profit. If the price of our products is too high, hospitals and physicians may be reluctant to purchase our products, especially if lower priced alternative products are available, and we may not be able to sell our products in sufficient volumes to recover our costs of development and manufacture or to earn a profit.

We and our subsidiaries will have certain obligations and may incur liabilities arising from clinical trials, and we do not yet know the scope of any resulting expenses that might arise

We or our subsidiaries that conduct clinical trials of product candidates face the risk of incurring liabilities to patients if they incur any injuries as a result of their participation in the clinical trials. We or our subsidiaries will also be obligated to obtain information and prepare reports about the health of the clinical trial patients. In addition, Asterias has assumed Geron s obligations to obtain information and prepare reports about the health of patients, and has assumed any liabilities to those patients that might arise from any injuries they may have incurred, as a result of their participation in the clinical trials of Geron s GRNOPC1 cell replacement therapy for spinal cord damage and its GRNVAC1 immunological therapy for certain cancers. We are not aware of any claims by patients alleging injuries suffered as a result of any of our clinical trials or the Geron clinical trials, but if any claims are made and if liability can be established, the amount of any liability that we or our subsidiaries may incur, depending upon the nature and extent of any provable injuries, could exceed any insurance coverage that we or our subsidiaries may obtain, and the amount of the liability could be material to our financial condition.

Our business could be adversely affected if we lose the services of the key personnel upon whom we depend

BioTime stem cell research programs, and to a lesser extent, the programs of BioTime s subsidiaries, are directed primarily by our Chief Executive Officer, Dr. Michael West. BioTime s subsidiaries are directed by their respective management teams. The loss of the services of Dr. West or members of senior management of BioTime and its subsidiaries could have a material adverse effect on us.

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If we make strategic acquisitions, we will incur a variety of costs and might never realize the anticipated benefits

We have made several strategic acquisitions during the past few years, including ESI in 2010, Glycosan BioSystems, Inc. and Cell Targeting, Inc. in 2011, and XenneX, Inc. in 2012. Asterias acquired Geron s stem cell related assets during 2013. If appropriate opportunities become available, we might attempt to acquire approved products, additional drug candidates, technologies or businesses that we believe are a strategic fit with our business. If we pursue any transaction of that sort, the process of negotiating the acquisition and integrating an acquired product, drug candidate, technology or business might result in operating difficulties and expenditures and might require significant management attention that would otherwise be available for ongoing development of our business, whether or not any such transaction is ever consummated. Moreover, we might never realize the anticipated benefits of any acquisition. Future acquisitions could result in potentially dilutive issuances of equity securities, the incurrence of debt, contingent liabilities, or impairment expenses related to goodwill, and impairment or amortization expenses related to other intangible assets, which could harm our financial condition.

Failure of our internal control over financial reporting could harm our business and financial results

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is a process to provide reasonable assurance regarding the reliability of financial reporting for external purposes in accordance with accounting principles generally accepted in the U.S. Internal control over financial reporting includes maintaining records that in reasonable detail accurately and fairly reflect our transactions; providing reasonable assurance that transactions are recorded as necessary for preparation of the financial statements; providing reasonable assurance that receipts and expenditures of our assets are made in accordance with management authorization; and providing reasonable assurance that unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements would be prevented or detected on a timely basis. Because of its inherent limitations, internal control over financial reporting is not intended to provide absolute assurance that a misstatement of our financial statements would be prevented or detected. Our growth and entry into new products, technologies and markets will place significant additional pressure on our system of internal control over financial reporting. Any failure to maintain an effective system of internal control over financial reporting could limit our ability to report our financial results accurately and timely or to detect and prevent fraud.

Operating our business through subsidiaries, some of which are located in foreign countries, also adds to the complexity of our internal control over financial reporting and adds to the risk of a system failure, an undetected improper use or expenditure of funds or other resources by a subsidiary, or a failure to properly report a transaction or financial results of a subsidiary. We allocate certain expenses among BioTime itself and one or more of our subsidiaries, which creates a risk that the allocations we make may not accurately reflect the benefit of an expenditure or use of financial or other resources by BioTime as the parent company and the subsidiaries among which the allocations are made. An inaccurate allocation may impact our consolidated financial results, particularly in the case of subsidiaries that we do not wholly own since our financial statements include adjustments to reflect the minority ownership interests in our subsidiaries held by others.

Our business and operations could suffer in the event of system failures

Despite the implementation of security measures, our internal computer systems and those of our contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. Such events could cause interruption of our operations. For example, the loss of data for our product candidates could result in delays in our regulatory filings and development efforts and significantly increase our costs. To the extent that any disruption or security breach was to result in a loss of or

damage to our data, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the development of our product candidates could be delayed.

We could be liable to indemnify Geron from certain liabilities

We and Asterias have agreed to indemnify Geron from and against certain liabilities relating to (a) the distribution of shares of Asterias Series A common stock to Geron stockholders, (b) Asterias distribution of certain BioTime warrants to the holders of Asterias Series A common stock, and (c) any distribution of securities by Asterias to the holders of the Asterias Series A common stock within one year following Asterias acquisition

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of Geron s stem cell assets. That indemnification obligation will last through the fifth anniversary of the earliest to occur of the date on which all of the BioTime warrants have either expired, or been exercised, cancelled or sold.

We and Asterias have also agreed to indemnify Geron, from and against certain expenses, losses, and liabilities arising from, among other things, breaches of our or Asterias representations, warranties and covenants under the Asset Contribution Agreement. The maximum damages that may be recovered by either party for a loss under this indemnification related to representations, warranties and covenants, with certain exceptions, is limited to $2,000,000.

Asterias operations may divert our management s attention away from ongoing operations and could adversely affect ongoing operations and business relationships

Now that Asterias has acquired Geron s stem cell assets and is conducting its own research and development programs, our management will be required to provide more management attention to Asterias. The diversion of our management s attention away from our other operations could adversely affect our operations and business relationships that do not relate to Asterias.

Risks Related to Our Industry

We will face certain risks arising from regulatory, legal, and economic factors that affect our business and the business of other biotechnology and pharmaceutical development companies. Because we are a small company with limited revenues and limited capital resources, we may be less able to bear the financial impact of these risks than is the case with larger companies possessing substantial income and available capital.

If we do not receive regulatory approvals we will not be permitted to sell our therapeutic and medical device products

The therapeutic and medical device products that we and our subsidiaries develop cannot be sold until the FDA and corresponding foreign regulatory authorities approve the products for medical use. The need to obtain regulatory approval to market a new product means that:

- We will have to conduct expensive and time-consuming clinical trials of new products. The full cost of conducting and completing clinical trials necessary to obtain FDA and foreign regulatory approval of a new product cannot be presently determined, but could exceed our current financial resources.
- Clinical trials and the regulatory approval process for a pharmaceutical or cell-based product can take several years to complete. As a result, we will incur the expense and delay inherent in seeking FDA and foreign regulatory approval of new products, even if the results of clinical trials are favorable.
- Data obtained from preclinical and clinical studies is susceptible to varying interpretations that could delay, limit, or prevent regulatory agency approvals. Delays in the regulatory approval process or rejections of an application for approval of a new product may be encountered as a result of changes in regulatory agency policy.
- Because the therapeutic products we are developing with hES and iPS technology involve the application of new technologies and approaches to medicine, the FDA or foreign regulatory agencies may subject those products to additional or more stringent review than drugs or biologicals derived from other technologies.
- A product that is approved may be subject to restrictions on use.
- The FDA can recall or withdraw approval of a product if problems arise.
- We will face similar regulatory issues in foreign countries.

Clinical trial failures can occur at any stage of the testing and we may experience numerous unforeseen events during, or as a result of, the clinical trial process that could delay or prevent commercialization of our current or future therapeutic or diagnostic product candidates

Clinical trial failures or delays can occur at any stage of the trials, and may be directly or indirectly caused by a variety of factors, including but not limited to:

- delays in securing clinical investigators or trial sites for our clinical trials;

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- delays in obtaining institutional review board (IRB) and other regulatory approvals to commence a clinical trial;
- slower than anticipated rates of patient recruitment and enrollment, or failing to reach the targeted number of patients due to competition for patients from other trials;
- limited or no availability of coverage, reimbursement and adequate payment from health maintenance organizations and other third party payors for the use of agents used in our clinical trials;
- negative or inconclusive results from clinical trials;
- unforeseen side effects interrupting, delaying or halting clinical trials of our product candidates and possibly resulting in the FDA or other regulatory authorities denying approval of our product candidates;
- unforeseen safety issues;
- uncertain dosing issues;
- approval and introduction of new therapies or changes in standards of practice or regulatory guidance that render our clinical trial endpoints or the targeting of our proposed indications obsolete;
- inability to monitor patients adequately during or after treatment or problems with investigator or patient compliance with the trial protocols;
- inability to replicate in large controlled studies safety and efficacy data obtained from a limited number of patients in uncontrolled trials;
- inability or unwillingness of medical investigators to follow our clinical protocols; and
- unavailability of clinical trial supplies.

Government-imposed bans or restrictions and religious, moral, and ethical concerns about the use of hES cells could prevent us from developing and successfully marketing stem cell products

Government-imposed bans or restrictions on the use of embryos or hES cells in research and development in the United States and abroad could generally constrain stem cell research, thereby limiting the market and demand for our products. During March 2009, President Obama lifted certain restrictions on federal funding of research involving the use of hES cells, and in accordance with President Obama s Executive Order, the NIH has adopted new guidelines for determining the eligibility of hES cell lines for use in federally funded research. The central focus of the proposed guidelines is to assure that hES cells used in federally funded research were derived from human embryos that were created for reproductive purposes, were no longer needed for this purpose, and were voluntarily donated for research purposes with the informed written consent of the donors. The hES cells that were derived from embryos created for research purposes rather than reproductive purposes, and other hES cells that were not derived in compliance with the guidelines, are not eligible for use in federally funded research.

California law requires that stem cell research be conducted under the oversight of a stem cell research oversight committee (SCRO). Many kinds of stem cell research, including the derivation of new hES cell lines, may only be conducted in California with the prior written approval of the SCRO. A SCRO could prohibit or impose restrictions on the research that we plan to do.

The use of hES cells gives rise to religious, moral, and ethical issues regarding the appropriate means of obtaining the cells and the appropriate use and disposal of the cells. These considerations could lead to more restrictive government regulations or could generally constrain stem cell research, thereby limiting the market and demand for our products.

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If we are unable to obtain and enforce patents and to protect our trade secrets, others could use our technology to compete with us, which could limit opportunities for us to generate revenues by licensing our technology and selling products

- Our success will depend in part on our ability to obtain and enforce patents and maintain trade secrets in the United States and in other countries. If we are unsuccessful at obtaining and enforcing patents, our competitors could use our technology and create products that compete with our products, without paying license fees or royalties to us.
- The preparation, filing, and prosecution of patent applications can be costly and time consuming. Our limited financial resources may not permit us to pursue patent protection of all of our technology and products throughout the world.
- Even if we are able to obtain issued patents covering our technology or products, we may have to incur substantial legal fees and other expenses to enforce our patent rights in order to protect our technology and products from infringing uses. We may not have the financial resources to finance the litigation required to preserve our patent and trade secret rights.

There is no certainty that our pending or future patent applications will result in the issuance of patents

We have filed patent applications for technology that we have developed, and we have obtained licenses for a number of patent applications covering technology developed by others, that we believe will be useful in producing new products, and which we believe may be of commercial interest to other companies that may be willing to sublicense the technology for fees or royalty payments. In the future, we may also file additional new patent applications seeking patent protection for new technology or products that we develop ourselves or jointly with others. However, there is no assurance that any of our licensed patent applications, or any patent applications that we have filed or that we may file in the future covering our own technology, either in the United States or abroad, will result in the issuance of patents.

In Europe, the European Patent Convention prohibits the granting of European patents for inventions that concern uses of human embryos for industrial or commercial purposes. The European Patent Office is presently interpreting this prohibition broadly, and is applying it to reject patent claims that pertain to human embryonic stem cells. However, this broad interpretation is being challenged through the European Patent Office appeals system. As a result, we do not yet know whether or to what extent we will be able to obtain patent protection for our human embryonic stem cell technologies in Europe.

The Supreme Court decisions in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.* and *Association for Molecular Pathology v. Myriad Genetics* will need to be considered in determining whether certain diagnostic methods and reagents can be patented, since the Court denied patent protection for the use of a mathematical correlation of the presence of a well-known naturally occurring metabolite as a means of determining proper drug dosage, and found that DNA sequences isolated from humans were not patent eligible. Our subsidiary OncoCyte is developing *PanC-Dx*™ as a cancer diagnostic test, based on the presence of certain genetic markers for a variety of cancers. Because *PanC-Dx*™ combines an innovative methodology with newly discovered compositions of matter, we are hopeful that this Supreme Court decision will not preclude the availability of patent protection for OncoCyte s new product. However, like other developers of diagnostic products, we are evaluating this new Supreme Court decision and new guidelines issued by the United States Patent and Trademark Office (the USPTO) for the patenting of products that test for biological substances.

The process of applying for and obtaining patents can be expensive and slow

- The preparation and filing of patent applications, and the maintenance of patents that are issued, may require substantial time and money.

- A patent interference proceeding may be instituted with the USPTO for patents or applications filed before March 16, 2013 when more than one person files a patent application covering the same technology, or if someone wishes to challenge the validity of an issued patent. At the completion of the interference proceeding, the USPTO may determine which competing applicant is entitled to the patent, or whether an issued patent is valid. Patent interference proceedings are complex, highly contested legal proceedings, and the USPTO's decision is subject to appeal. This means that if an interference

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proceeding arises with respect to any of our patent applications, we may experience significant expenses and delay in obtaining a patent, and if the outcome of the proceeding is unfavorable to us, the patent could be issued to a competitor rather than to us.

- A derivation proceeding may be instituted by the USPTO or an inventor alleging that a patent or application was derived from the work of another inventor.
- Post Grant Review under the new America Invents Act will make available after March 16, 2013 opposition-like proceedings in the United States. As with the USPTO interference proceedings, Post Grant Review proceedings will be very expensive to contest and can result in significant delays in obtaining patent protection or can result in a denial of a patent application.
- Oppositions to the issuance of patents may be filed under European patent law and the patent laws of certain other countries. As with the USPTO interference proceedings, these foreign proceedings can be very expensive to contest and can result in significant delays in obtaining a patent or can result in a denial of a patent application.

Our patents may not protect our products from competition

We or our subsidiaries have patents in the United States and several foreign countries, and have filed patent applications in the United States and abroad for our plasma volume expander, stem cell products, *HyStem*® and other hydrogels, certain genes related to the development of cancer, and other technologies.

- We might not be able to obtain any additional patents, and any patents that we do obtain might not be comprehensive enough to provide us with meaningful patent protection.
- There will always be a risk that our competitors might be able to successfully challenge the validity or enforceability of any patent issued to us.
- In addition to interference proceedings, the USPTO can re-examine issued patents at the request of a third party seeking to have the patent invalidated. This means that patents owned or licensed by us may be subject to inter partes review, a proceeding in which a third party can challenge the validity of one of our patents.

We may be subject to patent infringement claims that could be costly to defend, which may limit our ability to use disputed technologies, and which could prevent us from pursuing research and development or commercialization of some of our products, require us to pay licensing fees to have freedom to operate, and/or result in monetary damages or other liability for us

The success of our business depends significantly on our ability to operate without infringing patents and other proprietary rights of others. If the technology that we use infringes a patent held by others, we could be sued for monetary damages by the patent holder or its licensee, or we could be prevented from continuing research, development, and commercialization of products that rely on that technology, unless we are able to obtain a license to use the patent. The cost and availability of a license to a patent cannot be predicted, and the likelihood of obtaining a license at an acceptable cost would be lower if the patent holder or any of its licensees is using the patent to develop or market a product with which our product would compete. If we could not obtain a necessary license, we would need to develop or obtain rights to alternative technologies, which could prove costly and could cause delays in product development, or we could be forced to discontinue the development or marketing of any products that were developed using the technology covered by the patent.

If we fail to meet our obligations under license agreements, we may lose our rights to key technologies on which our business depends

Our business depends on several critical technologies that are based in part on technology licensed from third parties. Those third-party license agreements impose obligations on us, including payment obligations and obligations to pursue development of commercial products under the licensed patents or technology. If a licensor believes that we

have failed to meet our obligations under a license agreement, the licensor could seek to limit or terminate our license rights, which could lead to costly and time-consuming litigation and, potentially, a loss of the licensed rights. During the period of any such litigation, our ability to carry out the development and commercialization of potential products, and our ability to raise any capital that we might then need, could be significantly and negatively affected. If our license rights were restricted or ultimately lost, we would not be able to continue to use the licensed technology in our business.

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The price and sale of our products may be limited by health insurance coverage and government regulation

Success in selling our pharmaceutical and cell-based products and medical devices may depend in part on the extent to which health insurance companies, HMOs, and government health administration authorities such as Medicare and Medicaid will pay for the cost of the products and related treatment. Presently, most health insurance plans and HMOs will pay for *Hextend*® when it is used in a surgical procedure that is covered by the plan. However, until we actually introduce a new product into the medical marketplace, we will not know with certainty whether adequate health insurance, HMO, and government coverage will be available to permit the product to be sold at a price high enough for us to generate a profit. In some foreign countries, pricing or profitability of health care products is subject to government control, which may result in low prices for our products. In the United States, there have been a number of federal and state proposals to implement similar government controls, and new proposals are likely to be made in the future.

Risks Related to our Dependence on Third Parties

If we fail to enter into and maintain successful strategic alliances for our therapeutic product candidates, we may have to reduce or delay our product development or increase our expenditures

An important element of our strategy for developing, manufacturing and commercializing our therapeutic product candidates will be entering into strategic alliances with pharmaceutical companies or other industry participants to advance our programs and enable us to maintain our financial and operational capacity. We will face significant competition in seeking appropriate alliances. We may not be able to negotiate alliances on acceptable terms, if at all. If we fail to create and maintain suitable alliances, we may have to limit the size or scope of, or delay, one or more of our product development or research programs, or we will have to increase our expenditures and will need to obtain additional funding, which may be unavailable or available only on unfavorable terms.

If we are able to enter into product development and marketing arrangements with pharmaceutical companies, we may license product development, manufacturing, and marketing rights to the pharmaceutical company or to a joint venture company formed with the pharmaceutical company. Under such arrangements we might receive only a royalty on sales of the products developed or an equity interest in a joint venture company that develops the product. As a result, our revenues from the sale of those products may be substantially less than the amount of revenues and gross profits that we might receive if we were to develop, manufacture, and market the products ourselves.

We may become dependent on possible future collaborations to develop and commercialize many of our product candidates and to provide the regulatory compliance, sales, marketing and distribution capabilities required for the success of our business

We may enter into various kinds of collaborative research and development and product marketing agreements to develop and commercialize our products. The expected future milestone payments and cost reimbursements from collaboration agreements could provide an important source of financing for our research and development programs, thereby facilitating the application of our technology to the development and commercialization of our products, but there are risks associated with entering into collaboration arrangements.

There is a risk that we could become dependent upon one or more collaborative arrangements for product development or as a source of revenues from the sale of any products that may be developed by us alone or through one of the collaborative arrangements. A collaborative arrangement upon which we might depend might be terminated by our collaboration partner or they might determine not to actively pursue the development or commercialization of our products. A collaboration partner also may not be precluded from independently pursuing competing products and drug delivery approaches or technologies.

There is a risk that a collaboration partner might fail to perform its obligations under the collaborative arrangements or may be slow in performing its obligations. In addition, a collaboration partner may experience financial difficulties at any time that could prevent it from having available funds to contribute to the collaboration. If a collaboration partner fails to conduct its product development, commercialization, regulatory compliance, sales and marketing or distribution activities successfully and in a timely manner, or if it terminates or materially modifies its agreements with us, the development and commercialization of one or more product candidates could be delayed, curtailed or terminated because we may not have sufficient financial resources or capabilities to continue such development and commercialization on our own.

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We have very limited experience in marketing, selling or distributing our products, and we may need to rely on marketing partners or contract sales companies

Even if we are able to develop our products and obtain necessary regulatory approvals, we have very limited experience or capabilities in marketing, selling or distributing our products. We rely entirely on Hospira and CJ Health for the sale of *Hextend*®. We currently have only limited sales, marketing and distribution resources for selling our stem cell research products, and no marketing or distribution resources for selling any of the medical devices or therapeutic products that we are developing. Accordingly, we will be dependent on our ability to build our own marketing and distribution capability for our new products, which would require the investment of significant financial and management resources, or we will need to find collaborative marketing partners or sales representatives, or wholesale distributors for the commercial sale of our products.

If we market products through arrangements with third parties, we may pay sales commissions to sales representatives or we may sell or consign products to distributors at wholesale prices. As a result, our gross profit from product sales may be lower than it would be if we were to sell our products directly to end users at retail prices through our own sales force. There can be no assurance we will able to negotiate distribution or sales agreements with third parties on favorable terms to justify our investment in our products or achieve sufficient revenues to support our operations.

We do not have the ability to independently conduct clinical trials required to obtain regulatory approvals for our product candidates

We will need to rely on third parties, such as contract research organizations, data management companies, contract clinical research associates, medical institutions, clinical investigators and contract laboratories to conduct any clinical trials that we may undertake for our products. We may also rely on third parties to assist with our preclinical development of product candidates. If we outsource clinical trials we may be unable to directly control the timing, conduct and expense of our clinical trials. If we enlist third parties to conduct clinical trials and they fail to successfully carry out their contractual duties or regulatory obligations or fail to meet expected deadlines, if the third parties need to be replaced or if the quality or accuracy of the data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements or for other reasons, our preclinical development activities or clinical trials may be extended, delayed, suspended or terminated, and we may not be able to obtain regulatory approval for or successfully commercialize our product candidates.

Risks Pertaining to Our Common Shares

Ownership of our common shares will entail certain risks associated with the volatility of prices for our common shares and the fact that we do not pay dividends on our common shares.

Because we are engaged in the development of pharmaceutical and stem cell research products, the price of our common shares may rise and fall rapidly

- The market price of our common shares, like that of the shares of many biotechnology companies, has been highly volatile.
- The price of our common shares may rise rapidly in response to certain events, such as the commencement of clinical trials of an experimental new drug, even though the outcome of those trials and the likelihood of ultimate FDA approval remain uncertain.
- Similarly, prices of our common shares may fall rapidly in response to certain events such as unfavorable results of clinical trials or a delay or failure to obtain FDA approval.
- The failure of our earnings to meet analysts' expectations could result in a significant rapid decline in the market price of our common shares.

- Changes in the price of our common shares will affect the price at which or warrants may trade.

Current economic and stock market conditions may adversely affect the price of our common shares

The stock market has been experiencing extreme price and volume fluctuations which have affected the market price of the equity securities without regard to the operating performance of the issuing companies. Broad market fluctuations, as well as general economic and political conditions, may adversely affect the market price of our common shares.

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Because we do not pay dividends, our common shares may not be a suitable investment for anyone who needs to earn dividend income

We do not pay cash dividends on our common shares. For the foreseeable future, we anticipate that any earnings generated in our business will be used to finance the growth of our business and, except for semi-annual dividends on our Series A Convertible Preferred Stock, will not be paid out as dividends to our shareholders. This means that our common shares may not be a suitable investment for anyone who needs to earn income from their investments.

Securities analysts may not initiate coverage or continue to cover our common shares and this may have a negative impact on the market price of our common shares

The trading market for our common shares will depend, in part, on the research and reports that securities analysts publish about our business and our common shares. We do not have any control over these analysts. There is no guarantee that securities analysts will cover our common shares. If securities analysts do not cover our common shares, the lack of research coverage may adversely affect the market price of those shares and our warrants. If securities analysts do cover our common shares, they could issue reports or recommendations that are unfavorable to the price of our common shares, and they could downgrade a previously favorable report or recommendation, and in either case our share and warrant prices could decline as a result of the report. If one or more of these analysts does not initiate coverage, ceases to cover our common shares or fails to publish regular reports on our business, we could lose visibility in the financial markets, which could cause our share and warrant prices or trading volume to decline.

You may experience dilution of your ownership interests because of the future issuance of additional common shares and preferred shares by us and our subsidiaries

In the future, we may issue our authorized but previously unissued equity securities, resulting in the dilution of the ownership interests of our present shareholders. We are currently authorized to issue an aggregate of 127,000,000 shares of capital stock consisting of 125,000,000 common shares and 2,000,000 blank check preferred shares. As of January 29, 2015, there were 83,148,679 common shares and 70,000 shares of Series A Convertible Preferred Stock, convertible into 875,000 common shares, outstanding, 3,947,345 common shares reserved for issuance upon the exercise of outstanding options under our employee stock option plans; and 9,194,679 shares reserved for issuance upon the exercise of common share purchase warrants, including the 7,999,677 publicly traded warrants.

The operation of some of our subsidiaries has been financed in part through the sale of capital stock in those subsidiaries to private investors. Sales of additional subsidiary shares could reduce our ownership interest in the subsidiaries, and correspondingly dilute our shareholder s ownership interests in our consolidated enterprise. Our subsidiaries also have their own stock option plans and the exercise of subsidiary stock options or the sale of restricted stock under those plans would also reduce our ownership interest in the subsidiaries, with a resulting dilutive effect on the ownership interest of our shareholders in our consolidated enterprise.

We and our subsidiaries may issue additional common shares or other securities that are convertible into or exercisable for common shares in order to raise additional capital, or in connection with hiring or retaining employees or consultants, or in connection with future acquisitions of licenses to technology or rights to acquire products, or in connection with future business acquisitions, or for other business purposes. The future issuance of any such additional common shares or other securities may create downward pressure on the trading price of our common shares.

We may also issue preferred shares having rights, preferences, and privileges senior to the rights of our common shares with respect to dividends, rights to share in distributions of our assets if we liquidate our company, or voting rights. Any preferred shares may also be convertible into common shares on terms that would be dilutive to holders of

common shares. Our subsidiaries may also issue their own preferred shares with a similar dilutive impact on our ownership of the subsidiaries.

The market price of our common shares could be impacted by prices at which we sell shares in our subsidiaries

The operation of some our subsidiaries has been financed in part through the sale of capital stock in those subsidiaries, and our subsidiaries may sell shares of their capital stock in the future for financing purposes. The prices at which our subsidiaries may sell shares of their capital stock could impact the value of our company as a

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whole and could impact the price at which our common shares trade in the market. A sale of capital stock of one of our subsidiaries at a price that the market perceives as low could adversely impact the market price of our common shares. Even if our subsidiaries sell their capital stock at prices that reflect arm s length negotiation with investors, there is no assurance that those prices will reflect a true fair market value or that the ascribed value of the subsidiaries based on those share prices will be fully reflected in the market value of our common shares.

Dividend Policy

We do not pay cash dividends on our common shares. For the foreseeable future, we anticipate that any earnings generated in our business will be used to finance the growth of our business and, except for semi-annual dividends on our Series A Convertible Preferred Stock, will not be paid out as dividends to our shareholders. Any future determination to pay cash dividends on our common shares will be at the discretion of our Board of Directors and will be dependent upon our financial condition, results of operations, capital requirements and other factors as the Board of Directors deems relevant.

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USE OF PROCEEDS

Unless otherwise specified in the applicable prospectus supplement, we intend to use the net proceeds from the sale of our securities offered by this prospectus for general corporate purposes, including, without limitation, working capital, capital expenditures, research and development expenditures, regulatory affairs expenditures, clinical trial expenditures, acquisitions of new technologies and businesses, and investments, including in our subsidiaries.

As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds we will have upon completion of this offering. Accordingly, our management will have broad discretion in the application of the net proceeds, if any.

Pending the application of the net proceeds, we expect to invest the proceeds in investment grade, interest bearing securities.

RATIO OF EARNINGS TO FIXED CHARGES

If we offer debt securities and/or preference equity securities under this prospectus, then we will, if required at that time, provide a ratio of earnings to fixed charges and/or ratio of combined fixed charges and preference dividends to earnings, respectively, in the applicable prospectus supplement for such offering.

PLAN OF DISTRIBUTION

We may sell the securities from time to time pursuant to underwritten public offerings, negotiated transactions, block trades or a combination of these methods. We may sell the securities to or through underwriters or dealers, through agents, or directly to one or more purchasers. We may distribute securities from time to time in one or more transactions:

- at a fixed price or prices, which may be changed;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices; or
- at negotiated prices.

We may issue securities to other companies or their security holders to acquire those companies or equity interests in those companies, or to acquire assets of those companies, through mergers or consolidations with us or any of our subsidiaries, or through the exchange of our securities for securities of the other companies, or through the exchange of assets of other companies for our securities, or through similar transactions. We may also issue securities to third parties to acquire patents or other intellectual property or licenses or similar rights to use patents or other intellectual property.

We may also issue our securities to one or more of our subsidiaries, including subsidiaries that we presently control and subsidiaries that we may organize or acquire in the future, and those subsidiaries may resell our securities to raise capital or to acquire other companies or equity interests in other companies, or to acquire assets of other companies. Our subsidiaries that acquire our securities may also transfer some or all of those securities to third parties to acquire patents or other intellectual property or licenses or similar rights to use patents or other intellectual property.

Our officers and directors, members of their immediate families, and their respective affiliates may purchase securities that we offer, subject to compliance with our Related Person Transaction Policy, including approval of our Audit Committee, in the case of any transaction in excess of $120,000, policies established by our board of directors with regard to trading in our securities by officers and directors, and applicable rules of the NYSE MKT.

In addition, we may issue the securities being offered by this prospectus as a dividend or distribution.

A prospectus supplement or supplements (and any related free writing prospectus that we may authorize to be provided to you) will describe the terms of the offering of the securities, including, to the extent applicable:

- the name or names of the underwriters, if any;
- the purchase price of the securities or other consideration therefor, and the proceeds, if any, we will receive from the sale;

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- any over-allotment options under which underwriters may purchase additional securities from us;
- any agency fees or underwriting discounts and other items constituting agents' or underwriters' compensation;
- any public offering price;
- any discounts or concessions allowed or reallowed or paid to dealers; and
- any securities exchange or market on which the securities may be listed.

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

- a fixed price or prices, which may be changed;
- market prices prevailing at the time of sale;
- prices related to such prevailing market prices; or
- negotiated prices.

Sale Through Underwriters or Dealers

If we use an underwriter or underwriters in the sale of securities offered by this prospectus, the underwriters will acquire the securities for their own account, including through underwriting, purchase, security lending or repurchase agreements with us, unless the underwriters are acting only as our agents for the purpose of selling our securities as described below under Sale Through Agents. The underwriters may resell the securities from time to time in one or more transactions, including negotiated transactions. Underwriters may sell the securities in order to facilitate transactions in any of our other securities (described in this prospectus or otherwise), including other public or private transactions and short sales made by the underwriters in connection with the distribution of our securities by the underwriters. Underwriters may offer securities to the public either through underwriting syndicates represented by one or more managing underwriters or directly by one or more firms acting as underwriters. Unless otherwise indicated in the prospectus supplement, the obligations of the underwriters to purchase the securities will be subject to certain conditions, and the underwriters will be obligated to purchase all the offered securities if they purchase any of them. The underwriters may change from time to time any public offering price and any discounts or concessions allowed or re-allowed or paid to dealers.

If we use an underwriter or underwriters in the sale of securities, we will execute an underwriting agreement with the underwriter or underwriters at the time we reach an agreement for sale. We will set forth in the applicable prospectus supplement the names of the specific managing underwriter or underwriters, as well as any other underwriters, and the terms of the transactions, including compensation of the underwriters and dealers. This compensation may be in the form of discounts, concessions or commissions.

No FINRA member may participate in any offering of securities made under this prospectus if the member has a conflict of interest under FINRA Rule 2720, including if 5% or more of the net proceeds, not including underwriting compensation, of any offering of securities made under this prospectus will be received by a FINRA member participating in the offering or affiliates or associated persons of the FINRA members, unless a qualified independent underwriter has participated in the offering or the offering otherwise complies with FINRA Rule 2720.

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

Sale Through Dealers

If we use dealers in the sale of the securities offered by this prospectus, we or an underwriter will sell the securities to them as principals. The dealers may then resell those securities to the public at varying prices to be determined by the dealers at the time of resale. The applicable prospectus supplement will set forth the names of the dealers and the terms of the transactions.

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Direct Sales

We may directly solicit offers to purchase the securities offered by this prospectus. In this case, no underwriters or agents would be involved. We may sell the securities directly to institutional investors or others who may be deemed to be underwriters within the meaning of the Securities Act with respect to any sale of those securities. The terms of the sales will be described in the prospectus supplement.

Sales Through Agents

Securities also may be offered and sold through agents designated from time to time. The prospectus supplement will name any agent involved in the offer or sale of the securities and will describe any commissions payable to the agent. Unless otherwise indicated in the applicable prospectus supplement, any agent will agree to use its reasonable best efforts to solicit purchases for the period of its appointment. Any agent may be deemed to be an underwriter within the meaning of the Securities Act with respect to any sale of those securities.

Delayed Delivery Contracts

If the applicable prospectus supplement indicates, we may authorize agents, underwriters or dealers to solicit offers from institutions to purchase securities at the public offering price under delayed delivery contracts. These contracts would provide for payment and delivery on a specified date in the future. Institutions with which contracts of this type may be made include commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions, but in all cases those institutions must be approved by us. The obligations of any purchaser under any contract of this type will be subject to the condition that the purchase of the securities shall not at the time of delivery be prohibited under the laws of the jurisdiction to which the purchaser is subject. The applicable prospectus supplement will describe the commission payable for solicitation of those contracts.

Market Making, Stabilization and Other Transactions

Our common shares are listed on the NYSE MKT. Any common shares sold pursuant to a prospectus supplement will be eligible for listing and trading on the NYSE MKT, subject to official notice of issuance. Unless the applicable prospectus supplement states otherwise, each other class or series of securities issued will be a new issue and will have no established trading market. We may elect to list any other class or series of securities on an exchange, but we are not currently obligated to do so. Any underwriters that we use in the sale of offered securities may make a market in the securities, but may discontinue market making at any time without notice. Therefore, we cannot assure you that the securities will have a liquid trading market.

Any underwriter may also engage in stabilizing transactions, syndicate covering transactions and penalty bids in accordance with Regulation M under the Securities Exchange Act of 1934, as amended. Stabilizing transactions involve bids to purchase the underlying security in the open market for the purpose of pegging, fixing or maintaining the price of the securities. Syndicate covering transactions involve purchases of the securities in the open market after the distribution has been completed in order to cover syndicate short positions.

Penalty bids permit the underwriters to reclaim a selling concession from a syndicate member when the securities originally sold by the syndicate member are purchased in a syndicate covering transaction to cover syndicate short positions. Stabilizing transactions, syndicate covering transactions and penalty bids may cause the price of the securities to be higher than it would be in the absence of the transactions. The underwriters may, if they commence these transactions, discontinue them at any time.

The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. Any such transactions, if commenced, may be discontinued at any time. We make no representation or prediction as to the direction or magnitude of any effect that the transactions described above, if implemented, may have on the price of our securities.

Derivative Transactions and Hedging

We, the underwriters or other agents may engage in derivative transactions involving the securities. These derivatives may consist of short sales for hedging purposes and any other hedging activities. The underwriters or agents may acquire a long or short position in the securities, hold or resell securities acquired and purchase options or futures on the securities and other derivative instruments with returns linked to or related to changes

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in the price of the securities. In order to facilitate these derivative transactions, we may enter into security lending or repurchase agreements with the underwriters or agents. The underwriters or agents may effect the derivative transactions through sales of the securities to the public, including short sales, or by lending the securities in order to facilitate short sale transactions by others.

The underwriters or agents may also use the securities purchased or borrowed from us or others (or, in the case of derivatives, securities received from us in settlement of those derivatives) to directly or indirectly settle sales of the securities or close out any related open borrowings of the securities arising from the distribution of our securities by the underwriters.

Electronic Auctions

We also may make sales through the Internet or through other electronic means. Since we may from time to time elect to offer securities directly to the public, with or without the involvement of agents, underwriters or dealers, utilizing the Internet or other forms of electronic bidding or ordering systems for the pricing and allocation of the securities, you will want to pay particular attention to the description of that system we will provide in a prospectus supplement.

The electronic system may allow bidders to directly participate, through electronic access to an auction site, by submitting conditional offers to buy that are subject to acceptance by us, and which may directly affect the price or other terms and conditions at which the securities are sold. These bidding or ordering systems may present to each bidder, on a so-called real-time basis, relevant information to assist in making a bid, such as the clearing spread at which the offering would be sold, based on the bids submitted, and whether a bidder s individual bids would be accepted, prorated or rejected. Of course, many pricing methods can and may also be used.

Upon completion of the electronic auction process, securities will be allocated based on prices bid, terms of bid or other factors. The final offering price at which securities would be sold and the allocation of securities among bidders would be based in whole or in part on the results of the Internet or other electronic bidding process or auction.

General Information

Agents, underwriters, and dealers may be entitled, under agreements entered into with us, to indemnification by us against specified liabilities, including liabilities under the Securities Act, or to contribution by us to payments they may be required to make in respect to those liabilities. The applicable prospectus supplement will describe the terms and conditions of indemnification or contribution. Some of our agents, underwriters, and dealers, or their affiliates, may be customers of, engage in transactions with or perform services for us, in the ordinary course of business. We will describe in the prospectus supplement the nature of any such relationship and the name of the parties involved. Any lockup arrangements will be set forth in the applicable prospectus supplement.

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DESCRIPTION OF CAPITAL STOCK

Set forth below is a description of our capital stock. The following description of our capital stock is a summary and is subject to and qualified by the applicable provisions of our Articles of Incorporation, our bylaws and the relevant provisions of the laws of the State of California. The particular terms of any offering of our securities will be described in a prospectus supplement relating to the offering.

Common Shares

Our Articles of Incorporation currently authorize the issuance of up to 125,000,000 common shares, no par value, of which 83,148,679 shares were outstanding at January 29, 2015.

As of December 31, 2014, there were 14,323 holders of our common shares based on the share position listing. Each holder of record is entitled to one vote for each outstanding common share owned by the holder on every matter properly submitted to the shareholders for their vote.

Subject to the dividend rights of holders of any of the preferred shares that may be issued from time to time, holders of common shares are entitled to any dividend declared by the Board of Directors out of funds legally available for that purpose. We have not paid any cash dividends on our common shares, and it is unlikely that any cash dividends will be declared or paid on any common shares in the foreseeable future. Instead, we plan to retain our cash for use in financing our future operations and growth.

Subject to the prior payment of the liquidation preference to holders of any preferred shares that may be issued, holders of common shares are entitled to receive on a pro rata basis all of our remaining assets available for distribution to the holders of common shares in the event of the liquidation, dissolution, or winding up of our operations. Holders of common shares do not have any preemptive rights to become subscribers or purchasers of additional shares of any class of our capital stock.

Our common shares are currently is traded on the NYSE MKT under the symbol BTX.

The transfer agent and registrar for our common shares is American Stock Transfer & Trust Company, LLC.

Preferred Shares

Our Articles of Incorporation currently authorize the issuance of up to 2,000,000 preferred shares, no par value. We may issue preferred shares in one or more series, at any time, with such rights, preferences, privileges and restrictions as the Board of Directors may determine, all without further action of our shareholders. Any series of preferred shares which may be authorized by the Board of Directors in the future may be senior to and have greater rights and preferences than the common shares.

As of January 29, 2015, we had 70,000 shares of Series A Convertible Preferred Stock (Series A Preferred Stock) outstanding. The Series A Preferred Stock carries a cumulative annual 3% preferred dividend or $1.50 per share, in preference to BioTime common shares. Each share of Series A Preferred Stock is convertible, at the election of the holder, into BioTime common shares at a conversion price of $4.00 per share, a current conversion ratio of 12.5 common shares for each share of Series A Preferred Stock. In addition to the preferred dividend, the Series A Preferred Stock will be entitled to participate with BioTime common shares in any dividends or distributions on common shares (other than dividends and distributions of common shares resulting in an adjustment of the conversion price) as if all shares of Series A Preferred Stock were then converted into common shares.

All outstanding Series A Preferred Stock will automatically be converted into common shares on March 4, 2019, or if holders of a majority of the outstanding shares of Series A Preferred Stock, voting as a class, approve or consent to a conversion. The conversion price is subject to prorata adjustment in the event of a subdivision or reclassification of the common shares into a greater number of shares, a stock dividend paid in common shares, or a stock combination or reclassification of the common shares into a smaller number of shares.

The Series A Preferred Stock will be entitled to vote with common shares on all matters submitted to holders of common shares for approval. Each share of Series A Preferred Stock will be entitled to a number of votes equal to the number of common shares into which it could then be converted. The Series A Preferred Stock will also vote as a separate class on certain matters affecting those shares.

In the event of a liquidation or dissolution of BioTime, holders of Series A Preferred Stock will be entitled to receive payment of any accrued but unpaid preferred dividends before any assets may be distributed to holders

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of common shares. After payment of the accrued dividends, the Series A Preferred Stock will participate with the common shares in the distribution of any assets available to shareholders, as if the Series A Preferred Stock was then converted into common shares.

DESCRIPTION OF DEBT SECURITIES

Any debt securities that we offer by this prospectus will be issued under an indenture between us and a trustee to be identified in the prospectus supplement. The terms of the debt securities will include those stated in the indenture and those made part of the indenture by reference to the Trust Indenture Act of 1939, as amended (the Trust Indenture Act), as in effect on the date of the indenture. The following description summarizes only the material provisions of the indenture. Accordingly, you should read the form of the applicable indenture filed as an exhibit to the registration statement of which this prospectus forms a part, because it, and not this description, defines your rights as holders of our debt securities. You should also read the applicable prospectus supplement for additional information and the specific terms of the debt securities.

General

We may, at our option, issue debt securities in one or more series from time to time. Debt securities may include senior debt, senior subordinated debt or subordinated debt. The particular terms of the debt securities offered by any prospectus supplement, and the extent, if any, to which the general provisions described below do not apply, will be described in the prospectus supplement. The following summaries set forth certain general terms and provisions of the indenture and the debt securities. The prospectus supplement relating to a series of debt securities being offered will contain the following terms, if applicable:

- the title and ranking;
- the aggregate principal amount and any limit on that amount;
- the price at which the debt securities will be issued;
- the date on which the debt securities mature;
- the fixed or variable rate at which the debt securities will bear interest, or the method by which the rate shall be determined;
- the timing, place and manner of making principal, interest and any premium payments on the debt securities, and, if applicable, where the debt securities may be surrendered for registration of transfer or exchange;
- the date or dates, if any, after which the debt securities may be converted or exchanged into or for our common shares or another company’s securities or property or cash, and the terms of any such conversion or exchange;
- any redemption or early repayment provisions;
- any sinking fund or similar provisions;
- the authorized denominations;
- any applicable subordination provisions;
- any guarantees of the securities by our subsidiaries or others;
- the currency in which we will pay the principal, interest and any premium payments on the debt securities;
- whether the amount of payments of principal of (and premium, if any) or interest, if any, on the debt securities may be determined with reference to an index, formula or other method and the manner in which the amounts shall be determined;
- the time period within which, the manner in which and the terms and conditions upon which the purchaser of the securities can select the payment currency;
- the provisions, if any, granting special rights to the holders of debt securities upon certain events;

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- any additions to or changes in the events of default or covenants with respect to the debt securities, and any
- change in the right of the trustee or the holders, from those described in this prospectus, to declare principal, premium and interest to be due and payable;
- whether and under what circumstances we will pay any additional amounts on the debt securities for any tax, assessment or governmental charge and, if so, whether we will have the option to redeem the debt securities instead of paying those amounts;
- the form (registered and/or bearer securities), any restrictions applicable to the offer, sale or delivery of bearer securities and the terms, if any, upon which bearer securities may be exchanged for registered securities and vice versa;
- the date of any bearer securities or any global security, if other than the date of original issuance of the first security of the series to be issued;
- the person to whom and manner in which any interest shall be payable;
- whether the securities will be issued in whole or in part in the form of one or more global securities;
- the identity of the depositary for global securities;
- whether a temporary security is to be issued with respect to the series and whether any interest payable prior to the issuance of definitive securities of the series will be credited to the account of the persons entitled thereto;
- the terms upon which beneficial interests in a temporary global security may be exchanged in whole or in part for beneficial interests in a definitive global security or for individual definitive securities and the terms upon which exchanges may be made;
- the securities exchange(s), if any, on which the securities will be listed;
- whether any underwriter(s) will act as market maker(s) for the securities;
- the form (certificated or book-entry);
- the form and/or terms of certificates, documents or conditions which may be necessary, if any, for the debt securities to be issuable in final form; and
- additional terms not inconsistent with the provisions of the indenture.

One or more series of debt securities may be sold at a substantial discount below their stated principal amount bearing no interest or interest at a rate below the market rate at the time of issuance. One or more series of debt securities may be variable rate debt securities that may be exchanged for fixed rate debt securities. In such cases, all material United States federal income tax and other considerations applicable to the series will be described in the applicable prospectus supplement.

We will comply with Section 14(e) under the Exchange Act, to the extent applicable, and any other tender offer rules under the Exchange Act, which may then be applicable, in connection with any obligation we may have to purchase debt securities at the option of the holders thereof. Any such obligation applicable to a series of debt securities will be described in the applicable prospectus supplement.

Exchange, Registration, Transfer and Payment

We expect payment of principal, premium, if any, and any interest on the debt securities to be payable, and the exchange and the transfer of debt securities will be registrable, at the office of the trustee or at any other office or agency we maintain for that purpose. We expect to issue debt securities in denominations of U.S. $1,000 or integral multiples of $1,000. No service charge will be made for any registration of transfer or exchange of the debt securities, but we may require a payment to cover any tax or other governmental charges payable in connection with an exchange or transfer.

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Global Debt Securities

Unless we indicate otherwise in the applicable prospectus supplement, the following provisions will apply to all debt securities.

The debt securities of a series may be issued in whole or in part in the form of one or more global securities that will be deposited with a depositary that we will identify in a prospectus supplement. Each global security will be deposited with the depositary and will bear a legend regarding any related restrictions or other matters as may be provided for pursuant to the applicable indenture.

Unless a prospectus supplement states otherwise, no global security may be transferred to, or registered or exchanged for, debt securities registered in the name of, any person or entity other than the depositary, unless:

- the depositary has notified us that it is unwilling or unable or is no longer qualified to continue as depositary;
- we order the trustee that the global security shall be so transferable, registrable and exchangeable, and the transfers shall be registrable; or
- other circumstances, if any, as may be described in the applicable prospectus supplement.

All debt securities issued in exchange for a global security or any portion of a global security will be registered in those names as the depositary may direct. The specific terms of the depositary arrangement with respect to any portion of a series of debt securities to be represented by a global security will be described in the applicable prospectus supplement.

Debt securities which are to be represented by a global security to be deposited with or on behalf of a depositary will be represented by a global security registered in the name of the depositary or its nominee. Upon the issuance of the global security, and the deposit of the global security with the depositary, the depositary will credit, on its book-entry registration and transfer system, the respective principal amounts of the debt securities represented by the global security to the accounts of institutions that have accounts with the depositary or its nominee (the Participants). The accounts to be credited will be designated by the underwriters or agents of the debt securities or by us, if the debt securities are offered and sold directly by us.

Ownership of beneficial interests in a global security will be limited to Participants or persons that may hold interests through Participants. Ownership of beneficial interests in a global security will be shown on, and the transfer of that ownership interest will be effected only through, records maintained by the depositary or its nominee for the global security or by Participants or persons that hold through Participants.

The laws of some jurisdictions require that certain purchasers of securities take physical delivery of the securities in certificated form. Those laws may impair the ability to transfer beneficial interests in global securities.

So long as the depositary, or its nominee, is the registered owner of a global security, the depositary or the nominee, as the case may be, will be considered the sole owner or holder of the debt securities represented by the global security for all purposes under the indenture. Payment of principal of, and premium and interest, if any, on debt securities will be made to the depositary or its nominee as the registered owner or bearer as the case may be of the global security representing the debt securities. Each person owning a beneficial interest in a global security must rely on the procedures of the depositary and, if the person is not a Participant, on the procedures of the Participant through which the person owns its interest, to exercise any rights of a holder under the indenture. If we request any action of holders or if an owner of a beneficial interest in a global security desires to give any notice or take any action a holder is entitled to give or take under the indenture, the depositary will authorize the Participants to give the notice or take the action, and Participants would authorize beneficial owners owning through the Participants to give the notice or take the action or would otherwise act upon the instructions of beneficial owners owning through them.

The rights of any holder of a debt security to receive payment of principal and premium of, if any, and interest, on or after the respective due dates expressed or provided for in the debt security, or to institute suit for the enforcement of any payment on or after the applicable date, shall not be impaired or affected without the consent of the holders.

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Neither we, the trustee, any paying agent nor the security registrar for a debt security will have any responsibility or liability for any aspect of the records relating to or payments made on account of beneficial ownership interests of the global security for the debt security or for maintaining, supervising or receiving any records relating to the beneficial ownership interests.

We expect that the depositary or its nominee, upon receipt of any payment of principal, premium or interest, will credit immediately Participants accounts with payments in amounts proportionate to their respective beneficial interests in the principal amount of the global security as shown on the records of the depositary or its nominee. We also expect that payments by Participants to owners of beneficial interests in a global security held through the Participants will be governed by standing instructions and customary practices, as is now the case with securities held for the accounts of customers in bearer form or registered in street name, and will be the responsibility of the Participants.

If the depositary for a global security representing debt securities of a particular series is at any time unwilling or unable to continue as depositary and we do not appoint a successor depositary within 90 days, we will issue debt securities of the series in definitive form in exchange for the global security. In addition, we may at any time and in our sole discretion determine not to have the debt securities of a particular series represented by one or more global securities and, in that event, will issue debt securities of the series in definitive form in exchange for all of the global securities representing debt securities of the series.

Covenants

Except as permitted under Consolidation, Merger and Sale of Assets, the indenture will require us to do or cause to be done all things necessary to preserve and keep in full force and effect our existence, rights (declaration and statutory) and franchises; provided, however, that we shall not be required to preserve any right or franchise if we determine that the right or franchise is no longer desirable in the conduct of our business and that the loss of the right or franchise is not disadvantageous in any material respect to the holders of the debt securities.

The indenture will require us to pay or discharge or cause to be paid or discharged, before payment becomes delinquent, all taxes, assessments and governmental charges levied or imposed upon us, except any tax, assessment, charge or claim the amount or applicability of which is being contested in good faith.

Reference is made to the indenture and applicable prospectus supplement for information with respect to any additional covenants specific to a particular series of debt securities.

Consolidation, Merger and Sale of Assets

Except as set forth in the applicable prospectus supplement, the indenture will provide that we shall not consolidate with, or sell, assign, transfer, lease or convey all or substantially all of our assets to, or merge into, another business entity, unless:

- we are the surviving entity or, in the event that we are not the surviving entity, the entity formed by the transaction (in a consolidation) or the entity which received the transfer of assets is organized under the laws of any state of the United States or the District of Columbia and that the entity assumes all of our obligations under the debt securities and the indenture; and
- immediately after giving effect to the transaction, no event of default, as defined in the indenture, shall have occurred and be continuing.

Notwithstanding the foregoing, we may merge with another business entity or acquire by purchase or otherwise all or any part of the property or assets of any other company in a transaction in which we are the surviving entity.

Events of Default

Unless otherwise specified in the applicable prospectus supplement, the following are events of default with respect to any series of debt securities issued under the indenture:

- failure to pay principal of any debt security of that series when due and payable at maturity, upon acceleration, redemption or otherwise;

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- failure to pay any interest on any debt security of that series when due, and the default continues for 30 days;
- failure to comply with any covenant or warranty contained in the indenture, other than covenants or warranties contained in the indenture solely for the benefit of other series of debt securities, and the default continues for 30 days after notice from the trustee or the holders of at least 25% in principal amount of the then outstanding debt securities of that series;
- certain events of bankruptcy, insolvency or reorganization; and
- any other event of default provided with respect to that particular series of debt securities.

If an event of default occurs and continues, then upon written notice to us the trustee or the holders of at least 25% in principal amount of the outstanding debt securities of that series may declare the unpaid principal amount of, and any accrued and unpaid interest on, all debt securities of that series to be due and payable immediately. However, at any time after a declaration of acceleration with respect to debt securities of any series has been made, the holders of a majority in principal amount of the outstanding debt securities of that series may rescind and annul the acceleration:

- if all events of default other than the nonpayment of principal of or interest on the debt securities of that series which have become due solely because of the acceleration have been waived or cured; and
- the rescission would not conflict with any judgment or decree of a court of competent jurisdiction. For information as to waiver of defaults, see Amendment, Supplement and Waiver below.

The indenture will provide that, subject to the duty of the trustee during an event of default to act with the required standard of care, the trustee will be under no obligation to exercise any of its rights or powers under the indenture at the request or direction of any of the holders, unless the holders shall have offered to the trustee reasonable security or indemnity. Subject to certain provisions, including those requiring security or indemnification of the trustee, the holders of a majority in principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee, or exercising any trust or power conferred on the trustee, with respect to the debt securities of that series.

We will be required to furnish to the trustee under the indenture annually a statement as to the performance by us of our obligations under that indenture and as to any default in our performance.

Discharge of Indenture and Defeasance

Except as otherwise set forth in the applicable prospectus supplement, we may terminate our obligations under the debt securities of any series, and the corresponding obligations under the indenture when:

- we have paid or deposited with the trustee funds or United States government obligations in an amount sufficient to pay at maturity all outstanding debt securities of the series, including interest other than destroyed, lost or stolen debt securities of the series which have not been replaced or paid;
- all outstanding debt securities of the series have been delivered (other than destroyed, lost or stolen debt securities of the series which have not been replaced or paid) to the trustee for cancellation; or
- all outstanding debt securities of any series have become due and payable; and
- we have paid all other sums payable under the indenture.

In addition, we will have the option to terminate substantially all our obligations under the debt securities of any series and the corresponding obligations under the indenture, and we may exercise that option if:

- we have paid or deposited with the trustee, in trust an amount of cash or United States government obligations sufficient to pay all outstanding principal of and interest on the then outstanding debt securities of the series at maturity or upon their redemption, as the case may be;
- the deposit will not result in a breach of, or constitute a default under, the indenture;

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- no default or event of default shall have occurred and continue on the date of deposit and no event of default
- as a result of a bankruptcy or event which with the giving of notice or the lapse of time would become a bankruptcy event of default shall have occurred and be continuing on the 91st day after that date;
- we deliver to the trustee a legal opinion that we have received from, or there has been published by, the United States Internal Revenue Service a ruling, or there has been a change in tax law, in either case to the effect that the holders of the debt securities of the series will not recognize income, gain or loss for Federal income tax purposes as a result of our exercise of our option and shall be subject to Federal income tax on the same amounts and in the same manner and at the same times as would have been the case if we did not exercise our option; and
- certain other conditions are met.

We will have the option to be released from our obligations with respect to the covenants to deliver reports required to be filed with the SEC and an annual compliance certificate, and to make timely payments of taxes (including covenants described in a prospectus supplement), and any event of default occurring because of a default with respect to the covenants as they related to any series of debt securities, and we may exercise that option if:

- we deposit or cause to be deposited with the trustee in trust an amount of cash or United States government obligations sufficient to pay and discharge when due the entire unpaid principal of and interest on all outstanding debt securities of any series;
- the deposit will not result in a breach of, or constitute a default under, the indenture;
- no default or event of default shall have occurred and be continuing on the date of deposit and no event of default as a result of a bankruptcy or event which with the giving of notice or the lapse of time would become a bankruptcy event of default shall have occurred and be continuing on the 91st day after that date;
- we deliver to the trustee a legal opinion that the holders of the debt securities of the series will not recognize income, gain or loss for Federal income tax purposes as a result of our exercise of our option and shall be subject to Federal income tax on the same amounts and in the same manner and at the same times as would have been the case if we did not exercise our option; and
- certain other conditions are met.

Upon satisfaction of the applicable conditions, our obligations under the indenture with respect to the debt securities of the series, other than with respect to the covenants and events of default referred to above, shall remain in full force and effect.

Notwithstanding the foregoing, no discharge or defeasance described above shall affect the following obligations to or rights of the holders of any series of debt securities:

- rights of registration of transfer and exchange of debt securities of the series;
- rights of substitution of mutilated, defaced, destroyed, lost or stolen debt securities of the series;
- rights of holders of debt securities of the series to receive payments of principal thereof and premium, if any, and interest thereon when due;
- rights, obligations, duties and immunities of the trustee;
- rights of holders of debt securities of the series as beneficiaries with respect to property deposited with the trustee and payable to all or any of them; and
- our obligations to maintain an office or agency in respect of the debt securities of the series.

Transfer and Exchange

A holder of debt securities may transfer or exchange those debt securities in accordance with the indenture. The registrar for the debt securities may require a holder, among other things, to furnish appropriate endorsements and transfer documents, and to pay any taxes and fees required by law or permitted by the

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indenture. The registrar is not required to transfer or exchange any debt security selected for redemption or any debt security for a period of 15 days before a selection of debt security to be redeemed.

The registered holder of a debt security may be treated as the owner of the security for all purposes.

Amendment, Supplement and Waiver

Subject to certain exceptions, the terms of the indenture or the debt securities may be amended or supplemented by us and the trustee with the written consent of the holders of at least a majority in principal amount of the outstanding debt securities of each series affected by the amendment with each series voting as a separate class. Without the consent of any holder of the debt securities, we and the trustee may amend the terms of the indenture or the debt securities to:

- cure any ambiguity, defect or inconsistency;
- provide for the assumption of our obligations to holders of the debt securities by a successor corporation;
- provide for uncertificated debt securities in addition to certificated debt securities;
- make any change that does not adversely affect the rights of any holder of the debt securities in any material respect;