BIOTIME INC
Form 10-K
March 18, 2013

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d)
OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2012

OR

o TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d)
OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from_____ to _____

Commission file number 1-12830

BioTime, Inc.
(Exact name of registrant as specified in its charter)

California	94-3127919
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

1301 Harbor Bay Parkway, Suite 100
Alameda, California 94502
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code (510) 521-3390

Securities registered pursuant to Section 12(b) of the Act
Title of class Common Shares, no par value

Securities registered pursuant to Section 12(g) of the Act:
None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes o No x

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes o No x

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the

Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes x No o

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K o

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

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act): Yes o No x

The approximate aggregate market value of voting common shares held by non-affiliates computed by reference to the price at which common shares were last sold as of June 30, 2012 was $121,654,342. Shares held by each executive officer and director and by each person who beneficially owns more than 5% of the outstanding common shares have been excluded in that such persons may under certain circumstances be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

The number of common shares outstanding as of March 14, 2013 was 54,906,793.

Documents Incorporated by Reference
Portions of Proxy Statement for 2012 Annual Meeting of Shareholders are incorporated by reference in Part III

BioTime, Inc.

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PART I

Statements made in this Form 10-K that are not historical facts may constitute forward-looking statements that are subject to risks and uncertainties that could cause actual results to differ materially from those discussed. Words such as “expects,” “may,” “will,” “anticipates,” “intends,” “plans,” “believes,” “seeks,” “estimates,” and similar expressions identify forward-looking statements. See Note 1 to Financial Statements.

References to “we” means BioTime, Inc. and its subsidiaries unless the context otherwise indicates.

The description or discussion, in this Form 10-K, of any contract or agreement is a summary only and is qualified in all respects by reference to the full text of the applicable contract or agreement.

Item 1. Business

Overview

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, each of which concentrates on different medical specialties, including: neuroscience, oncology, orthopedics, and blood and vascular diseases. Our commercial strategy is heavily focused on near-term commercial opportunities including our current line of research products such as PureStem™ cell lines (which we previously called ACTCellerate™ cell line) and associated ESpan™ culture media, HyStem® hydrogels, human embryonic stem cell lines, and royalties from Hextend®. Potential near term therapeutic and diagnostic product opportunities include Renevia™ (formerly known as HyStem®-Rx) as a cell delivery device expected to enter clinical trials in Europe in 2013, and the launch of PanC-Dx™ as a novel blood-based cancer screen, expected by 2014 in Europe. Our long-term strategic focus is to provide regenerative therapies for age-related degenerative diseases.

“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 like young 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.

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 offer advanced human stem cell products and technology that can be used by researchers at universities and at companies in the bioscience and biopharmaceutical industries. We have developed research and clinical grade hES cell lines that we market for both basic research and therapeutic product development. Our subsidiary, ES Cell International Pte. Ltd (“ESI”), has developed six hES cell lines that are among the best characterized and documented cell lines available today. Developed using current Good Manufacturing Practices (“cGMP”) that

facilitate transition into the clinic, these hES cell lines are extensively characterized and five of the six cell lines currently have documented and publicly-available genomic sequences. The ESI hES cell lines are now included in the Stem Cell Registry of the National Institutes of Health ("NIH"), making them eligible for use in federally funded research, and all are available for purchase through http://bioreagents.lifemapsc.com. We also market human embryonic progenitor cell ("hEPCs"), which are called PureStem™ cell lines and were developed using ACTCellerate™ technology. These hEPCs are purified lineages of cells that are intermediate in the developmental process between embryonic stem cells and fully differentiated cells. We expect that hEPCs will simplify the scalable manufacture of highly purified and identified cell types and will possess the ability to become a wide array of cell types with potential applications in research, drug discovery, and human regenerative stem cell therapies. The PureStem™ cell lines are also available for purchase through http://bioreagents.lifemapsc.com.

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Research products can be marketed without regulatory or other governmental approval, and thus offer relatively near-term business opportunities, especially when compared to therapeutic products. The medical devices and diagnostics that we and our subsidiaries are developing will require regulatory approval for marketing, but the clinical trial and approval process for medical devices is often faster and less expensive than the process for the approval of new drugs and biological therapeutics. Our current and near-term product opportunities, combined with expected long-term revenues from the potentially very large revenue that could be derived from cell-based therapeutic products under development at our subsidiaries, provide us with a balanced commercial strategy. The value of this balance is apparent in the commercial field of regenerative medicine as competitors whose sole focus is on long-term therapeutic products have found it challenging to raise the requisite capital to fund clinical development.

Our HyStem® hydrogel product line is one of the components in our near-term revenue strategy. HyStem® is a patented biomaterial that mimics the human extracellular matrix, which is the network of molecules surrounding cells in organs and tissues that is essential to cellular function. Many tissue engineering and regenerative cell-based therapies will require the delivery of therapeutic cells in a matrix or scaffold to sustain cell survival after transplantation and to maintain proper cellular function. HyStem® is a unique hydrogel that has been shown to support cellular attachment and proliferation in vivo.

Renevia™ (formerly known as HyStem®-Rx) is a clinical grade formulation of HyStem-C®, a biocompatible, implantable hyaluronan and collagen-based matrix for cell delivery in human clinical applications. As an injectable product, Renevia™ may address an immediate need in cosmetic and reconstructive surgeries and other procedures by improving the process of transplanting adipose derived cells, mesenchymal stem cells, or other adult stem cells. We will need to obtain approval by the U.S. Food and Drug Administration ("FDA") and comparable regulatory agencies in foreign countries in order to market Renevia™ as a medical device. We expect to initiate clinical trials in the European Union during the first half of 2013 for CE marking.

Other HyStem® products are currently being used by researchers at a number of leading medical schools in pre-clinical studies of stem cell therapies to facilitate wound healing, for the treatment of ischemic stroke, brain cancer, vocal fold scarring, and for myocardial infarct repair. Our HyStem® hydrogels may have other applications when combined with the diverse and scalable cell types our scientists have isolated from hES cells.

Our subsidiary, OncoCyte Corporation, is developing PanC-Dx™, a novel non-invasive blood-based cancer screening test designed to detect the presence of various human cancers, including cancers of the breast, lung, bladder, uterus, stomach, and colon, during routine check -ups. We intend to initially seek regulatory approval to market PanC-Dx™ in Europe as a screen for breast cancer before seeking regulatory approvals required to market the product in the U.S. and other countries.

Our subsidiary, LifeMap Sciences markets GeneCards®, the leading human gene database, as part of an integrated database suite that includes LifeMap Discovery™, the database of embryonic development, stem cell research and regenerative medicine; and MalaCards, the human disease database. LifeMap Sciences also markets PanDaTox, a database that can be used to identify genes and intergenic regions that are unclonable in E. coli, to aid in the discovery of new antibiotics and biotechnologically beneficial functional genes. LifeMap Sciences will utilize its databases as part of its online marketing strategy for our research products to reach life sciences researchers at biotech and pharmaceutical companies and at academic institutions and research hospitals worldwide.

LifeMap Sciences is also the internet sales and marketing arm of our research products for sale through the website http://bioreagents.lifemapsc.com. We now offer 12 PureStem™ hEPC and five hES cell lines developed under cGMP by our subsidiary ESI for sale, and hES cell lines carrying inherited genetic diseases. The hES cell lines developed by ESI are included in the NIH Stem Cell Registry, making them eligible for use in federally funded research, and five of the six cell lines currently have documented and publicly-available genomic sequences. We anticipate adding

additional cell lines and related ESpan™ growth media and differentiation kits over time.

During January 2013, we entered into an Asset Contribution Agreement with our subsidiary BioTime Acquisition Corporation ("BAC") and Geron Corporation pursuant to which BAC will acquire a significant portfolio of patents and patent applications, cell lines, and hES technology and know-how related to potential therapeutic products in various stages of development. Two of the products under development have already been used in early stage clinical trials. The acquisition of the Geron stem cell assets is expected to occur no later than September 30, 2013. The completion of the transaction is subject to the satisfaction of certain conditions. See "BioTime Acquisition Corporation and the Asset Contribution Agreement."

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Plasma Volume Expander Products

We have 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 CheilJedang Corp. ("CJ"), under license from us.

Key Accomplishments in 2012

In January 2012, we licensed key technology obtained in an exclusive license from The Wistar Institute in Philadelphia, PA for technology related to a gene designated as SP100. Wistar Institute researchers have demonstrated pivotal roles for this gene in both cancer and stem cell biology. Scientists at BioTime's subsidiaries OncoCyte Corporation and ReCyte Therapeutics, Inc. plan to apply this technology in the development of innovative medical products for cancer and vascular diseases. In conjunction with the license agreement, BioTime has agreed to fund research at The Wistar Institute to advance the technology, and BioTime will receive certain rights to negotiate additional licenses for any technologies invented as a result of the research.

In May 2012, through our subsidiary, LifeMap Sciences, we acquired XenneX Corporation. The acquisition integrated GeneCards® and associated databases in a centralized resource. LifeMap now holds the exclusive, worldwide licenses to market GeneCards® and PanDaTox. GeneCards® is a searchable, integrated, database of human genes that provides concise genomic, transcriptomic, genetic, proteomic, functional and disease related information, on all known and predicted human genes. PanDaTox is a recently developed, searchable, database that can be used to identify genes and intergenic regions that are unclonable in E. coli, to aid in the discovery of new antibiotics and biotechnologically beneficial functional genes, and to improve the efficiency of metabolic engineering. Through this acquisition we began recognizing license revenue based upon subscription and advertising fees from customers worldwide including biotechnology, pharmaceutical and other life sciences companies, as well as organizations dealing with biotechnology intellectual property.

Through the acquisition, XenneX stockholders received 1,362,589 shares of LifeMap Sciences common stock, which represents approximately 13% of the LifeMap Sciences common stock now outstanding. XenneX shareholders also received 448,429 BioTime common shares as part of the transaction.

In August, 2012 our subsidiary OncoCyte announced the publication of a scientific report on the gene COL10A1 and its potential as a marker for numerous types of human cancers. The paper described the microarray-based approach used to identify COL10A1 as a pan-cancer biomarker with significantly elevated expression in diverse malignant tumor types including cancers of the breast, stomach, colon, lung, bladder, pancreas, and ovaries. In addition, the protein was shown to be specifically localized within tumor vasculature. Combined, these findings will be an important basis for the development and application of new diagnostic and therapeutic strategies, including the measurement of Collagen Type X in the blood as a screen for the presence of cancer, the use of antibodies that recognize and bind to the protein to visualize and locate tumors in the body, and the targeted delivery of tumor-destroying agents.

In November, 2012, we made an additional investment in our subsidiary Cell Cure Neurosciences Ltd. (“Cell Cure Neurosciences”) through which we agreed to purchase 87,456 Cell Cure Neurosciences ordinary shares in exchange for 906,735 BioTime common shares. The transaction closed in January 2013. As a result of the share purchase, BioTime owns, directly and through its wholly owned subsidiary ESI, approximately 62.6% of the outstanding ordinary shares of Cell Cure Neurosciences.

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In September, 2012 we formed a new subsidiary, BAC, to acquire assets in the stem cell field for use in developing and commercializing products for regenerative medicine. In November 2012 we and BAC signed a letter of intent with Geron which contained terms of a potential transaction through which Geron would contribute to BAC its intellectual property and other assets related to Geron's discontinued human embryonic stem cell programs and BioTime would contribute to BAC cash, BioTime common shares, warrants to purchase common shares of BioTime at a pre-specified price, rights to use certain human embryonic stem cell lines, and minority stakes in two of BioTime's subsidiaries. In January 2013, we entered into a definitive agreement through an Asset Contribution Agreement with BAC and Geron pursuant to which Geron has agreed to contribute certain assets, including intellectual property and proprietary technology, including certain patents and know-how related to human embryonic stem cells; certain biological materials and reagents; certain laboratory equipment; certain contracts; Geron's Phase I clinical trial of oligodendrocyte progenitor cells in patients with acute spinal cord injury, and Geron's autologous cellular immunotherapy program, including the Phase I/II clinical trial of autologous immunotherapy in patients with acute myelogenous leukemia; and certain regulatory filings, in exchange for shares of BAC common stock, and we have agreed to contribute 8,902,077 common shares; warrants to subscribe for and purchase 8,000,000 additional common shares; $5,000,000 in cash; 10% of the issued and outstanding shares of common stock of our subsidiary OrthoCyte Corporation; 6% of the issued and outstanding ordinary shares of our subsidiary Cell Cure Neurosciences; and a quantity of certain human hES cell lines produced under cGMP, and a non-exclusive, world-wide, royalty-free license to use those hES cell lines and certain patents pertaining to stem cell differentiation technology, in exchange for BAC common stock and warrants to purchase BAC common stock. We expect the transaction to close in the third quarter of 2013.

Related to the proposed acquisition of Geron's stem cell assets by BAC, we and BAC entered into agreements for a $10 million investment from a private investor to provide financing for the proposed acquisition of the Geron stem cell assets. Under the agreed terms, the investor will invest $5 million in BioTime in two tranches by purchasing a total of 1.35 million BioTime common shares at a purchase price of approximately $3.70 per share, and warrants to purchase approximately 650,000 additional BioTime common shares with an exercise price of $5 per share and a three year term. The initial investment tranche of $2 million was made in January, 2013. The second tranche of $3 million was originally intended to close later this year concurrent with the closing of the Asset Contribution Agreement. However, on March 7, 2013 we executed an amendment with the investor to accelerate the closing date to April 10, 2013. In addition, the investor will contribute $5 million in cash to BAC in exchange for shares of BAC common stock that, upon issuance, will represent approximately 7% of the BAC common stock then issued and outstanding, plus warrants to purchase approximately 350,000 additional shares of BAC common stock at an exercise price of $5 per share, with a three year term.

Additional Information

HyStem®, Hextend® and PentaLyte® are registered trademarks of BioTime, Inc., and Renevia™, PureStem™, ESpan™, and ESpy® are trademarks of BioTime, Inc. ACTCellerate™ is a trademark licensed to us by Advanced Cell Technology, Inc. ReCyte™ is a trademark of ReCyte Therapeutics, Inc. PanC-Dx™ is a trademark of OncoCyte Corporation. GeneCards® is a registered trademark of Yeda Research and Development Co. Ltd.

We were incorporated in 1990 in the state of California. Our principal executive offices are located at 1301 Harbor Bay Parkway, Alameda, California 94502. Our telephone number is (510) 521-3390.

Business Strategy

One of our goals is to develop cell-based regenerative therapies for age-related degenerative disease. The degenerative diseases of aging meet several criteria that make them an attractive business opportunity. First, the elderly comprise a large and growing segment of both the U.S. and the world population. Second, chronic diseases

account for nearly 75% of health care costs. Third, because many age-related diseases appear to be caused by the inherent limited capacity of aged human cells to regenerate damaged tissues in the body, our cell replacement technologies may eliminate the high costs associated with years of palliative care addressing these large markets.

Our effort in regenerative medicine also includes research on more than 200 purified, scalable, and novel human embryonic progenitor cell types produced from hES and iPS cells. This research has included extensive gene expression studies of the unique properties of the cells, as well as conditions that cause the cells to differentiate into many of the cell types in the body. We have filed patent applications on the compositions of these cells, the media in which they can be expanded, and a variety of uses of the cells, including drug discovery and cell replacement therapies. This novel manufacturing technology may provide us with a competitive advantage in producing highly purified, identified, and scalable cell types for potential use in therapy.

We have organized several subsidiaries to undertake our cell replacement therapeutic programs, diagnostic product programs, and our research product programs. We will partly or wholly fund these subsidiaries, recruit their management teams, assist them in acquiring technology, and provide general guidance for building the subsidiary companies. We may license patents and technology to the subsidiaries that we do not wholly own under agreements that will entitle us to receive royalty payments from the commercialization of products or technology developed by the subsidiaries.

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In September 2012 we formed a new subsidiary, BAC, to acquire assets in the stem cell field for use in developing and commercializing products for regenerative medicine. During January 2013, BAC entered into the Asset Contribution Agreement to acquire the assets that Geron had used in its stem cell research and development programs. By acquiring Geron's stem cell assets, BAC will have the use of cell lines and other biological materials, patents, and technology developed by Geron over 12 years of work focused in the following complementary lines of research:

the establishment of cell banks of undifferentiated hES cells produced under current good manufacturing procedures "cGMP" and suitable for human therapeutic use;

the development of scalable differentiation methods which convert, at low cost, undifferentiated hES cells into functional cells suitable for human therapeutic cells that can be stored and distributed in the frozen state for "off-the-shelf" use;

the development of regulatory paradigms to satisfy both U.S. and European regulatory authority requirements to begin human clinical testing of products made from hES cells; and

the continuous filing and prosecution of patents covering inventions to protect commercialization rights, as well as consummating in-licenses to enable freedom to operate in a variety of fields.

The following table shows our subsidiaries, their respective principal fields of business, our percentage ownership as at December 31, 2012, and the country where their principal business is located:

Subsidiary	Field of Business	BioTime Ownership	Country
ES Cell International Pte. Ltd.	Stem cell products for research, including clinical grade cell lines produced under cGMP	100%	Singapore
OncoCyte Corporation	Diagnosis and treatment of cancer	75.3%	USA
OrthoCyte Corporation	Orthopedic diseases, including osteoarthritis	100%	USA
Cell Cure Neurosciences, Ltd.	Age-related macular degeneration Multiple sclerosis Parkinson's disease	53.6%(1)	Israel
ReCyte Therapeutics, Inc. (formerly Embryome Sciences, Inc.)	Vascular disorders, including cardiovascular-related diseases, vascular injuries, and acquired lymphedema Endothelial progenitor cells for research and drug testing; iPS cell banking	95.15%	USA
BioTime Asia, Limited	Ophthalmologic, skin, musculo-skeletal system, and hematologic diseases for Asian markets. Stem cell products for research	81%	Hong Kong
LifeMap Sciences, Inc.	Genetic, disease, and stem cell databases; sale of stem cell products for research	73.2%	USA
LifeMap Sciences, Ltd.	Stem cell database	(2)	Israel

BioTime Acquisition Corporation	Research, development and commercialization of human therapeutic products from stem cells	96.7%(3)	USA

(1) In January 2013 Cell Cure Neurosciences issued additional ordinary shares to BioTime in exchange for BioTime common shares which increased BioTime's ownership, directly and through ESI, to approximately 62.6%. See Note 23 to the Consolidated Financial Statements.

(2) LifeMap Sciences, Ltd. is a wholly-owned subsidiary of LifeMap Sciences, Inc.

(3) We expect our percentage ownership will be reduced to approximately 71.6% after BAC issues common stock to us and Geron pursuant to the Asset Contribution Agreement and sells common stock and warrants to a private investor for cash in a related transaction

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The joint ownership of subsidiaries with other investors will allow us to fund the expensive development costs of therapeutics in a manner that spreads the costs and risk and reduces our need to obtain more equity financing of our own that could be dilutive to our shareholders. In some cases, the co-investors in our subsidiaries may include other participants in the pharmaceutical or biotechnology industry and their affiliates. An example of this would be our investment in Cell Cure Neurosciences, which was made in concert with investments from Teva Pharmaceutical Industries, Ltd. and HBL-Hadasit Bio-Holdings, Ltd.

Another tenet of our business strategy is the development and sale of advanced human stem cell products and technologies that can be used by researchers at universities and other institutions, at companies in the bioscience and biopharmaceutical industries, and at other companies that provide research products to companies in those industries. By providing products and technologies that will be used by researchers and drug developers at larger institutions and corporations, we believe that we will be able to commercialize products more quickly and inexpensively, and realize greater revenues than would be possible with the development of therapeutic products alone.

We have made the filing and prosecution of patent applications an integral part of our business strategy in order to protect our investment in our products and that we and our subsidiaries have developed or licensed from others. See the “Licensed Stem Cell Technology and Stem Cell Product Development Agreements” and “Patents and Trade Secrets” sections of this report.

Stem Cells and Related Products for Regenerative Medicine Research

Human Embryonic Stem Cell Lines for Research Use

Because hES and iPS cells have the ability to transform into any cell type in the human body, they may provide a means of producing a host of new products of interest to medical researchers. It is likely that hES and iPS cells could be used to develop new cell lines designed to rebuild cell and tissue function otherwise lost due to degenerative disease or injury.

In 2007, ESI announced the world's first hES cell lines derived according to cGMP principles, i.e. the detailed procedures for all aspects of production that could potentially exert an impact on the safety and quality of a product. The FDA enforces cGMP regulations with respect to the manufacturing of human therapeutics for use in the U.S., and virtually every country across the globe maintains some analogous standards for quality control in the manufacture of therapeutic products for humans.

ESI and scientists from Sydney IVF, Australia's leading center for infertility and in vitro fertilization ("IVF") treatment, also published a scientific report, “The Generation of Six Clinical-Grade Human Embryonic Stem Cell Lines” (Cell Stem Cell 1: 490-494). The paper outlined the procedures used to document the production of clinical-grade hES cell lines derived on human feeder cells obtained from an FDA approved source, produced in a licensed cGMP facility, with donor consent and medical screening of donors. Combined with our ACTCellerate™ technology that allows for the derivation of a wide array of hEPCs with high levels of purity and scalability, and site-specific homeobox gene expression, we believe that ESI's clinical-grade master cell banks may be used to generate clonal clinical-grade embryonic progenitor cells - of great interest to the biopharmaceutical industry. We expect that the acquisition of ESI's clinical-grade hES cell bank will save years of development time and thereby accelerate the development of clinical-grade progenitor cells for potential use as research and therapeutic products.

ESI’s six cGMP hES cell lines have been approved by the NIH for inclusion in the Human Embryonic Stem Cell Registry, which renders those cell lines eligible for use in federally funded research.

The ESI hES cell lines are available for purchase through http://bioreagents.lifemapsc.com. We also market human Embryonic Progenitor Cells (hEPCs), under the PureStem™ brand, which were developed using ACTCellerate™ technology. These hEPCs are expected to possess the ability to become a wide array of cell types with potential applications in research, drug discovery, and human regenerative stem cell therapies. Our hEPCs are also available for sale through http://bioreagents.lifemapsc.com.

During November and December 2010, we signed agreements with the CIRM and the University of California system to distribute five research-grade and GMP compliant ESI hES cell lines to California-based researchers. We believe that making the GMP-grade cell lines available to researchers may streamline the translation of basic science into therapies. We provided research-grade cell lines free of charge to CIRM-funded and California-based researchers until April 30, 2011. The research-grade cells are now available to researchers through LifeMap Sciences, Inc. at http://bioreagents.lifemapsc.com.

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We have derived the complete genome sequence of five of the ESI hES cell lines to facilitate the development of products derived from these cell lines. We have made these GMP-grade cell lines, along with certain documentation and complete genomic DNA sequence information, available for sale. We will charge a price for the GMP-grade cell lines that covers our production and delivery costs. Although no royalties will be payable to us by researchers who acquire the cell lines for research use, researchers who desire to use the GMP cell lines for therapeutic or diagnostic products, or for any other commercial purposes, may do so only after signing commercialization agreements acceptable to us. Commercialization agreements under this program will entitle us to receive royalties on net sales not to exceed 2% of net sales, reducible to 1.5% if the researcher must pay any other royalties in connection with the commercialization of their product.

Human Embryonic Progenitor Cells

Through our subsidiary ReCyte Therapeutics we acquired a license from Advanced Cell Technology, Inc. ("ACT") to use ACTCellerate™ technology, and the rights to market more than 200 novel human cell types made using that process. This technology allows the rapid isolation of novel, highly purified hEPCs, which are cells that are intermediate in the developmental process between embryonic stem cells and fully differentiated cells. These cell lines are produced by the exogenous expression of specific transcription factors that regulate the differentiation of diverse cell types from hES or iPS cells. Not only are hEPCs expected to possess the ability to become a wide array of cell types with potential applications in research, drug discovery, and human regenerative stem cell therapies, they are relatively easy to manufacture on a large scale and in a purified state, which may make it more advantageous to work with them than directly with hES or iPS cells.

Commercial Distribution of PureStem™ hEPC

We now offer 12 PureStem™ hEPC for purchase through our subsidiary LifeMap Sciences at http://bioreagents.lifemapsc.com, and we anticipate adding additional PureStem™ hEPC and related ESpan™ growth media and differentiation kits over time. LifeMap Sciences is also undertaking new efforts to provide online biomedical database services through its LifeMap Discovery™ database to increase awareness of molecular markers and diverse cell types comprising our PureStem™ hEPC. Through BioTime's current inventory of over 200 hEPC, we plan to continually add additional PureStem™ cells to our product offering.

CIRM Grant TR-1276

On April 29, 2009, CIRM awarded us a $4,721,706 grant for a stem cell research project related to our ACTCellerate™ technology. Our grant is titled "Addressing the Cell Purity and Identity Bottleneck through Generation and Expansion of Clonal Human Embryonic Progenitor Cells." Research under this grant was completed on August 31, 2012.

Our CIRM-funded research addresses the need for industrial scale production of purified therapeutic cells. Unlike a drug that may persist in the body for a matter of hours or days, a cell can persist in the body for an entire lifetime, and therefore purity and precise identification of desired therapeutic cells are essential for developing cell-based therapies. Current methodologies for preparing cell therapeutics from hES or iPS cells typically involve complex and difficult derivation processes that result in heterogeneous populations of cells, only a portion of which is the intended therapeutic agent. The pluripotency that allows hES cells to differentiate into all types of cells also poses the problem of assuring that all hES cells in a cultured batch differentiate into the desired type of body cell. Contamination of hES or iPS derived cells with the wrong cells could lead to diseases or disorders resulting from normal but inappropriate tissue growth or tumor formation. However, because our hEPCs are clonal, meaning that they are derived from a single cell, they have the potential to grow as a highly purified and identified cell line. For this reason, this CIRM-funded research is of direct benefit to us in manufacturing cell types for the research markets and potential therapeutic product candidates.

The overall CIRM funded project provided well-characterized hEPCs that are precursors of therapeutic cells such as kidney, blood vessel, muscle, cartilage, and skin cells, among other cell types. The CIRM funding for this research project ended on August 31, 2012.

We received the quarterly payments from CIRM, totaling $790,192, during the second half of 2009, quarterly payments, totaling $1,575,523, during the year ended December 31, 2010, payments, totaling $1,570,663, during the year ended December 31, 2011, and totaling $392,665 during the year ended December 31, 2012. The final quarterly installment of $392,664 outstanding as of December 31, 2012 was collected in February 2013.

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hES Cells Carrying Genetic Diseases

We plan to add to our product line novel muscle progenitor cells produced from five hES cell lines carrying genes for Duchenne muscular dystrophy, Emery-Dreifuss muscular dystrophy, spinal muscular atrophy Type I, facioscapulohumeral muscular dystrophy 1A, and Becker muscular dystrophy. We have a contract to obtain the diseased hES cell lines from Reproductive Genetics Institute ("RGI"). Our goal is to produce highly purified and characterized progenitor cell types useful to the research community for applications such as drug screening for the development of therapies for these devastating diseases.

ESpan™ Cell Growth Media

Cell lines derived from hES and iPS cells that display novel cell signaling pathways (which are cell signals that regulate cell proliferation) may be used in screening assays for the discovery of new drugs. Since embryonic stem cells can now be derived through the use of iPS technology from patients with particular degenerative diseases, stem cells are increasingly likely to be utilized in a wide array of future research programs aimed to model disease processes in the laboratory and to restore the function of organs and tissues damaged by degenerative diseases such as heart failure, stroke, Parkinson's disease, macular degeneration, and diabetes, as well as many other chronic conditions.

We are marketing a line of cell-growth media products called ESpan™. These growth media are optimized for the growth of hEPC types. Cells need to be propagated in liquid media, in both the laboratory setting, where basic research on stem cells is performed, and in the commercial sector where stem cells will be scaled up for the manufacture of cell-based therapies or for the discovery of new drugs. We expect that rather than propagating hES cells in large quantities, many end users will instead propagate cells using media optimized for the propagation of hEPCs created from hES cells. Some of our ESpan™ products are currently marketed through Millipore Corporation.

ESpy® Cell Lines

Additional new products that we have targeted for launch in 2013 are ESpy® cell lines, which will be derivatives of hES cells and will emit beacons of light. The ability of the ESpy® cells to emit light will allow researchers to track the location and distribution of the cells in both in vitro and in vivo studies.

Renevia™ for Cell Delivery Medical Devices and HyStem® Hydrogel for Research

Our HyStem® hydrogel product line is one the components in our near-term revenue strategy. HyStem® is a patented biomaterial that mimics the ECM, the network of molecules surrounding cells in organs and tissues that is essential to cellular function. Many tissue engineering and regenerative cell-based therapies will require the delivery of therapeutic cells in a matrix or scaffold for proper function. HyStem® is a unique hydrogel that has been shown to support cellular attachment and proliferation in vivo. Current research at leading medical institutions has shown that HyStem® is compatible with a wide variety of tissue types including brain, bone, skin, neural, cartilage, and heart tissues.

We are developing Renevia™, a clinical grade HyStem® hydrogel, as an injectable product. Renevia™ may address an immediate need in cosmetic and reconstructive surgeries and other procedures by improving the process of transplanting adipose derived cells or other adult stem cells. Adult stem 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. However, the transplantation of cells without the molecular matrix in which cells normally reside often leads to widespread cell death or the failure of the transplanted cells to remain at the transplant site. The transfer of cells in Renevia™ may resolve these issues by localizing the transplanted cells at the intended site and by providing a three-dimensional scaffold upon which cells

can rebuild normal tissue. Renevia™ may support other emerging cell and tissue transplant therapies such as those derived from hES and iPS cells, in addition to its potential application in the treatment of a number of conditions such as osteoarthritis, brain tumors, stroke, bone fracture, and wounds.

We have successfully completed ISO 10993 biocompatibility studies for Renevia™. These tests, as prescribed by the International Organization for Standardization for permanent implantable medical devices, are required by the FDA and European Union regulatory authorities prior to beginning clinical studies in humans. The results of these preclinical studies successfully demonstrated the safety and biocompatibility of Renevia™.

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Our next milestone will be the completion of manufacture of clinical lots under cGMP by the second quarter of 2013 which will enable the initiation of clinical trials in the European Union by mid 2013. In its first clinical application, Renevia™ will be used with autologous adipose cells to restore subcutaneous tissue lost as a result of injury, oncologic resection, or congenital defects. Restoration of the normal skin contour is an important quality-of-life issue, not only in elective cosmetic procedures, but also in reconstructive surgeries needed to repair deformities and traumatic injuries to the face and upper extremities. Our plan is to bring Renevia™ to the medical market first in the EU, where the anticipated cost of the clinical trials would be relatively low. Once the use of Renevia™ in surgery is established in the EU, we plan to seek FDA approval to market Renevia™ in the larger American market where there are approximately 4 million surgical reconstructive procedures performed per year.

Other HyStem® hydrogels are currently being used by researchers at a number of medical schools in pre-clinical studies of stem cell therapies to facilitate wound healing; the treatment of ischemic stroke, brain cancer, and vocal fold scarring; and myocardial infarct repair. HyStem® hydrogels may have other applications when combined with the diverse and scalable cell types our scientists have isolated from hES cells. Our HyStem® technology forms the foundation for unique stem cell delivery products in both the adult and embryonic stem cell marketplace, including products manufactured using our ACTCellerate™ technology.

Subsidiaries Focused on Stem Cell-Based Therapies for Specific Diseases

OncoCyte: Novel Cancer Diagnostics and Therapeutics.

Formed in 2009, OncoCyte is developing novel products for the diagnosis and treatment of cancer based on genetic and embryonic stem cell-derived technology in order to improve both the quality and length of life of cancer patients. OncoCyte is developing products that should provide for earlier detection and more effective treatment of numerous cancers as well as developing cellular therapeutics for cancer treatment that will take advantage of the unique biology of vascular endothelial precursor cells.

PanC-DX™ for diagnosis of cancer

OncoCyte's lead diagnostic product is PanC-Dx™, a kit designed to detect the presence of various human cancers, including cancers of the breast, lung, bladder, uterus, stomach, and colon in blood during routine check-ups. PanC-Dx™ would require only a simple antibody-based blood test. Initial studies performed by OncoCyte have indicated that PanC-Dx™ may be useful for detecting a much wider range of cancer types than that detected by blood tests currently available to clinicians. By facilitating early non-invasive detection, PanC-Dx™ could lead to more successful therapeutic outcomes through earlier diagnosis and treatment while reducing the costs of cancer monitoring and increasing the availability of affordable cancer screening worldwide

Based on large unmet need, market size, and data generated thus far from patient sera screening, OncoCyte is initially focusing its PanC-Dx™ efforts on biomarkers associated with breast cancer. The apparent high correlation of certain combinations of biomarkers in breast cancer has made this indication an attractive initial target. OncoCyte's goal is to launch PanC-Dx™ in Europe in 2014 if clinical trials are successful, and later to seek FDA approval to market PanC-Dx™ in the U.S. A blood screening test for cancer markers meets the definition of an in vitro diagnostic product as defined in the European Directive on in vitro diagnostic medical devices (IVD). Under this directive, IVD products placed into the European market must bear the CE mark, which indicates the product is in conformity with all applicable requirements of safety, performance, instructions, markings, and quality sufficient for the safe and effective use of the product.

Our research has demonstrated that many of the same genes associated with the normal growth of embryonic stem cells are abnormally reactivated by cancer cells. Under this premise, we have established a proprietary dataset using

RNA microarray technology; this dataset contains expression levels of over 47,000 genes in over 500 unique samples, representing both normal and cancerous tissues and cell lines, including multiple human embryonic stem cell lines. This broad, bioinformatics-based approach has allowed us to identify numerous genes abnormally activated in cancer or tumor cells; many of these genes have not been previously associated with cancer. Moreover, expression of a large subset of these genes is common across numerous cancer types (e.g. cancers of the breast, colon, ovaries, etc.), suggesting these genes may control fundamental processes during cancer growth and progression. This gene expression data set presents numerous diagnostic product opportunities, such as tests designed to do the following: screen patient samples for the presence of cancer, determine which treatment courses have the best chances for producing a favorable response in individual patients, or monitor for the recurrence of a patient's cancer.

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OncoCyte has achieved several key advances during 2012, including:

Completion of the development and characterization of over 50 proprietary, patent pending, monoclonal antibodies targeting 7 novel cancer antigens. OncoCyte's findings show a significant elevation of these antigens in the blood of cancer patients when compared to healthy control patients;

Initiation of validation studies of ELISA assays in order to demonstrate high-sensitivity detection of target antigens using proprietary monoclonal antibodies;

Completion of large-scale manufacturing of 11 proprietary monoclonal antibodies;

Initiation of prototype development for a second detection format (solid phase ELISA point of care testing) through a collaborative development agreement; and

Initiation of clinical trial protocol design analysis in consultation with key opinion leaders and outside diagnostic experts.

OncoCyte's key goals for 2013 will be:

Completion of validation of proprietary ELISAs in a patient sample dataset;

Formalization of additional relationships with key opinion leaders at major medical institutions;

Institutional review board (IRB) approval and initiation of a large, prospective multicenter patient study at leading breast cancer institutions;

Presentation of key findings at major oncology-related scientific conferences; and

Submission of manuscripts to peer-reviewed scientific journals for publication.

Cancer Therapy

The goal of OncoCyte's therapeutic research and development efforts is to derive vascular endothelial cells that can be engineered to deliver a toxic payload to the developing blood vessels of a tumor, with the aim of removing malignant tumors while not affecting nearby normal tissues in the body. The progression of human solid tumors almost always requires the development of a support network of blood vessels to provide nutrients to the expanding tumor mass. The developing tumor vasculature affords an attractive target for anti-cancer therapeutics. Drugs targeting the growth of blood vessels have shown some efficacy in specific cancer applications. However, there is clear need for additional therapeutic approaches that can be used to treat advanced, metastatic cancers. OncoCyte intends to develop a new class of cellular therapeutics that would specifically target the development of tumor vasculature in advanced cancers as an entry point for the delivery of regulated tumoricidal activities.

On January 28, 2011, we acquired the assets of Cell Targeting, Inc. ("CTI"), including technology that uses peptides selected for their ability to adhere to diseased tissues. By coating or "painting" these peptides onto the surface of therapeutic cells using techniques that do not modify the cell physiology, CTI has produced tissue-specific and disease-specific cell modification agents with the potential to elevate cell therapy products to a new level of performance. OncoCyte is using this technology in the development of genetically modified hES-derived vascular progenitors designed to target and destroy malignant tumors.

On August 23, 2011, OncoCyte received $10.0 million in equity financing from us and a private investor. We believe that OncoCyte has sufficient capital to carry out its research and development plan during 2013. We may provide additional financing for OncoCyte, or obtain financing from third parties, based on our evaluation of progress made in its research and development program, any changes to or the expansion of the scope and focus of its research, and our projection of future costs.

We presently own 75.3% of the OncoCyte common stock outstanding. The other shares of OncoCyte common stock are owned by two private investors. OncoCyte has adopted a stock option plan under which it may issue up to 4,000,000 shares of its common stock to officers, directors, employees, and consultants of OncoCyte and BioTime. As of December 31, 2012, options to purchase 2,730,000 shares of OncoCyte common stock had been granted.

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OrthoCyte: Osteochondral Progenitor Cells for Orthopedic indications

OrthoCyte is our wholly owned subsidiary developing cellular therapeutics for orthopedic disorders. OrthoCyte's lead project is the development of hEPC to repair cartilage damaged by injury or disease, including osteoarthritis. OrthoCyte has identified several PureStem™ cells that display potential to differentiate into diverse types of cartilage, and these lines are showing promising results in animal preclinical testing for effectiveness of cartilage repair. Our current goal is to demonstrate the safety and efficacy of the cells using in vivo models of articular disease. OrthoCyte has compiled proprietary animal preclinical data on two therapeutic product candidates designated as OTX-CP03 and OTX-CP07, which are formulated in our HyStem® hydrogel, and which showed initial evidence of safety and efficacy in animal models of joint disease. If our studies in animal models prove successful, we would plan to initiate an Investigational New Drug ("IND") filing with the FDA for this application.

Cartilage defects and disease affect our aging population. In particular osteoarthritis and spinal disc degeneration have a significant impact on the mobility and health of an aging population. Current non-surgical treatments tend to target the reduction of pain and inflammation, as opposed to the repair of tissue damage and reversal of deterioration. To date, the development of cell-based therapeutics to treat damaged cartilage has met with mixed success. Autologous chondrocytes have been tested as a means of providing cartilage-producing cells, but this approach is hampered by a multi-step process that first requires the harvesting of chondrocytes from donor tissues, followed by in vitro culture expansion of the harvested cells. Primary chondrocytes have very limited capacity for in vitro expansion and typically lose their biological characteristics within a short period of in vitro culture. Mesenchymal stem cells have also been tested extensively as a source of cellular therapeutics for cartilage treatment, but success has remained limited, partly as a result of the hypertrophy of these cells inducing bone and fibrous tissue instead of permanent cartilage.

Additional in vitro testing suggests a wide range of possible applications for osteochondral PureStem™ cells. OrthoCyte is preparing to test the utility of various osteochondral PureStem™ cells that display potential to differentiate into bone and other types of cartilage-like tissues such as intervertebral disc tissue. In collaboration with world-renown academic institutes in the field of degenerative disc disease and back pain, PureStem™ cells formulated in our HyStem® hydrogel will be tested in spine disease animal models broadly recognized for their translation potential to clinical trial development. This screening phase should allow OrthoCyte to assess and potentially select a PureStem™ cell candidate for intervertebral disc repair and bone induction. We anticipate that successful selection of candidates would move our spine program to an optimization phase followed with a pre-IND meeting with FDA to discuss regulatory paths and additional expected pre-clinical requirements.

Chronic back pain is one of the largest unmet health economic burdens in modern society. With more than 85% lifetime prevalence, nearly everyone is affected in their lifetime. In most cases, chronic back pain stems from the progressive degeneration of the avascular intervertebral disc tissue which cushions the vertebrae in the spinal column. This tissue is structurally and functionally similar to other cartilage tissues. Currently there are no treatment options for people suffering from degenerative disc disease other than risky invasive surgery to fuse the affected discs. A therapy that would slow down or reverse disc degeneration to delay or avoid surgery would have a great impact in the largest musculoskeletal unmet need. Various biologic approaches using growth factors or cells from different adult tissues are in various phases of preclinical and early clinical development, but so far none have proven to work effectively. The opportunity for OrthoCyte to screen, and select a candidate with the appropriate attributes to effectively impact the disease process is an important differentiating factor from other competing technologies.

We presently own a 100% equity interest in OrthoCyte. We plan to provide additional equity capital to OrthoCyte or seek outside investors. OrthoCyte has adopted a stock option plan under which it may issue up to 4,000,000 shares of its common stock to officers, directors, employees, and consultants of OrthoCyte and BioTime. As of December 31, 2012, options to purchase 2,605,000 shares of OrthoCyte common stock had been granted.

Cell Cure Neurosciences

Cell Cure Neurosciences is developing cell therapies for retinal and neural degenerative diseases. Cell Cure Neurosciences is the neurological arm for BioTime's program for the development of human embryonic stem cell-based therapies.

Cell Cure Neurosciences' pipeline includes two major development programs at present:

Retinal cell therapies OpRegen™ and OpRegen-Plus™ are Cell Cure Neurosciences' proprietary formulations of embryonic stem cell-derived retinal pigmented epithelial ("RPE") cells developed to address the high, unmet medical needs of people suffering from age-related macular degeneration ("dry AMD"). OpRegen-Plus™ is a formulation of RPE cells bound to a membrane.

Cell therapy products for neurodegenerative diseases. Cell Cure Neurosciences is developing neural progenitor cells designed to replace the dopamine producing cells destroyed in Parkinson's disease, and NeurArrest™, neural cells that target and modulate the immune system's self-destruction of the myelin coating of nerve cells in multiple sclerosis.

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The U.S. Centers for Disease Control and Prevention estimate that about 1.8 million people in the U.S. have advanced-stage AMD, while another 7.3 million have an earlier stage of AMD and are at risk of vision impairment from the disease. Most people are afflicted with the dry form of the disease, for which there is currently no effective treatment. One of the most promising future therapies for age-related AMD is the replacement of the layer of damaged RPE cells that support and nourish the retina. In the past, RPE cells have been obtained from other regions of the diseased eye, or from fetal and adult donor tissue and various cell lines. However, the lack of a reliable and ample supply of healthy RPE cells has hindered the development of RPE transplantation as a therapeutic approach to AMD. RPE cells derived from hES cells may prove to be the best source of RPE cells for transplantation, provided the technology can be developed for producing RPE cells from hES cells in homogeneous, large quantities.

Cell Cure Neurosciences' research and development is conducted at Hadassah University Hospital, through research and consulting agreements with HBL-Hadasit Bio-Holding's ("HBL") affiliate Hadasit Medical Research Services and Development, Ltd. ("Hadasit"), under the direction of Professor Benjamin E. Reubinoff, Cell Cure Neurosciences' Chief Scientific Officer; Professor Eyal Banin, Cell Cure Neurosciences' Director of Clinical Affairs; and Professor Tamir Ben Hur.

Until now, researchers have had to rely on the spontaneous differentiation of hES cells into RPE cells, but that differentiation occurs in only a few hES cell lines. To achieve the full potential of hES cells for the production of RPE cells, a reliable, driven differentiation method is required. Cell Cure Neurosciences is using a new method developed by scientists at Hadassah University Hospital that drives the differentiation of hES cells into RPE cells. These researchers have shown in a small animal model of AMD that RPE cells produced using this method can preserve vision when the cells are transplanted in the subretinal space.

In October 2010, we, along with Teva Pharmaceutical Industries, Ltd. ("Teva") and HBL, invested $7.1 million in Cell Cure Neurosciences, primarily to fund the develop of OpRegen™. At the same time, Cell Cure Neurosciences and Teva entered into a Research and Exclusive License Option Agreement (the "Teva License Option Agreement") under which Teva obtained an option to acquire an exclusive worldwide license to complete the clinical development of, and to manufacture, distribute and sell OpRegen™ as well as OpRegen-Plus™. OpRegen-Plus™ is another proprietary product that Cell Cure Neurosciences is developing for the treatment of age-related macular degeneration, but in which the RPE cells are supported on or within a membrane instead of in suspension. OpRegen-Plus™ is at an earlier stage of laboratory development than OpRegen™.

If Teva exercises the option, it will pay Cell Cure Neurosciences $1,000,000. Thereafter, Teva will bear all costs and expense of clinical trials and of obtaining regulatory approvals required to market the product. Teva will make the milestone payments to Cell Cure Neurosciences as the clinical development and commercialization of the product progress. Milestone payments will be made upon the first use of the product in a Phase II clinical trial; the first use of the product in a Phase III clinical trial; the first commercial sale of the product in the U.S., and the first commercial sale of the product in a European Union country. If all of the milestones are met, Cell Cure Neurosciences will receive a total of $28.5 million in milestone payments, in addition to the $1,000,000 option payment, for the first approved medical indication of OpRegen™. Cell Cure Neurosciences would be entitled to receive certain additional milestone payments upon the first commercial sale of OpRegen™ for each additional medical indication in the U.S. or a European Union nation. In addition to milestone payments, Teva will pay Cell Cure Neurosciences royalties on the sale of the product, at rates ranging from 6% to 10% of the net sale price of OpRegen™ depending upon the total amount of annual sales. The royalty payments will be reduced by 50% with respect to sales in any country in which a generic equivalent product is being sold by a third party unrelated to Teva.

If Teva exercises its option to license OpRegen-Plus™, Teva and Cell Cure Neurosciences would enter into an additional license agreement on substantially the same terms as the OpRegen™ license, including the milestone payments for the first medical indication of OpRegen-Plus™, and additional milestone payments for the first sale of the

product for additional indications, royalties on net sales, and a share of any OpRegen-Plus™ sublicense payments the Teva might receive.

If Teva sublicenses its rights to a third party, Teva will pay Cell Cure Neurosciences a share of any payments of cash or other consideration that Teva receives for the sublicense, excluding (i) gross receipts for commercial sales that are subject to royalty payments to Cell Cure Neurosciences, (ii) amounts received from a sublicensee solely to finance research and development activities to be performed by or on behalf of Teva, or (iii) payments received in reimbursement for patent expenses incurred after the grant of the sublicense.

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A portion of milestone payments, royalties, and sublicensing payments received by Cell Cure Neurosciences would be shared with our subsidiary ESI and with Hadasit, which have licensed to Cell Cure Neurosciences certain patents and technology used in the development of OpRegen™ and OpRegen-Plus™. Those patents will be sublicensed to Teva under the Teva Option Agreement.

If Teva exercises its option and commercializes OpRegen™ or OpRegen-Plus™, its obligation to pay royalties on sales of those products will expire on a country by country and indication by indication basis with respect to a product on the later of (i) fifteen (15) years after the first commercial sale of the product for the applicable indication for use in that country, or (ii) the expiration in that country of all valid patent claims covering the applicable indication for use of the product. The patent expiration dates cannot be presently determined with certainty, but certain patents licensed to Cell Cure Neurosciences by ESI and Hadasit for use in the development of OpRegen™ and OpRegen-Plus™ will expire in 2023 and 2022, respectively.

The Teva License Option Agreement will terminate if (a) Teva does not exercise its option within 60 days after an IND application filed by Cell Cure Neurosciences becomes effective for a Phase I clinical trial of a product covered by the Teva License Option Agreement, or (b) Teva determines not to continue funding of the research and development of a product after Cell Cure Neurosciences has expended its designated budget plus certain cost over-runs. Teva may also terminate the Teva License Option Agreement at any time by giving Cell Cure Neurosciences 30-day notice. Either party may terminate the license if the other party commits a material breach of its obligations and fails to cure the breach within 45 days after notice from the other party, or if the other party becomes subject to bankruptcy, insolvency, liquidation, or receivership proceedings.

Cell Cure Neurosciences' cell therapy products under development for the treatment of neurodegenerative diseases include (a) neural progenitor cells designed to replace the dopamine producing cells destroyed in Parkinson's disease, and (b) Cell Cure Neurosciences' NeurArrest™ neural cells that target and modulate the immune system's self-destruction of the myelin coating of nerve cells in multiple sclerosis.

Parkinson's is an age-related disease caused by the loss of a certain type of cell in the brain. According to the Parkinson's Disease Foundation, Parkinson's disease affects approximately 1 million people in the U.S. and more than 4 million people worldwide. The median age for the onset of all forms of Parkinson's disease is 62, and the number of new cases is rising rapidly with the aging of the baby-boomer population. There is currently no cure for the disease.

While not a classic age-related disease, multiple sclerosis is also on the rise and the National Multiple Sclerosis Society estimates that there are about 400,000 persons with multiple sclerosis in the U.S. Most people are diagnosed with the disease between the ages of 20 and 50.

To advance its programs for the development of treatments for neurodegenerative diseases such as Parkinson's disease and multiple sclerosis, Cell Cure Neurosciences has entered into an Additional Research Agreement with Hadasit pursuant to which Hadasit will perform research services for Cell Cure Neurosciences over a period of five years. Cell Cure Neurosciences will pay Hadasit $300,000 per year for the research services over the course of the five-year term of the Additional Research Agreement. Hadasit will be entitled to receive a royalty on the sale of any products developed under the agreement and commercialized by Cell Cure Neurosciences. The amount of the royalty will be determined by future agreement between Hadasit and Cell Cure Neurosciences, taking into consideration their respective contributions to the development of the product, or if they fail to agree, the royalty terms will be determined by a third-party expert.

We have entered into a Third Amended and Restated Shareholders Agreement with Cell Cure Neurosciences, Teva, HBL, and ESI pertaining to certain corporate governance matters and rights of first refusal among the shareholders to purchase on a pro rata basis any additional shares that Cell Cure Neurosciences may issue. Under the agreement, the

shareholders also granted each other a right of first refusal to purchase any Cell Cure Neurosciences shares that they may determine to sell or otherwise transfer in the future. The number of members on the Cell Cure Neurosciences board of directors will be set at seven, whereby we will be entitled to elect four directors, HBL will be entitled to elect two directors, and Teva will be entitled to elect one director. These provisions were also included in an amendment to Cell Cure Neurosciences' Articles of Association.

In November 2012, we entered into a share purchase agreement with Cell Cure Neurosciences through which we agreed to purchase 87,456 Cell Cure Neurosciences ordinary shares in exchange for 906,735 BioTime common shares. As a result of the share purchase, which closed in January, 2013, BioTime owns, directly and through its wholly owned subsidiary ESI approximately 62.6% of the outstanding ordinary shares of Cell Cure Neurosciences.

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ReCyte Therapeutics— Treatment of Vascular Disorders

ReCyte Therapeutics focuses on developing treatments for vascular disorders, including both age-related diseases and injuries. The company was founded in January 2011 as a subsidiary of BioTime, Inc. with significant investment by private shareholders and by us.

The main therapeutic indications for ReCyte Therapeutics products include cardiovascular-related diseases (including cerebrovascular disease or stroke), peripheral artery disease resulting in critical limb ischemia (due to embolism or thrombosis), and acquired or secondary lymphedema. Therapeutics for cardiovascular-related diseases and complications of cancer treatment combined represent some of the largest, fastest-growing actual and potential markets due to the aging of the baby-boomer population. ReCyte Therapeutics is working to produce better, more potent therapeutics for these major unmet needs.

Cardiovascular-related diseases are among the leading causes of death and disability in the U.S., and they consume a major and ever-increasing proportion of health care costs. The National Academy of Sciences has estimated that a potential 58 million Americans are afflicted with cardiovascular disease.

Acquired lymphedema is caused by trauma to the lymphatic vasculature, and in women is an especially common complication of surgical or radiation treatment for breast and gynecologic malignancies. This affliction presents as chronic swelling and inflammation of an extremity caused by the accumulation of excess lymphatic fluid. It can begin weeks, months or years after treatment, and does not self-resolve in moderate to severe cases. Various published estimates place the proportion of female breast cancer survivors in the U.S. that will develop lymphedema over their lifetime at from 10% to 40% (200,000 to 400,000 women). Currently, there is no advanced pharmacologically-based treatment for this condition.

ReCyte Therapeutics' products are derived from hES and iPS pluripotent stem cells sources. They are being designed as either cellular or totally acellular (cell-free) compositions for specific uses. Acellular products (essentially, protein biologics) would represent an entirely new class of stem cell-derived therapeutics. Our approaches exploit the widely-held view that products derived from these most primitive sources have unparalleled potential to produce tissue regenerative responses, as compared to the varying amounts of fibrosis and scarring that typically result in marginal or incomplete therapeutic responses achieved with other, especially adult-derived cell products. Our "eternally youthful" cells also provide unequalled advantages for engineering and tailoring for specific applications during manufacturing stages without incurring a loss of growth potential.

ReCyte Therapeutics has established three core platform technologies with broad applications in developing to therapies for vascular disorders: (1) cell reprogramming to reverse developmental aging; (2) highly efficient derivation of endothelial progenitor cells; and (3) secreted trophic factors of embryonic progenitor cells (a cell-free or acellular product) that can guide tissue and organ regeneration.

These platform technologies are further described below:

Cell Reprogramming

We acquired licenses to intellectual property on reprogramming of cells to pluripotency using key transcription factors in the form of very early patent filings by our Chief Executive Officer, Dr. Michael West and co-inventors at Advanced Cell Technology, Inc. ("ACT"). ReCyte Therapeutics has filed patent applications on work at BioTime related to this technology. The advantages of cells that can be reprogrammed to a pluripotent state and then re-differentiated to a specific cell type needed by a patient, is that the process can be done using only the patient's own body cells, which should make the newly generated cells transplantable back into the patient without the need to

administer immunosuppressive drugs to prevent the patient's body from rejecting the transplant. ReCyte Therapeutics plans to develop a manufacturing process for the large scale reprogramming of human skin and blood cells by resetting telomere length and simultaneously resetting the cell's stage of development to the embryonic state. One application of the research and development effort under consideration is the establishment of a cost-effective manufacturing platform that would be the basis of a cell banking service. Another useful application would be the establishment of a so-called "reduced complexity library" of pluripotent stem cell lines representing the most common HLA types, so that cells and tissues derived from these may be suitable for transplantation to other recipients using reduced immunosuppressive regimens.

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Endothelial Progenitor Cells

Scientists at ReCyte Therapeutics and BioTime have invented and established a medium industrial-scale, highly consistent and GMP-compatible process for the directed differentiation of pure endothelial progenitor cells that may be used to repair or regenerate blood and lymphatic vasculature. Endothelial cells are the cells that form the linings of these vessels. These cells have been successfully cryopreserved as cell banks, and then have been recovered efficiently and demonstrated to retain their properties in tissue culture. Our derivation processes have been established under chemically-defined, serum-free, xeno-free (no exposure to any non-human component) conditions from multiple embryonic stem cell lines, including from our GMP-compatible, NIH-registered, ESI lines. These cells have been extensively characterized by gene expression profiling, surface antigen marker phenotyping, and functional assays in vitro. In addition, extensive characterization of our PureStem™ (ACTCellerate) library of hEPC (which were clonally derived from hES cell lines and selected for scalability in cell culture) has resulted in the identification of several lines with endothelial cell characteristics. Initial preclinical functional studies in vivo on both types of these cell products using well-established small animal models of vascular disorders are in progress. An example of the cross-functional interactions between us and other BioTime subsidiary companies is OncoCyte's investigation of these cells for homing to tumor targets in model systems. The ultimate goal of ReCyte's applications for this platform technology is to configure these cells as therapeutics that can be engrafted into patients with vascular disorders in order to quickly restore blood or lymphatic vessel integrity.

Trophic Factors

It is increasingly recognized in the cellular therapy field that therapeutic effects attributed to grafts of adult stem cells and other cell types obtained from bone marrow and blood are often the result of factors secreted by the cells (so-called "paracrine effects"), rather than the stable and functional integration of the cells themselves into the patient's damaged tissue. ReCyte Therapeutics' extensive characterization of our PureStem™ (ACTCellerate™) library of hEPC has resulted in the identification of certain lines that are abundant natural sources of extracellular secreted products such as cytokines, growth factors, and extracellular matrix (ECM) components. These substances are widely classified as "trophic factors," and some have been shown to have angiogenic (blood vessel-forming), cytoprotective, neurogenic and/or cardiogenic properties. We believe that natural counterparts to a number of these hEPC exist in developing embryos, where the trophic factors may provide instructions for the generation of specific organ systems and tissues. ReCyte Therapeutics is working to more fully characterize these trophic factors and to evaluate the cell lines as a source of novel therapeutic drugs for regenerative applications in patients with vascular disorders. This strategy could represent a significant breakthrough for improving drug biopotency. Additionally, acellular products may provide a more straightforward drug development pathway toward regulatory approval and broader off-the-shelf patient delivery capabilities than some cellular products.

With the capital obtained from a recent $2.5 million private equity financing, ReCyte Therapeutics will also begin preclinical studies to support future clinical trials of this new class of human therapeutics for vascular and blood disorders. These latter therapeutic uses of the cells will require testing and approval by regulatory agencies such as the FDA.

During August 2011, BioTime entered into a License Agreement with Cornell University for the worldwide development and commercialization of technology developed invented by Dr. Shahin Rafii and co-workers at Weill Cornell Medical College for the differentiation of hES cells into vascular endothelial cells. This technology may help to provide an improved means of generating vascular endothelial cells on an industrial scale and with stronger intellectual property protection. This technology could be utilized by us in diverse products, including those under development at ReCyte Therapeutics to treat age-related vascular diseases and injuries, and in products being developed at OncoCyte targeting the delivery of toxic payloads to cancerous tumors.

ReCyte Therapeutics plans to use the Cornell technology with the ACTCellerate™ technology to produce highly purified monoclonal embryonic vascular endothelium.

In conjunction with the Cornell License Agreement, during August 2011, we also entered into a three year Sponsored Research Agreement under which scientists at Weill Cornell Medical College, led by Dr. Sina Rabbany, will engage in research with the goals of (1) verifying the ability of progenitor cells, derived by ReCyte Therapeutics, to generate stable populations of vascular endothelial cells, (2) testing the functionality and transplantability of the vascular endothelial cells in animal models to see if the transplanted cells generate new vascular tissue, and (3) using HyStem® hydrogels, produced by our subsidiary OrthoCyte, and other materials as "scaffolds" for the three-dimensional propagation of vascular endothelial cells into vascular tissues suitable for transplantation.

We presently own 95.15% of the ReCyte Therapeutics common stock outstanding. The other shares of ReCyte Therapeutics common stock outstanding are owned by two private investors. ReCyte Therapeutics has adopted a stock option plan under which it may issue up to 4,000,000 shares of its common stock to officers, directors, employees, and consultants of ReCyte Therapeutics and BioTime. As of December 31, 2012, options to purchase 1,550,000 shares of ReCyte Therapeutics common stock had been granted.

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LifeMap Sciences

LifeMap Sciences markets GeneCards®, the leading human gene database, as part of an integrated database suite that includes LifeMap Discovery™, the database of embryonic development, stem cell research and regenerative medicine; and MalaCards, the human disease database. LifeMap Sciences also markets PanDaTox, a database that can be used to identify genes and intergenic regions that are unclonable in E. coli, to aid in the discovery of new antibiotics and biotechnologically beneficial functional genes. LifeMap Sciences makes its databases available for use by stem cell researchers at pharmaceutical and biotechnology companies and other institutions through paid subscriptions or on a fee per use basis. Academic institutions have free access to use the databases.

LifeMap Sciences is also offering our research products for sale, utilizing its databases as part of its strategy for marketing our research products online to reach life sciences researchers at biotech and pharmaceutical companies and at academic institutions and research hospitals worldwide. The LifeMap Discovery™ data base provides access to available cell-related information and resources necessary to improve stem cell research and development of therapeutics based on regenerative medicine and may promote the sale of our PureStem™ hEPC by permitting data base users to follow the development of hES cell lines to the purified hEPC state. This platform will also be utilized by us and our subsidiaries for internal and collaborative efforts.

We presently own 73.2% of the LifeMap Sciences common stock outstanding. The other shares of LifeMap Sciences common stock outstanding are owned by certain officers and directors of LifeMap Sciences and by other investors. LifeMap Sciences has adopted a stock option plan under which it may issue up to 1,842,269 shares of its common stock to officers, directors, employees, and consultants of LifeMap Sciences and BioTime. As of December 31, 2012, options to purchase 918,773 shares of LifeMap Sciences common stock had been granted.

BioTime Asia—Therapeutic and Research Products for Certain Asian Markets

BioTime Asia was organized to develop therapeutic products for the treatment of ophthalmologic, skin, musculoskeletal system, and hematologic diseases, including the targeting of genetically modified stem cells to tumors as a novel means of treating currently incurable forms of cancer. BioTime Asia will focus on markets in the People's Republic of China, including Hong Kong and Macau, but it may also offer research products in other Asian countries.

We may license to BioTime Asia the rights to use certain stem cell technology, and we may sell to BioTime Asia stem cell products for therapeutic use and for resale as research products. To the extent permitted by law, BioTime Asia will license back to us for use outside of the People's Republic of China any new technology that BioTime Asia might develop or acquire.

We presently own 81% of the BioTime Asia common stock outstanding. The other shares of BioTime Asia common stock outstanding are owned by Nanshan Memorial Medical Institute Limited ("NMMI"), a private Hong Kong company. Either we or NMMI may terminate the agreement under which NMMI acquired its shares in BioTime Asia if (a) certain clinical trial milestones are not met, including the commencement of the first clinical trial of a therapeutic stem cell product within two years; or (b) BioTime Asia's gross sales of products are less than $100,000,000 during any fiscal year after the sixth anniversary of the agreement; or (c) the other party breaches the agreement. We also have the right to purchase NMMI's shares of BioTime Asia.

BioTime Asia has adopted a stock option plan under which it may issue up to 1,600 ordinary shares to officers, directors, employees, and consultants of BioTime Asia and BioTime. As of December 31, 2012, options to purchase 400 BioTime Asia ordinary shares had been granted.

BioTime Acquisition Corporation and the Asset Contribution Agreement

In September 2012 we formed a new subsidiary, BAC, to acquire assets in the stem cell field for use in developing and commercializing products for regenerative medicine. On January 4, 2013, we and BAC entered into an Asset Contribution Agreement with Geron Corporation pursuant to which we and Geron will concurrently contribute certain assets to BAC in exchange for shares of BAC common stock and we will also acquire BAC stock purchase warrants. Closing of the asset contribution transaction is expected to occur in 2013 and specifically no later than September 30, 2013.

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Assets to Be Contributed

Pursuant to the Asset Contribution Agreement, we will contribute to BAC 8,902,077 BioTime common shares; warrants to purchase 8,000,000 additional BioTime common shares (the "Contribution Warrants") exercisable for a period of five years at an exercise price of $5.00 per share, subject to pro rata adjustment for certain stock splits, reverse stock splits, stock dividends, recapitalizations and other transactions; $5 million in cash (the "BioTime Cash Contribution"); 10% of the shares of common stock of OrthoCyte that were issued and outstanding on the date of the Asset Contribution Agreement; 6% of the ordinary shares of our subsidiary Cell Cure Neurosciences that were issued and outstanding on the date of the Asset Contribution Agreement; a quantity of certain human embryonic stem cell lines produced under "good manufacturing practices" and a non-exclusive, world-wide, royalty-free license to use those stem cell lines; and a non-exclusive, world-wide, royalty-free license to use certain patents pertaining to stem cell differentiation technology for any and all purposes.

Pursuant to the Asset Contribution Agreement, Geron will contribute to BAC Geron's human embryonic stem cell assets, including certain patents and know-how related to human embryonic stem cells; certain biological materials and reagents; certain laboratory equipment; certain contracts; Geron's Phase 1 clinical trial of oligodendrocyte progenitor (OPC-1) cells in patients with acute spinal cord injury, and Geron's autologous cellular immunotherapy program, including the Phase 2 clinical trial of autologous immunotherapy in patients with acute myelogenous leukemia; and certain regulatory filings, including the investigational new drug applications filed with the FDA for the two clinical trials.

The patent portfolio that BAC will acquire from Geron through the Asset Contribution Agreement includes over 400 patents and patent applications owned or licensed to Geron relating to human embryonic stem ("hES") cell-based product opportunities. This portfolio consists primarily of patents and patent applications owned by Geron, but also includes patent families licensed to Geron by third parties.

The patent portfolio includes patents and patent applications covering a number of cell types that can be made from hES cells, including hepatocytes (liver cells), cardiomyocytes (heart muscle cells), neural cells (nerve cells, including dopaminergic neurons and oligodendrocytes), chondrocytes (cartilage cells), pancreatic islet ß cells, osteoblasts (bone cells), hematopoietic cells (blood-forming cells) and dendritic cells. The patent portfolio also includes technologies for growing hES cells without the need for cell feeder layers, and novel synthetic growth surfaces.

The products that Geron had under development from various cell types that BAC will acquire from Geron are summarized in the following table:

Product Description	Target Market	Estimated Number of Potential Patients	Status
OPC1 – Glial Cells	Spinal Cord Injury	25,000 patients	SCI Phase 1 Trial initiated in U.S. 5 Patients treated – no adverse events to-date.
	Multiple Sclerosis, Canavan's Disease, and Stroke		Proof of principle achieved in animals models of spinal cord injury, MS spine and Canavan's Disease.
CM-1 Cardiomyocytes			

	Heart Failure, Myocardial Infarction		Cells derived and fully characterized. Proof of concept in three animal models of disease. Scalable manufacturing established. First in man clinical trial designed.
IC-1 – Islet Cells	Type 1 and some Type 2 Diabetes	12.5 million patients	Cells derived and partly characterized. Proof of concept in rodent diabetes model. Scalable manufacturing methods under development.
CHND-1 – Chondrocytes	Osteoarthritis	30 million patients	Cells derived and partly characterized. Early proof of concept in two animal models of disease.
VAC-2 – Dendritic Cells	Cancer Infectious and Autoimmune Diseases	Large patient population	Cells derived and fully characterized. Scalable manufacturing methods under development. Proof of concept established in multiple human in vitro systems.
VAC-1 Autologous Monocyte – Derived Dendritic Cells	Cancer	Prostate: 240,000 cases/year U.S. AML: > 12,000 cases/year U.S.	Phase I study in metastatic prostate cancer completed. (J. of Immunology 2005, 174: 3798-3807) Phase I/II study in AML completed. Manuscript in preparation.

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BAC has not yet determined which products it will seek to develop or the order of priority in which it will commence its product development efforts after the closing of the Asset Contribution under the Asset Contribution Agreement. The choice and prioritization of products for development from the acquired assets, and the cost and developmental time required to develop any of them, is not presently determinable due to many factors including the following:

the functional state of the transferred cells, cell lines and other biological reagents cannot be determined until they are transferred to BAC upon completion of the Asset Contribution and are then tested in an appropriate laboratory setting by qualified scientific personnel using validated equipment, which may not be completed for three to six months after the Asset Contribution;

BAC will need to complete an analysis of third party competitive and alternative technology that, for example, may provide superior methods of manufacturing the cell types listed above. Alternative technology, if it exists, may or may not be available for in-licensing, and could potentially affect the choice of products to develop;

BAC and BioTime will need to complete an analysis of products and technologies being developed by BioTime and our other subsidiaries to determine whether any of those products or technologies may enhance or be substituted for any of the acquired Geron cell lines or technologies;

the inherent uncertainty of laboratory research and any clinical trials that BAC may conduct;

the amount of capital that BAC will have for its development programs, including potential sources of additional capital through research grants or collaborations with third parties;

the availability and recruitment of qualified personnel to carry out the analyses and evaluations described above;

the views of the United States Food and Drug Administration (FDA) and comparable foreign regulatory agencies on the pre-clinical product characterization studies required to file an Investigational New Drug Application (IND) in order to initiate human clinical testing of potential therapeutic products.

BAC may also use the acquired assets, along with technology that it may develop itself or that it may acquire from third parties, to pursue the development of other products. BAC's product development efforts may be conducted by BAC alone or in collaboration with others if suitable co-development arrangements can be made.

Cash Contribution in BAC by Private Investor

A private investor has agreed to contribute $5 million in cash to BAC for 2,136,000 shares of BAC Series B common stock, and warrants to purchase 350,000 additional shares of BAC Series B common stock ("BAC Warrants"). That investment will be made in conjunction with the closing under the Asset Contribution Agreement. Closing of the cash contribution by the private investor is subject to certain other negotiated closing conditions. If for any reason the private investor fails to make the $5 million contribution, we will contribute cash, BioTime common shares (valued only for this purpose at $3.37 per share), or a combination of cash and BioTime common shares to BAC in an amount equal to the cash not contributed by the private investor and we will receive the BAC Series B common stock and BAC Warrants that otherwise would have been sold to the investor.

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The same private investor also entered into a Stock and Warrant Purchase Agreement with us pursuant to which the investor agreed to invest $5 million in us by purchasing, in two tranches, an aggregate of 1,350,000 BioTime common shares and warrants to purchase approximately 650,000 additional BioTime common shares. This investment is intended to fund the BioTime Cash Contribution. The first tranche, of $2 million, was funded during January 2013, and we issued 540,000 common shares and warrants to purchase 259,999 common shares to the investor. The second tranche of $3 million was originally intended to close later this year concurrent with the closing of the Asset Contribution Agreement. However, on March 7, 2013 we executed an amendment with the investor to accelerate the closing date to April 10, 2013. Upon closing of the second tranche, we will issue to the investor 810,000 common shares, and warrants to purchase an additional 389,998 common shares at an exercise price of $5.00 per share.

Assumption of Liabilities

BAC will assume all obligations and liabilities in connection with the assets contributed by Geron, to the extent such obligations and liabilities arise after the closing date of the Asset Contribution Agreement, including certain obligations to provide follow-up procedures with patients who participated in Geron's clinical trial of its OPC-1 stem cell product to treat spinal cord injury, and a clinical trial of an immunological therapy to treat acute myelogenous leukemia and other liabilities that could arise with respect to those clinical trials. Upon the closing under the Asset Contribution Agreement, BAC will be substituted for Geron as a party in an appeal by Geron of two rulings in favor of Viacyte, Inc. by the United States Patent and Trademark Office's Board of Patent Appeals and Interferences, filed by Geron in the United States District Court for the Northern District of California on September 13, 2012. BAC will assume all liabilities arising after the closing under the Asset Contribution Agreement with respect to that appeal the related patent interference proceedings and certain other pending patent interference proceedings.

Ownership of BAC Common Stock; Distribution of BAC Series A Common Shares and Contribution Warrants; Listing

Upon the closing under the Asset Contribution Agreement, we will own 21,773,340 shares of BAC Series B common stock and Geron will own 6,537,779 shares of BAC Series A common stock. Upon the sale of BAC shares to the private investor, the private investor will own 2,136,000 shares of BAC Series B common stock.

Geron has agreed to distribute to its stockholders on a pro rata basis the shares of BAC Series A common stock that Geron receives in the asset contribution transaction following the closing under the Asset Contribution Agreement. Following that distribution by Geron, BAC will distribute to the holders of its Series A common stock on a pro rata basis the 8,000,000 Contribution Warrants.

Following the distributions of the BAC Series A common stock by Geron to its stockholders, we will own, including the shares of BAC Series B common stock that we presently own, approximately 71.6% of the outstanding BAC common stock, the Geron stockholders will own approximately 21.4% of the outstanding BAC common stock and the private investor will own approximately 7.0%, of the outstanding BAC common stock.

We will also receive warrants to purchase 3,150,000 shares of BAC Series B common stock and the private investor will receive warrants to purchase 350,000 shares of BAC Series B common stock (together, the "BAC Warrants"). The BAC Warrants will enable us, together with the private investor, to increase our collective ownership in BAC by approximately 2.2%, which would reduce the Geron stockholders' ownership in BAC to approximately 19.2%. The BAC Warrants will have an exercise price of $5.00 per share and a term of three years. The exercise price per share and number of shares that may be purchased upon the exercise of the BAC Warrants will be subject to adjustment in the event of any BAC stock split, reverse stock split, stock dividend, reclassification of shares and certain other transactions.

The BAC Series A and Series B common stock will be identical in most respects, however, BAC will be entitled to make certain distributions or pay dividends, other than stock dividends, on its Series A common stock, without making a distribution or paying a dividend on its Series B common stock. The BAC Series B common stock may be converted into BAC Series A common stock, on a share for share basis, at BAC's election, only after Geron distributes to its stockholders the BAC Series A common stock issued under the Asset Contribution Agreement and BAC subsequently distributes to the BAC Series A common stock holders the Contribution Warrants.

BAC plans to seek to list its Series A common stock, and BioTime intends to seek to list the Contribution Warrants, on a national securities exchange.

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Representations, Warranties and Covenants

The Asset Contribution Agreement contains representations, warranties and covenants of the parties customary for a transaction of this type. Until the earlier of the closing of the asset contribution transaction and the termination of the Asset Contribution Agreement, (i) Geron is not permitted to solicit inquiries or engage in discussions with third parties regarding any proposal to acquire more than an immaterial portion of the assets to be contributed by Geron to BAC, subject to Geron's ability to solicit and engage in certain change of control transactions other than a change of control transaction that would reasonably be expected to adversely affect, materially delay or prevent the consummation of the asset contribution transaction, and (ii) we and BAC are not permitted to solicit inquiries or engage in discussions with third parties regarding any proposal for a transaction that could reasonably be expected to materially delay or prevent the asset contribution transaction, subject to the fiduciary duties of our board of directors. In addition, certain covenants under the Asset Contribution Agreement require each party to use reasonable best efforts to cause the asset contribution transaction to be consummated.

Additionally, we are required to promptly seek the approval of our shareholders of an amendment of our Articles of Incorporation increasing the number of authorized common shares and preferred shares that we may issue, and approving the issuance of the BioTime common shares and warrants to be issued in the asset contribution transaction and the related BioTime share and warrant sale to the private investor (the "Shareholder Proposals"). In addition, we are required under the Asset Contribution Agreement to file a registration statement (the "BioTime Registration Statement") to register under the Securities Act of 1933, as amended (the "Securities Act") the Contribution Warrants and the underlying BioTime common shares, and to use our reasonable best efforts to cause the BioTime Registration Statement to be declared effective by the SEC. BAC is required to file a registration statement (the "BAC Registration Statement" and, together with the BioTime Registration Statement, the "Registration Statements") with the SEC to register the BAC Series A common stock to be issued to Geron, and to use its reasonable best efforts to cause the BAC Registration Statement to be declared effective.

Closing Conditions

Closing of the asset contribution transaction is subject to certain negotiated conditions, including: the effectiveness of both Registration Statements under the Securities Act; the effectiveness of the insurance policy described, and the approval by our shareholders of the issuance of the BioTime shares and warrants in the transaction and the amendment of BioTime's Articles of Incorporation to increase our authorized capital stock from 75,000,000 common shares and 1,000,000 preferred shares to 125,000,000 common shares and 2,000,000 preferred shares (the "Shareholder Proposals").

Indemnification

We and BAC have agreed to indemnify Geron from and against certain liabilities relating to (a) Geron's distribution of the BAC Series A common stock to Geron's stockholders, (b) BAC's distribution of the Contribution Warrants to the holders of BAC Series A common stock and (c) any distribution of securities by BAC to the holders of the BAC Series A common stock within one year following the closing under the Asset Contribution Agreement, from the date of the first effective date of either of the Registration Statements through the fifth anniversary of the earliest to occur of the date on which all of the Contribution Warrants have either expired, or been exercised, cancelled or sold. We have also agreed to use our reasonable best efforts to obtain at our cost and expense prior to the closing under the Asset Contribution Agreement a policy of insurance to provide $10 million in coverage for our indemnification obligations for a period of five years after the earliest effective date of either of the Registration Statements.

BioTime and BAC have also agreed to indemnify Geron, and Geron has agreed to indemnify BioTime and BAC, from and against certain expenses, losses, and liabilities arising from, among other things, breaches of the indemnifying

party's 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 limited exceptions, is limited to $2 million.

Termination of the Asset Contribution Agreement

Each of the parties has certain rights to terminate the Asset Contribution Agreement in certain circumstances. Among other things, each of Geron and BioTime is permitted to terminate the Asset Contribution Agreement in the event our shareholders fail to approve the Shareholder Proposals and Geron is permitted to terminate the Asset Contribution Agreement if our board of directors withdraws its recommendation to our shareholders to approve the Shareholder Proposals or if any of our directors who has signed a Support Agreement (described below) materially breaches his Support Agreement, in each case subject to certain exceptions set forth in the Asset Contribution Agreement.

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Termination Fee

We will be required to pay Geron a termination fee of $1.8 million in certain circumstances if the Asset Contribution Agreement is terminated and (a) our board of directors has withdrawn its recommendation to our shareholders to approve the Shareholder Proposals, (b) any of the directors who signed a Support Agreement has materially breached his Support Agreement, or (c) our shareholders failed to approve the Shareholder Proposals.

Expense Reimbursement

If the closing under the Asset Contribution Agreement occurs, we are required to pay to Geron, as partial reimbursement of fees and expenses incurred by Geron's advisors, $750,000, either in cash or, at our election, by issuing to Geron additional BioTime common shares, or a combination of cash and common shares. Any common shares that we decide to issue for that purpose would be valued based on the volume-weighted average per share closing price of our common shares for the twenty consecutive trading days immediately prior to the closing under the Asset Contribution Agreement. If we choose to issue BioTime common shares, we anticipate that we would issue no more than 187,500 common shares for this purpose.

Royalty and Sublicense Agreements

Concurrently with the closing under the Asset Contribution Agreement, BAC and Geron will enter into a Royalty Agreement pursuant to which BAC will pay to Geron royalties on the sale of products that are developed and commercialized, if any, in reliance upon Geron patents contributed to BAC.

Geron will sublicense to BAC, on an exclusive, world-wide, basis, certain patents for the purpose of using telomerase as an antigen in the development of certain immunological therapy products. BAC will pay Geron licensing fees for the use of the sublicensed patents and a royalty on sales of products developed and commercialized in reliance upon the sublicensed patents, and BAC will agree to indemnify Geron, Geron's licensor, and certain other parties from certain liabilities.

Support Agreements and Indemnification Agreements

Three of our directors, Neal C. Bradsher, Alfred D. Kingsley, and Michael D. West, an investment partnership managed by Mr. Bradsher as general partner, and an investment partnership and corporation managed and controlled by Mr. Kingsley, have entered into Support Agreements for the benefit of Geron under which they have agreed to vote all of the BioTime common shares that they own on the record date of the BioTime shareholders meeting and continue to own on the date of that meeting in favor of the Shareholder Proposals. They have also agreed to vote their BioTime common shares against (a) any extraordinary corporate transaction, such as a merger, consolidation or other business combination, involving us or any of our affiliates, which is intended, or could reasonably be expected, to materially delay or prevent the consummation of the asset contribution transaction; (b) any dissolution or liquidation of BioTime; and (c) any other action which is intended, or could reasonably be expected, to materially delay or prevent the consummation of the asset contribution transaction. The Support Agreements will terminate on the earlier of the closing under the Asset Contribution Agreement and termination of the Asset Contribution Agreement. As of January 31, 2013, the BioTime common shares subject to the Support Agreements represented in the aggregate approximately 33.4% of the outstanding BioTime common shares, but the number of shares subject to the Support Agreements may fluctuate as the BioTime shareholders that entered into Support Agreements have certain rights to transfer shares covered by those Support Agreements.

We have entered into Indemnification Agreements with Mr. Bradsher and an investment partnership managed by Mr. Bradsher, and with Mr. Kingsley and an investment partnership and corporation managed and controlled by Mr.

Kingsley, under which we will indemnify them from any liabilities and related expenses arising from the performance of their agreements under their respective Support Agreements. Our indemnification obligation does not apply to any liabilities or expenses arising from a breach of their Support Agreements. The Indemnification Agreements were approved by our board of directors, and by our Audit Committee pursuant to our Related Persons Transaction Policy

Licensed Stem Cell Technology and Stem Cell Product Development Agreements

We have obtained the right to use stem cell technology that we believe has great potential in our product development efforts, and that may be useful to other companies that are engaged in the research and development of stem cell products for human therapeutic and diagnostic use.

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Wisconsin Alumni Research Foundation

We have entered into a Commercial License and Option Agreement with Wisconsin Alumni Research Foundation ("WARF"). The WARF license permits us and our subsidiaries to use certain patented and patent pending technology belonging to WARF, as well as certain stem cell materials, for research and development purposes, and for the production and marketing of "research products" and "related products." "Research products" are products used as research tools, including in drug discovery and development. "Related products" are products other than research products, diagnostic products, or therapeutic products. "Diagnostic products" are products or services used in the diagnosis, prognosis, screening or detection of disease in humans. "Therapeutic products" are products or services used in the treatment of disease in humans.

Under the WARF license agreement, we paid WARF a license fee of $225,000 in cash and $70,000 worth of our common shares. A maintenance fee of $25,000 will be due annually on March 2 of each year during the term of the WARF license beginning March 2, 2010. We also paid WARF $25,000 toward reimbursement of the costs associated with preparing, filing, and maintaining the licensed WARF patents.

We will pay WARF royalties on the sale of products and services under the WARF license. The royalty will be 4% on the sale of research products and 2% on the sale of related products. The royalty is payable on sales by us or by any sublicensee. The royalty rate is subject to certain reductions if we also become obligated to pay royalties to a third party in order to sell a product.

We have an option to negotiate with WARF to obtain a license to manufacture and market therapeutic products, excluding products in certain fields of use. The issuance of a license for therapeutic products would depend upon our submission and WARF's acceptance of a product development plan, and our reaching agreement with WARF on the commercial terms of the license such as a license fee, royalties, patent reimbursement fees, and other contractual matters.

The WARF license shall remain in effect until the expiration of the latest expiration date of the licensed patents. However, we may terminate the WARF license prior to the expiration date by giving WARF at least 90 days written notice, and WARF may terminate the WARF license if we fail to make any payment to WARF, fail to submit any required report to WARF, or commit any breach of any other covenant in the WARF license, and we fail to remedy the breach or default within 90 days after written notice from WARF. The WARF license may also be terminated by WARF if we commit any act of bankruptcy, become insolvent, are unable to pay our debts as they become due, file a petition under any bankruptcy or insolvency act, or have any such petition filed against us which is not dismissed within 60 days, or if we offer our creditors any component of the patents or materials covered by the WARF license.

ACTCellerate™ Technology

ReCyte Therapeutics has entered into a license agreement with ACT that was subsequently assigned to us under which we acquired exclusive world-wide rights to use ACT's ACTCellerate™ technology for methods to accelerate the isolation of novel cell strains from pluripotent stem cells. The licensed rights include pending patent applications, know-how, and existing cells and cell lines developed using the technology. We market PureStem™ cells which were developed using ACTCellerate™ technology.

The licensed technology is designed to provide a large-scale and reproducible method of isolating clonally purified hEPC , many of which may be capable of extended propagation in vitro. Initial testing suggests that the technology may be used to isolate at least 200 distinct clones that contain many previously uncharacterized cell types derived from all germ layers that display diverse embryo- and site-specific homeobox gene expression. Despite the expression

of many oncofetal genes, none of the hEPC tested led to tumor formation when transplanted into immunocompromised mice. The cells studied appear to have a finite replicative lifespan but have longer telomeres than most fetal- or adult-derived cells, which may facilitate their use in the manufacture of purified lineages for research and human therapy. Information concerning the technology was published in the May 2008 edition of the journal Regenerative Medicine.

BioTime has the right to use the licensed technology and cell lines for research purpose and for the development of therapeutic and diagnostic products for human and veterinary use, and also has the right to grant sublicenses.

We paid ACT a $250,000 license fee and will pay an 8% royalty on sales of products, services, and processes that utilize the licensed technology. Once a total of $1,000,000 of royalties has been paid, no further royalties will be due.

ACT may reacquire royalty-free, worldwide licenses to use the technology for RPE cells, hemangioblasts, and myocardial cells, on an exclusive basis, and for hepatocytes, on a non-exclusive basis, for human therapeutic use. ACT will pay us $5,000 for each license that it elects to reacquire.

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The term of the licenses from ACT expire on the later of July 9, 2028 or the expiration of the last to expire of the licensed patents. The patent expiration dates cannot be presently determined with certainty because the patents are pending. ACT may terminate the license agreement if we commit a breach or default in the performance of our obligations under the agreement and fail to cure the breach or default within the permitted cure periods. BioTime has the right to terminate the license agreement at any time by giving ACT three months prior notice and paying all amounts due ACT through the effective date of the termination.

iPS Cell Technology

ReCyte Therapeutics has entered into a license agreement and a sublicense agreement with ACT under which it acquired worldwide rights to use an array of ACT technology and technology licensed by ACT from affiliates of Kirin Pharma Company, Ltd. ("Kirin"). The ACT license and Kirin sublicense permit the commercialization of products in human therapeutic and diagnostic product markets.

The licensed technology covers iPS methods to transform cells of the human body, such as skin cells, into an embryonic state in which the cells will be pluripotent. Because iPS technology does not involve human embryos or egg cells, and classical cloning techniques are not employed, the use of iPS technology may eliminate some ethical concerns that have been raised in connection with the procurement and use of hES cells in scientific research and product development.

The portfolio of licensed patents and patent applications covers methods to produce iPS cells that do not carry viral vectors or added genes. Other iPS cell technology currently being practiced by other researchers utilizes viruses and genes that are likely incompatible with human therapeutic uses. We believe that technologies that facilitate the reprogramming of human cells to iPS cells without using viruses could be advantageous in the development of human stem cell products for use in medicine.

The Kirin sublicense covers patent application for methods for cloning mammals using reprogrammed donor chromatin or donor cells and methods for altering cell fate. These patent applications are related to technology to alter the state of a cell by exposing the cell's DNA to the cytoplasm of another reprogramming cell with different properties. ReCyte Therapeutics may use this licensed technology for all human therapeutic and diagnostic applications.

A second series of patent applications licensed non-exclusively from ACT includes technologies for:

- the use of reprogramming cells that over-express RNAs for the genes OCT4 , SOX2 , NANOG , and MYC , and other factors known to be useful in iPS technology;
- methods of resetting cell lifespan by extending the length of telomeres;
- the use of the cytoplasm of undifferentiated cells to reprogram human cells;
- the use of a cell bank of hemizygous O-cells;
- methods of screening for differentiation agents; and
- the use of modified stem cell-derived endothelial cells to disrupt tumor angiogenesis.

ReCyte Therapeutics may use this technology in commercializing the patents licensed under the Kirin sublicense.

The ACT license also includes patent applications for other uses. One licensed patent application covers a method of differentiation of morula or inner cell mass cells and a method of making lineage-defective embryonic stem cells. That technology can be used in producing hEPCs without the utilization of hES cell lines. Another licensed patent application covers novel culture systems for ex vivo development that contains technology for utilizing avian cells in the production of stem cell products free of viruses and bacteria.

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ACT iPS Cell License Provisions

Under the ACT license for iPS cell technology, we paid ACT a $200,000 license fee and ReCyte Therapeutics will pay a 5% royalty on sales of products, services, and processes that utilize the licensed technology, and a 20% royalty on any fees or other payments, other than equity investments, research and development costs, and loans and royalties, received by us from sublicensing the ACT technology to third parties. Once a total of $600,000 of royalties has been paid, no further royalties will be due.

We may use the licensed technology and cell lines for research purposes and for the development of therapeutic and diagnostic products for human and veterinary use, excluding (a) human and non-human animal cells for commercial research use, including small-molecule and other drug testing and basic research; and (b) human cells for therapeutic and diagnostic use in the treatment of human diabetes, liver diseases, retinal diseases and retinal degenerative diseases, other than applications involving the use of cells in the treatment of tumors where the primary use of the cells is the destruction or reduction of tumors and does not involve regeneration of tissue or organ function. The exclusions from the scope of permitted uses under the ACT license will lapse if ACT's license with a third party terminates or if the third party no longer has an exclusive license from ACT for those uses. Therefore, our cell lines marketed for research use are produced from hES cell lines (and not from iPS cells). In the therapeutic arena, ReCyte Therapeutics' use of the licensed iPS cell technology will be for applications such as its blood and vascular products.

The license to use some of the ACT iPS technology is non-exclusive, and is limited to use in conjunction with the technology sublicensed from ACT under the Kirin sublicense, and may not be sublicensed to third parties other than subsidiaries and other affiliated entities. ReCyte Therapeutics has the right to grant sublicenses to the other licensed ACT technology.

ReCyte Therapeutics will have the right to prosecute the patent applications and to enforce all patents, at our own expense, except that ACT is responsible for prosecuting patent applications for the non-exclusively licensed technology at its own expense. We will have the right to patent any new inventions arising from the use of the licensed patents and technology.

ReCyte Therapeutics will indemnify ACT for any products liability claims arising from products made by us and our sublicensees.

The term of the licenses from ACT expire on the later of August 14, 2028 or the expiration of the last to expire of the licensed patents. The patent expiration dates cannot be presently determined with certainty because certain patents are pending, but the latest expiration date of the licensed patents that have issued is 2025. ACT may terminate the license agreement if ReCyte Therapeutics commits a breach or default in the performance of its obligations under the agreement and fail to cure the breach or default within the permitted cure periods. ReCyte Therapeutics has the right to terminate the license agreement at any time by giving ACT three months prior notice and paying all amounts due ACT through the effective date of the termination.

Kirin Sublicense Provisions

The technology licensed from Kirin relates to methods of reprogramming human and animal cells. Under the Kirin sublicense, we paid ACT a $50,000 license fee and ReCyte Therapeutics will pay a 3.5% royalty on sales of products, services, and processes that utilize the licensed ACT technology, and 20% of any fees or other payments, other than equity investments, research and development costs, and loans and royalties that it may receive from sublicensing the Kirin technology to third parties. ReCyte Therapeutics will also pay to ACT or to an affiliate of Kirin, annually, the amount, if any, by which royalties payable by ACT under its license agreement with Kirin are less than the $50,000 annual minimum royalty due. Those payments will be credited against other royalties payable to ACT under the Kirin

sublicense.

ReCyte Therapeutics may use the sublicensed technology for the development of therapeutic and diagnostic human cell products, including both products made, in whole or in part, of human cells, and products made from human cells. ReCyte Therapeutics has the right to grant further sublicenses.

ReCyte Therapeutics will indemnify ACT for any products liability claims arising from products made by it and its sublicensees. The licenses will expire upon the expiration of the last to expire of the licensed patents, or May 9, 2016 if no patents are issued. The patent expiration dates cannot be presently determined with certainty because certain patents are pending, but the latest expiration date of the licensed patents that have issued is 2025. ACT may terminate the license agreement if ReCyte Therapeutics commits a breach or default in the performance of its obligations under the agreement and fail to cure the breach or default within the permitted cure periods. ReCyte Therapeutics has the right to terminate the license agreement at any time by giving ACT three months prior notice and paying all amounts due ACT through the effective date of the termination.

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HyStem® Hydrogel Technology

Through our acquisition of Glycosan, we acquired a license from the University of Utah to use certain patents in the production and sale of hydrogel products. During August 2012, we entered into an amendment to our License Agreement with the University of Utah that expanded the field of use for which we are licensed to produce and market products covered by the core patents underlying our HyStem® technology. We now have a worldwide license for all uses, with the exception of veterinary medicine and animal health. Our licensed field of use includes, but is not limited to, all human pharmaceutical and medical device applications, all tissue engineering and regenerative medicine uses, and all research applications. Previously, our license in the United States was not exclusive and the fields of use of the technology permitted by the license were not as broad.

Under the License Agreement, we will pay a 3% royalty on sales of products and services performed that utilize the licensed patents. Commencing in 2014, we will be obligated to pay minimum royalties to the extent that actual royalties on products sales and services utilizing the patents are less than the minimum royalty amount. The minimum royalty amounts are $22,500 in 2014, and $30,000 each year thereafter during the term of the License Agreement. We will also pay the University of Utah 30% of any sublicense fees or royalties received under any sublicense of the licensed patents.

We will pay the University of Utah $5,000 upon the issuance of each of the first five licensed patents issued in the U.S., subject to reduction to $2,500 for any patent that the University has licensed to two or more other licensees for different uses. We will also pay a $225,000 milestone fee within six months after the first sale of a “tissue engineered product” that utilizes a licensed patent. A tissue engineered product is defined as living human tissues or cells on a polymer platform, created at a place other than the point-of-care facility, for transplantation into a human patient.

We agreed to pay and an additional license fee for the additional rights licensed to us during August 2012, and the costs of filing, prosecuting, enforcing and maintaining the patents exclusively licensed to us, and a portion of those costs for patents that have been licensed to a third party for a different field of use.

Commencing in five years, we may, under certain circumstances, be obligated to sublicense to one or more third parties, on commercially reasonable terms to be negotiated between us and each prospective sublicensee, or re-grant to the University, rights to use the licensed patents for products and services outside the general industry in which we or any of our affiliates or sublicensees is then developing or commercializing, or has plans to develop or commercialize, a product using the licensed technology.

Stem Cell Agreement with Reproductive Genetics Institute

In 2009, we entered into a Stem Cell Agreement with RGI pursuant to which we obtained the non-exclusive right to acquire RGI’s proprietary stem cell lines. The Stem Cell Agreement grants us rights to market new hES lines selected by us from 294 hES lines derived by RGI. We will initially select 10 RGI hES cell lines, and may add additional cell lines at our option. We will receive starting cultures of the cell lines we select, and will scale up those cell lines for resale as research products. Because our rights are non-exclusive, RGI will retain the right to market and use its stem cell lines for its own account. RGI is a leading fertility center that screens embryos for genetic disorders, such as cystic fibrosis and muscular dystrophy, prior to implantation. The RGI hES lines include both normal cells and 88 cell lines identified as carrying a host of inherited genetic disease genes, some of which we plan to sell as research products to universities and companies in the bioscience and pharmaceutical industries.

We will pay RGI a royalty in the amount of 7% of net sales of RGI-derived cells sold for research purposes such as the use of cells to test potential new drugs or diagnostic products. The Stem Cell Agreement requires us to sell the RGI cells for a minimum price of $7,500 per ampoule of cells. We also agreed to sell to RGI any cells that we derive

from RGI stem cells at a price equal to 50% of the lowest price at which we sell those cells to third parties.

We will be marketing the acquired cells for research purposes only. However, the Stem Cell Agreement allows us and RGI to develop therapeutic or diagnostic uses of the cells, subject to approval by a joint steering committee composed of our officers and RGI officers. In the absence of an agreement by the steering committee for a different revenue-sharing arrangement, and provided that we are successful in developing and commercializing one or more of those products for therapeutic or diagnostic uses, we would pay RGI a royalty based on net sales of each product. The royalty rate would be 50% of net sales of the product, minus one-half of any other royalties required to be paid to third parties. None of the RGI cells have been approved by the FDA or any equivalent foreign regulatory agency for use in the treatment of disease, and we do not have any specific plans for the development of RGI stem cells for use in the treatment or diagnosis of disease in humans.

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Our agreement with RGI is scheduled to terminate on December 31, 2039 but will be automatically extended for an additional ten years, unless we or RGI elect not to extend the term of the agreement. If the initial term of the agreement is extended for ten years, the extended term will be automatically extended for an additional period of ten years, unless we or RGI elect not to extend the term of the agreement for the additional period. RGI may terminate the agreement if we commit a breach or default in the performance of our obligations under the agreement and fail to cure the breach or default within the permitted cure periods. We have the right to terminate the agreement at any time by giving RGI 30-day prior notice and paying all royalties due with respect to the sale of cell products that occurred prior to the date of termination.

Sanford-Burnham Medical Research Institute

Through our acquisition of the assets of CTI, we acquired a royalty-bearing, exclusive, worldwide license from the Sanford-Burnham Medical Research Institute ("SBMRI") permitting us and OncoCyte to use certain patents pertaining to homing peptides for preclinical research investigations of cell therapy treatments, and to enhance cell therapy products for the treatment and prevention of disease and injury in conjunction with our own proprietary technology or that of a third party. We have the right to grant sublicenses with notice to SBMRI.

OncoCyte will pay SBMRI a royalty of 4% on the sale of pharmaceutical products, and 10% on the sale of any research-use products that we develop using or incorporating the licensed technology; and 20% of any payments we receive for sublicensing the patents to third parties. The royalties payable to SBMRI may be reduced by 50% if royalties or other fees must be paid to third parties in connection with the sale of any products. An annual license maintenance fee is payable each year during the term of the license, and after commercial sales of royalty bearing products commence, the annual fee will be credited towards our royalty payment obligations for the applicable year.

OncoCyte will reimburse SBMRI for its costs incurred in filing, prosecuting, and maintaining patent protection, subject to our approval of the costs. The reimbursement rate ranges from 33-100% of the prosecution and maintenance costs. OncoCyte has assumed in house primary responsibility for the prosecution of some of the SBMRI licensed patents. OncoCyte will indemnify SBMRI against liabilities that may arise from our use of the licensed patents in the development, manufacture, and sale of products, including any product liability and similar claims that may arise from the use of any therapeutic products that we develop using the SBMRI patents.

The license will terminate on a product-by-product and country-by-country basis, when the last-to-expire patent expires. The patent expiration dates cannot be presently determined with certainty because certain patents are pending, but the latest expiration date of the licensed patents that have issued is 2025. OncoCyte may terminate the license agreement by giving SBMRI 60-day notice. SBMRI may terminate the license agreement if OncoCyte fails to make license or royalty payments or to perform our reporting obligations after applicable cure periods.

Hadasit Research and License Agreement

Cell Cure Neurosciences has entered into an Amended and Restated Research and License Agreement under which it received an exclusive license to use certain of Hadasit's patented technologies for the development and commercialization for hES cell-derived cell replacement therapies for retinal degenerative diseases. Cell Cure Neurosciences paid Hadasit 249,058 New Israeli Shekels as a reimbursement for patent expenses incurred by Hadasit, and pays Hadasit quarterly fees for research and product development services under a related Product Development Agreement.

If Teva exercises its option to license OpRegen™ or OpRegen-Plus™, Cell Cure Neurosciences will pay Hadasit 30% of all payments made by Teva to Cell Cure Neurosciences under the Teva License Option Agreement, other than payments for research, reimbursements of patent expenses, loans or equity investments.

If Teva does not exercise its option and Cell Cure Neurosciences instead commercializes OpRegen™ or OpRegen-Plus™ itself or sublicenses the Hadasit patents to a third party for the completion of development or commercialization of OpRegen™ or OpRegen-Plus™, Cell Cure Neurosciences will pay Hadasit a 5% royalty on sales of products that utilize the licensed technology. Cell Cure Neurosciences will also pay sublicensing fees ranging from 10% to 30% of any payments Cell Cure Neurosciences receives from sublicensing the Hadasit patents to companies other than Teva. Commencing in January 2017, Hadasit will be entitled to receive an annual minimum royalty payment of $100,000 that will be credited toward the payment of royalties and sublicense fees otherwise payable to Hadasit during the calendar year. If Cell Cure Neurosciences or a sublicensee other than Teva paid royalties during the previous year, Cell Cure Neurosciences may defer making the minimum royalty payment until December and will be obligated to make the minimum annual payment to the extent that royalties and sublicensing fee payments made during that year are less than $100,000.

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If Teva does not exercise its option under the Teva License Option Agreement and instead Cell Cure Neurosciences or a sublicensee other than Teva conducts clinical trials of OpRegen™ or OpRegen-Plus™, Hadasit will be entitled to receive certain payments from Cell Cure Neurosciences upon the first attainment of certain clinical trial milestones in the process of seeking regulatory approval to market a product developed by Cell Cure Neurosciences using the licensed patents. Hadasit will receive $250,000 upon the enrollment of patients in the first Phase I clinical trial, $250,000 upon the submission of Phase II clinical trial data to a regulatory agency as part of the approval process, and $1 million upon the enrollment of the first patient in the first Phase III clinical trial.

The Hadasit license agreement will automatically expire on a country-by-country and product-by-product basis upon the later of the expiration of all of the licensed patents or 15 years following the first sale of a product developed using a licensed patent. The patent expiration dates cannot be presently determined with certainty because the patents are pending. After expiration of the license agreement, Cell Cure Neurosciences will have the right to exploit the Hadasit licensed patents without having to pay Hadasit any royalties or sublicensing fees. Either party may terminate the license agreement if the other party commits a breach or default in the performance of its obligations under the agreement and fails to cure the breach or default within the permitted cure periods.

Cornell University

During August, 2011, we entered into a License Agreement with Cornell University for the worldwide development and commercialization of technology developed at Weill Cornell Medical College for the differentiation of hES cells into vascular endothelial cells. The technology may provide an improved means of generating vascular endothelial cells on an industrial scale, and will be utilized by us in diverse products, including those under development at our subsidiary ReCyte Therapeutics to treat age-related vascular disease, and products being developed at our subsidiary OncoCyte targeting the delivery of toxic payloads to cancerous tumors.

Our license to use the technology and patent rights is worldwide and exclusive and permits us to use the licensed technology and patents rights for the fields of cell therapy for age- and diabetes-related vascular diseases and cancer therapy. The license also covers (i) products utilizing human vascular or vascular forming cells for the purpose of enhancing the viability of the graft of other human cells, and (ii) cell-based research products. We also have a non-exclusive right to use any related technology provided by Cornell within the same fields of use, and non-exclusive rights with respect to any non-cell-based products for the research market not covered by the licensed patent rights.

We have the right to permit our subsidiaries and other affiliates to use the licensed patent rights and technology, and we have the right to grant sublicenses to others.

Cornell will be entitled to receive an initial license fee and annual license maintenance fees. The obligation to pay annual license maintenance fees will end when the first human therapeutic license product is sold by us or by any of our affiliates or sublicensees. A “licensed product” includes any service, composition or product that uses the licensed technology, or is claimed in the licensed patent rights, or that is produced or enabled by any licensed method, or the manufacture, use, sale, offer for sale, or importation of which would constitute an infringement, an inducement to infringe, or contributory infringement of any pending or issued claim within the patent rights licensed to us. A “licensed method” means any method that uses the licensed technology, or is claimed in the patent rights licensed to us, the use of which would constitute an infringement, an inducement to infringe, or contributory infringement of any pending or issued claim within the patent rights licensed to us.

We will pay Cornell a milestone payment upon the achievement of a research product sales milestone amount, and we will make milestone payments upon the attainment of certain FDA approval milestones, including (i) the first Phase II clinical trial dosing of a human therapeutic licensed product, (ii) the first Phase III clinical trial dosing of a human

therapeutic licensed product, (iii) FDA approval of first human therapeutic licensed product for age-related vascular disease, and (iv) FDA approval of the first human therapeutic licensed product for cancer.

We will pay Cornell royalties on sales of licensed products by ourselves and our affiliates and sublicensees, and we will share with Cornell a portion of any cash payments, other than royalties, that we receive for the grant of sublicenses to non-affiliates. We will also reimburse Cornell for costs related to the patent applications and any patents that may issue that are covered by our license.

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We will provide Cornell with periodic reports of progress made in our research and development and product commercialization programs, and in those programs conducted by our affiliates and sublicensees, using the licensed patents and technology. We and our affiliates and sublicensees will be required to keep accurate records of the use, manufacture and sale of licensed products, and of sublicense fees received. Cornell has the right to audit those records that we and our affiliates maintain.

The license will expire on the later of (i) the expiration date of the longest-lived licensed patent, or (ii) on a country-by-country basis, on the twenty-first anniversary of the first commercial sale of a licensed product. We have the right to terminate the License Agreement at any time and for any reason upon ninety (90) days written notice to Cornell. Cornell may terminate our license if we fail to perform, or if we violate, any term of the License Agreement, and we fail to cure that default within thirty (30) days after written notice from Cornell.

Cornell also may terminate the license or convert the exclusive license to a non-exclusive license if we fail to meet any of the following requirements: (i) diligently proceed with the development, manufacture and sale of licensed products; (ii) annually spend certain specified dollar amounts for the development of licensed products; (iii) submit an investigational new drug application covering at least one licensed product to the FDA within eight (8) years after the effective date of the License Agreement; (iv) initiate preclinical toxicology studies for at least one licensed product within six (6) years after the effective date of the License Agreement; (v) market at least one therapeutic licensed product in the U.S. within twelve (12) months after receiving regulatory approval to market the licensed product; or (vi) market at least one cell-based licensed product for the research market in the U.S. within twelve (12) months after the effective date of the License Agreement. We may fulfill the obligations described in (i) through (vi) through our own efforts or through the efforts of our affiliates and sublicensees.

Termination of the License Agreement by us or by Cornell or upon expiration will not relieve us of our obligations the make payments of fees owed at the time of termination, and certain provisions of the License Agreement, including the indemnification and confidentiality provisions, will survive termination. We may continue to sell all previously made or partially made licensed product for a period of one hundred and twenty (120) days after the License Agreement terminates, provided that the reporting and royalty payment provisions of the License Agreement will continue to apply to those sales.

We have agreed to indemnify Cornell; Cornell Research Foundation, Inc.; Howard Hughes Medical Institute; and their officers, trustees, employees, and agents, the sponsors of the research that led to the licensed patent rights; and the inventors and their employers, against any and all claims, suits, losses, damage, costs, fees, and expenses resulting from or arising out of exercise of the licenses and any sublicenses under the License Agreement. The indemnification will include, but not be limited to, patent infringement and product liability. We have also agreement to provide certain liability insurance coverage for Cornell and Howard Hughes Medical Institute.

Cornell and Howard Hughes Medical Institute will retain the right to use the licensed technology and patent rights for their own educational and research purposes. Cornell may also permit other nonprofit institutions to use the technology and patent rights for educational and research purposes.

In conjunction with the License Agreement, we also entered into a Sponsored Research Agreement under which scientists at Weill Cornell Medical College, led by Sina Y. Rabbany, PhD, will engage in research with the goals of (1) verifying the ability of progenitor cells, derived by ReCyte Therapeutics, to generate stable populations of vascular endothelial cells; (2) testing the functionality and transplantability of the vascular endothelial cells in animal models to see if the transplanted cells generate new vascular tissue; and (3) using HyStem® hydrogels and other materials as scaffolds for the three-dimensional propagation of vascular endothelial cells into vascular tissues suitable for transplantation. The Sponsored Research Agreement will have a term of three years, but we or Cornell can elect to terminate the agreement earlier by giving the other party thirty (30) days written notice.

If the researchers make any patentable discoveries or inventions in the course of the sponsored research program, we will have an option to negotiate an exclusive, royalty-bearing license to use the invention. If we do license the invention, Cornell would retain a right to use it on a non-exclusive royalty-free basis for its own internal research and teaching purposes.

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USCN Life Science, Inc.

During December 2011, we entered into two agreements with USCN Life Science, Inc. ("USCN"), a Chinese company. One agreement is a License Option Agreement that grants us the right, but not the obligation, to license from USCN certain technology and any related patents that may issue, and certain hybridoma cell lines for the purpose of deriving new products and technologies for use in diagnostic procedures and in therapeutics for the treatment of disease, as well as for products intended for research use only. A hybridoma cell line is an expandable culture of cells engineered to secrete a distinct antibody known as a monoclonal antibody that is directed to a specific protein. BioTime and OncoCyte scientists tested certain antibodies distributed by USCN and found them to be effective as components of PanC-Dx™. The other agreement we entered into with USCN is an assay kit Supply Agreement under which we will purchase a wide array of assay kits designed for enzyme-linked immunosorbent assay (ELISA) and chemiluminescent immuno assay (CLIA) directed to the stem cell research community and for research use only.

Under the License Option Agreement we have the option of acquiring world-wide licenses to technology and certain hybridoma cell lines, and any patents related to the licensed technology and hybridoma cell lines, that may issue, for the purpose of deriving new products and technologies for use in diagnostic procedures and in therapeutics for the treatment of disease.

We paid USCN a license fee which will be credited toward the license fee payable if we exercise our option to license at least one hybridoma cell line. We may exercise our option to license additional hybridomas and related technology and patent rights by paying an additional license fee per hybridoma cell line. We will pay to USCN a royalty calculated as a percent of net sales received by us and our affiliates for all licensed products sold, performed, or leased by us or any of our affiliates. As defined in the License Option Agreement, Net Sales means revenues received from the manufacture, use or sale or other disposition of licensed products, less the total of all (a) discounts allowed in amounts customary in the trade; (b) sales tariffs, duties and/or taxes imposed on the licensed products; or (c) outbound transportation prepaid or allowed; and (d) amounts allowed or credited on returns. Net Sales does not include revenues from the sale or other disposition of licensed products to (i) any of our affiliates, (ii) to any of our sublicensees or any sublicensees of our affiliates, or (iii) to any affiliate of our or our affiliates' sublicensees. No multiple royalties will be payable on the basis that any licensed product is covered by more than one licensed patent or patent application. "Licensed products" means any product, service and/or process that constitutes, incorporates or utilizes, wholly or in part, any of the technology, patent rights, or hybridomas licensed by USCN under the agreement. If a royalty bearing license to use a third party's patent is required to eliminate or avoid an infringement or claim of infringement or to settle any lawsuit or other proceeding alleging patent infringement from the use of USCN's patents or technology or the use, manufacture, production, distribution, or sale of the licensed hybridoma lines or a licensed product, then we and any of our affiliates and any sublicensees may deduct the royalties paid to the third party from the royalties payable to USCN, provided that the amount of the deduction may not reduce the royalty payable to USCN by more than 50%.

We have agreed to indemnify, defend and hold harmless USCN and USCN's affiliates, successors, assigns, agents, officers, directors, shareholders and employees against all liabilities of any kind whatsoever, including legal expenses and reasonable attorneys' fees, arising out of the death of or injury to any person or persons or out of any damage to property resulting from the production, manufacture, sale, use, lease, performance, consumption or advertisement of licensed products or arising from any of our obligations, acts or omissions, or from a breach of any of our representations or warranties, under the License Option Agreement, except for claims that result from (a) the willful misconduct or gross negligence of USCN or any other indemnitee, and (b) claims alleging that the use of any of the patent rights, technology or hybridomas licensed to us, when used within our permitted field of use, infringes upon any patent, trade secret, or moral right of any third party.

USCN has agreed to indemnify, defend and hold harmless us and our affiliates, and our respective successors, assigns, agents, officers, directors, shareholders and employees against all liabilities of any kind whatsoever, including legal expenses and reasonable attorneys' fees, arising out of any claim, demand, lawsuit or other proceeding alleging that the use of any patent rights, technology, or hybridoma licensed to us or to any of our affiliates or any sublicensee within the permitted field of use infringes any patent, trade secret, or moral right of any third party.

The License Option Agreement will terminate on its fifth anniversary if the option has not been exercised on or before that date. If we exercise our option, the agreement will terminate upon written notice from us to USCN that we, our affiliates, and all sublicensees have permanently discontinued the use of the licensed technology, patent rights, hybridomas and licensed products.

We may terminate the agreement at any time on sixty (60) days prior written notice to USCN, and upon payment of all amounts due USCN through the effective date of the termination. USCN may terminate the agreement at any time if we breach or default in the performance of any of our obligations and the breach or default is not cured within thirty (30) days after a written request from USCN to remedy the breach or default, or if the breach or default cannot be cured within that thirty (30) day period, we fail within that thirty (30) day period to proceed with reasonable promptness thereafter to cure the breach. Termination of the License Option Agreement will not release a party from any obligation that matured prior to the effective date of the termination.

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Under the Supply Agreement, USCN has agreed to sell us certain assay test kits. We plan to resell the kits through our subsidiary LifeMap Sciences via our new online database slated for launch in 2012. Our rights to purchase and resell the assay kits is "co-exclusive," meaning that USCN and its affiliates retain the right to offer, sell, and distribute the kits, and to sell the kits to other third-party distributors. We may sell the kits to our customers for research purposes only, and not for the treatment or diagnosis of any disease, injury, or physical disorder in humans, or in any human clinical trial or other clinical use. We and our customers will not have license or other rights to manufacture or produce any of the kits.

The initial term of the Supply Agreement is five years. The Supply Agreement will automatically renew for successive one year periods, unless either party provides written notice to the other of its desire not to continue the agreement.

We may terminate the Supply Agreement at any time, for any reason or no reason at all, upon sixty (60) days written notice to USCN. USCN may terminate the Supply Agreement if we breach or default in the performance of any of our obligations and the breach or default is not cured within thirty (30) days after a written request from USCN to remedy the breach or default, or if the breach or default cannot be cured within the thirty (30) day period, we fail within that thirty (30) day period to proceed with reasonable promptness to cure the breach. Either party may terminate the Supply Agreement if the other party becomes insolvent or enters into any arrangement or composition with creditors, or makes an assignment for the benefit of creditors; if there is a dissolution, liquidation or winding up of the other party's business; or if a trustee in bankruptcy is appointed for the assets of the other Party. The termination or expiration of the Supply Agreement will not act as a waiver of any breach of the agreement and will not release either party for any liability or obligation incurred under the agreement through the expiration or termination date.

Upon termination of the Supply Agreement, USCN shall have the right, but not the obligation, to repurchase all assay kits that we and our affiliates have remaining in inventory, at the original invoiced cost, plus all costs of shipping, insurance, duties, and taxes incurred in connection with the return shipment. If USCN does not elect to repurchase unsold inventory, we and our affiliates may continue to sell the remaining inventory.

Research and Development Strategy

A significant part of our activities is devoted to research and development, focused primarily on the development of stem cell products and technology. During 2012, 2011, and 2010, we spent $18,116,688, $13,699,691, and $8,191,314, respectively, on research and development. While we utilize our own proprietary technology in both our plasma volume expander and stem cell research and development programs, we presently rely to a significant extent upon technology licensed from others in our stem cell research and development efforts. See "Licensed Stem Cell Technology and Stem Cell Product Development Agreements."

Our research and development strategy works in tandem with our commercial strategy of focusing on near-term commercial opportunities in the research product market, mid-term opportunities in the medical device market, as well as longer term opportunities to provide therapies for the treatment of age related degenerative diseases. In addition to developing our own technologies and products, we have obtained products and technologies through the acquisition of other companies and by licensing rights to use technologies and stem cell lines developed by other companies and universities. We believe that obtaining rights to these technologies, cell lines, and other products has jump-started our assemblage of an array of products for stem cell research and the research and development efforts of our subsidiaries

A portion of our near-term product development efforts in the regenerative medicine field are focused on the development and sale of advanced human stem cell products and technology that can be used by researchers at universities and other institutions, at companies in the bioscience and biopharmaceutical industries, and at other companies that provide research products to companies in those industries. These research products include the

GeneCards®, LifeMap Discovery™, MalaCards, and PanDaTox database products marketed by LifeMap Sciences, PureStem™ hEPC and associated ESpan™ culture media, HyStem® hydrogels, and ESI's hES cell lines. By focusing a portion of our resources on research products and technology, we believe that we will be able to develop and commercialize revenue producing new products in less time and using less capital than is required to develop and commercialize therapeutic products and medical devices, whereby generating near term product revenues that would not be possible if we focused solely on therapeutic product development.

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We are using ACTCellerate™ embryonic stem cell technology to produce hEPCs for sale under the PureStem™ brand and as cell types that can be used for therapeutical applications. These hEPCs are relatively easy to manufacture on a large scale and in a purified state, which may make it more advantageous to work with them than with hES or iPS cells. In our recently completed CIRM-funded research project we identified antibodies and other cell purification reagents that may aid the production of hEPCs and that can be used to develop pure therapeutic cells such as nerve, blood vessel, heart muscle, cartilage, and skin cells.

Renevia™ and PanC-Dx™ are part of our strategy to develop products with a mid-term revenue horizon. Our goals are to initiate clinical trials of Renevia™ in the EU in 2013 and for OncoCyte to obtain approval to market PanC-Dx™ in the EU during 2014.

Through our subsidiaries, OncoCyte, OrthoCyte, ReCyte Therapeutics, Cell Cure Neurosciences, and BAC, we will attempt to develop human stem cell products for therapeutic uses. We and ESI will license certain technology to the subsidiaries for their research and development programs. OncoCyte is utilizing hES cell technology to create genetically modified stem cells capable of homing to specific malignant tumors while carrying genes that can cause the destruction of the cancer cells. OrthoCyte is developing cellular therapeutics for the treatment of orthopedic degenerative diseases, disorders and injuries. ReCyte Therapeutics is developing therapeutic products for cardiovascular and blood diseases and disorders. Cell Cure Neurosciences is developing therapeutic products for retinal and neurological degenerative diseases and disorders. BAC expects to acquire Geron's former hES cell programs included oligodendrocyte progenitor cells for central nervous system disorders, cardiomyocytes for heart disease, pancreatic islet cells for diabetes, dendritic cells as an immunotherapy vehicle, and chondrocytes for cartilage repair. BAC may pursue the development of therapeutic products from some or all of these cell types, depending upon a number of factors, including the expected cost of development, sufficiency of financing, the state of development of the technology acquired, regulatory considerations, anticipated market size, and competition from other companies in the applicable fields.

During November 2010, we signed an agreement with CIRM to make five research-grade and GMP-compliant hES cell lines available to CIRM-funded and California-based researchers. During December 2010, the University of California system signed an agreement under which the universities in the system may acquire hES cell lines under the same terms of our agreement with CIRM. We believe that making these GMP-grade cell lines available may streamline the translation of basic science to human therapies. If the users of our cell lines eventually sign definitive license agreements with our permission to use those cell lines in commercial products, we will receive a royalty on net sales of their products, without the need on our part to fund any of their research, development, and clinical trial costs, or the costs of producing and marketing the new products.

We may also derive new stem cell lines, and we are working on the development of new products derived from human stem cells such as ESpy® cell lines, which will be derivatives of hES cells that will emit beacons of light. The light-emitting property of the ESpy® cells will allow researchers to track the location and distribution of the cells in both in vitro and in vivo studies.

We are also working to develop new growth and differentiation factors that will permit researchers to manufacture specific cell types from embryonic stem cells, and purification tools helpful to researchers involved in the quality control of products used in the field of regenerative medicine.

Plasma Volume Expanders and Related Products

Our business was initially focused on blood plasma volume expanders and related technology for use in surgery, emergency trauma treatment, and other applications. Our first product, Hextend®, is a physiologically balanced blood plasma volume expander used for the treatment of hypovolemia, a condition caused by low blood volume, often due

to blood loss during surgery or injury. Hextend® maintains circulatory system fluid volume and blood pressure and helps sustain vital organs during surgery. Hextend®, approved for use in major surgery, 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 and thus its use avoids the risk of infection. Health insurance reimbursements and HMO coverage now include the cost of Hextend® used in surgical procedures.

We were also developing another blood volume replacement product, PentaLyte®. It, like Hextend®, has been formulated to maintain the patient's tissue and organ function by sustaining the patient's fluid volume and physiological balance. We have completed a Phase II clinical trial of PentaLyte®, in which it was used to treat hypovolemia in cardiac surgery. Our ability to commence and complete additional clinical studies of PentaLyte® depends on licensing and development arrangements with a pharmaceutical company capable of manufacturing and marketing PentaLyte®. We are not actively working on PentaLyte® and we will need to find a licensee or co-developer to further develop and advance the commercialization of PentaLyte®.

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Hextend® is manufactured and distributed in the U.S. by Hospira, Inc., and in South Korea by CJ CheilJedang ("CJ"), under license from us. Summit Pharmaceuticals International Corporation ("Summit") has a license to develop Hextend® and PentaLyte® in Japan, the People's Republic of China, and Taiwan.

The Market for Plasma Volume Expanders

Blood transfusions are often necessary during surgical procedures and are sometimes required to treat patients suffering severe blood loss due to traumatic injury. Many surgical and trauma cases do not require blood transfusions but do involve significant bleeding that can place a patient at risk of suffering from shock caused by the loss of fluid volume (or hypovolemia) and physiological balance. Whole blood and packed red cells generally cannot be administered to a patient until the patient's blood has been typed and sufficient units of compatible blood or red cells can be located. Periodic shortages of supply of donated human blood are not uncommon, and rare blood types are often difficult to locate. The use of human blood products also poses the risk of exposing the patient to blood-borne diseases such as AIDS and hepatitis.

Due to the risks and cost of using human blood products, even when a sufficient supply of compatible blood is available, physicians treating patients suffering blood loss are generally not permitted to transfuse red blood cells until the patient's level of red blood cells has fallen to a level known as the "transfusion trigger." During the course of surgery, while blood volume is being lost, the patient is infused with plasma volume expanders to maintain adequate blood circulation. During the surgical procedure, red blood cells are not generally replaced until the patient has lost approximately 45% to 50% of his or her red blood cells, thus reaching the transfusion trigger, at which point the transfusion of red blood cells may be required. After the transfusion of red blood cells, the patient may continue to experience blood volume loss, which will be treated with plasma volume expanders. Even in those patients who do not require a transfusion, physicians routinely administer plasma volume expanders to maintain sufficient fluid volume to permit the available red blood cells to circulate throughout the body and to maintain the patient's physiological balance.

Several units of fluid replacement products are often administered during surgery. The number of units will vary depending upon the amount of blood loss and the kind of plasma volume expander administered. Crystalloid products must be used in larger volumes than those required with colloid products such as Hextend®.

Uses and Benefits of Hextend® and PentaLyte®

Hextend® and PentaLyte® have been formulated to maintain the patient's tissue and organ function by sustaining the patient's fluid volume and physiological balance. Both products are composed of a hydroxyethyl starch, electrolytes, sugar, and lactate in an aqueous base. Hextend® uses a high molecular weight hydroxyethyl starch (hetastarch), whereas PentaLyte® uses a lower molecular weight hydroxyethyl starch (pentastarch). The hetastarch is retained in the blood longer than the pentastarch, which may make Hextend® the product of choice when a larger volume of plasma expander or blood replacement solution for low-temperature surgery is needed, or when the patient's ability to restore his own blood proteins after surgery is compromised. PentaLyte®, with pentastarch, would be eliminated from the blood faster than Hextend® and might be used when less plasma expander is needed when the patient is more capable of quickly restoring lost blood proteins.

Certain clinical test results indicate that Hextend® is effective at maintaining blood calcium levels when it is used to replace lost blood volume. Calcium can be a significant factor in regulating blood clotting and cardiac function. Clinical studies have also shown that Hextend is better at maintaining the acid-base balance than are saline-based surgical fluids. If developed, we expect that PentaLyte® will also be able to maintain blood calcium levels and acid-base balance, as the electrolyte formulation of PentaLyte® is identical to that of Hextend®.

Albumin produced from human plasma is also used as a plasma volume expander, but it is expensive and subject to supply shortages. Additionally, an FDA warning has cautioned physicians about the risk of administering albumin to seriously ill patients.

We have not attempted to synthesize potentially toxic and costly oxygen-carrying molecules such as hemoglobin because the loss of fluid volume and physiological balance may contribute as much to shock as the loss of the oxygen-carrying component of the blood. Surgical and trauma patients are routinely given supplemental oxygen and retain a substantial portion of their own red blood cells. Whole blood or packed red blood cells are generally not transfused during surgery or in trauma care until several units of plasma volume expander have been administered and the patient's blood cell count has fallen to the transfusion trigger threshold. Therefore, the lack of oxygen-carrying molecules in our solutions should not pose a significant contraindication to use.

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However, our scientists have conducted laboratory animal experiments in which they have shown that Hextend® can be successfully used in conjunction with a hemoglobin-based oxygen carrier solution approved for veterinary purposes to completely replace the animal's circulating blood volume without any subsequent transfusion and without the use of supplemental oxygen. By diluting these oxygen carrier solutions, Hextend® may reduce the potential toxicity and costs associated with the use of those products. Once such solutions have received regulatory approval and become commercially available, this sort of protocol may prove valuable in certain markets in the developing world where the blood supply is extremely unsafe. These applications may also be useful in combat situations in which logistics render blood use impracticable.

Licensing and Sale of Plasma Volume Expander Products

Hospira

Hospira has the exclusive right to manufacture and sell Hextend® in the U.S. and Canada under a license agreement with us. Hospira is presently marketing Hextend® in the U.S. Hospira's license applies to all therapeutic uses other than those involving hypothermic surgery, during which the patient's body temperature reaches temperatures lower than 12°C ("Hypothermic Use"), or those involving the replacement of substantially all of a patient's circulating blood volume ("Total Body Washout").

Hospira pays us a royalty on total annual net sales of Hextend®. The royalty rate is 5% plus an additional .22% for each $1,000,000 of annual net sales, up to a maximum royalty rate of 36%. The royalty rate for each year is applied on a total net sales basis. Hospira's obligation to pay royalties on sales of Hextend® will expire on a country-by-country basis when all patents protecting Hextend® in the applicable country expire and any third party obtains certain regulatory approvals to market a generic equivalent product in that country. The relevant composition patents begin to expire in 2014 and the relevant methods of use patents expire in 2019.

We have the right to convert Hospira's exclusive license to a non-exclusive license or to terminate the license outright if certain minimum sales and royalty payments are not met. In order to terminate the license outright, we would pay a termination fee in an amount ranging from the milestone payments we received to an amount equal to three times the prior year's net sales, depending upon when termination occurs. Hospira has agreed to manufacture Hextend® for sale by us in the event that the exclusive license is terminated.

Hospira has certain rights to acquire additional licenses to manufacture and sell our other plasma expander products in their market territory. If Hospira exercises these rights to acquire a license to sell such products for uses other than Hypothermic Use or Total Body Washout, in addition to paying royalties, Hospira will be obligated to pay a license fee based upon our direct and indirect research, development, and other costs allocable to the new product. If Hospira desires to acquire a license to sell any of our products for use in Hypothermic Surgery or Total Body Washout, the license fees and other terms of the license will be subject to negotiation between the parties. For the purpose of determining the applicable royalty rates, net sales of any such new products licensed by Hospira will be aggregated with sales of Hextend®. If Hospira does not exercise its right to acquire a new product license, we may manufacture and sell the product ourselves or we may license others to do so.

CJ

CJ markets Hextend® in South Korea under an exclusive license from us. CJ paid us a license fee to acquire their right to market Hextend®. CJ also pays us a royalty on sales of Hextend®. The royalty will range from $1.30 to $2.60 per 500 ml unit of product sold, depending upon the price approved by Korea's National Health Insurance. CJ is also responsible for obtaining the regulatory approvals required to manufacture and market PentaLyte®, including conducting any clinical trials that may be required, and will bear all related costs and expenses.

Summit

We have entered into agreements with Summit to develop Hextend® and PentaLyte® in Japan, the People's Republic of China, and Taiwan. Summit had sublicensed to Maruishi Pharmaceutical Co., Ltd. ("Maruishi") the right to manufacture and market Hextend® in Japan, and the right to manufacture and market Hextend® and PentaLyte® in China and Taiwan. However, Maruishi has withdrawn from the sublicense arrangement with Summit, and Summit has informed us that they intend to seek a replacement sublicensee.

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A Phase III clinical trial using Hextend® in surgery, funded by Maruishi, was conducted in Japan, but work on the trial has not been completed. Due to the withdrawal of Maruishi from its sublicense agreement, Summit will need to find a replacement sublicensee or other source of funding in order to complete the Phase III clinical study. Successful completion of the clinical study is required in order to seek regulatory approval to market Hextend® in Japan.

The revenues from licensing fees, royalties, and net sales, and any other payments made for co-development, manufacturing, or marketing rights to Hextend® and PentaLyte® in Japan will be shared between us and Summit as follows: 40% to us and 60% to Summit. "Net sales" means the gross revenues from the sale of a product, less rebates, discounts, returns, transportation costs, sales taxes, and import/export duties. Summit paid us fees for the right to co-develop Hextend® and PentaLyte® in Japan, and Summit has also paid us a share of a sublicense fee payment from Maruishi.

We will pay to Summit 8% of all net royalties that we receive from the sale of PentaLyte® in the U.S., plus 8% of any license fees that we receive in consideration of granting a license to develop, manufacture, and market PentaLyte® in the U.S. "Net royalties" means royalty payments received during a calendar year, minus the following costs and expenses incurred during such calendar year: (a) all taxes assessed (other than taxes determined with reference to our net income) and credits given or owed by us in connection with the receipt of royalties on the sale of PentaLyte® in the U.S., and (b) all fees and expenses payable by us to the FDA (directly or as a reimbursement of any licensee) with respect to PentaLyte®.

Summit paid us a fee to acquire the China and Taiwan license. We also will be entitled to receive 50% of the royalties and milestone payments payable to Summit by any third-party sublicensee.

The foregoing description of the Summit agreement is a summary only and is qualified in all respects by reference to the full text of the Summit agreements.

Major Customers

During 2012, 2011, and 2010, all of our royalty revenues were generated through sales of Hextend® by Hospira in the U.S. and by CJ in the Republic of Korea. We also earned license fees from CJ, Summit and the Betalogics division of Johnson & Johnson. In 2012, license fee revenues include $752,896 in subscription and advertisement revenues. The following table shows revenues paid by customer that were recognized during the past three fiscal years, as well as license fee revenues from subscription and advertisements.

	% of Total Revenues for the Year Ending December 31,		
Licensee	2012	2011	2010
Hospira	30 %	63 %	68 %
CJ	8 %	15 %	20 %
Summit	10 %	14 %	12 %
Others	- %	8 %	- %
Subscriptions and advertisements customers	52 %	- %	- %

Royalty Revenues and License Fees by Geographic Area

The principal source of revenues has been from royalties from the sale of our product. During the past three years, we received $541,293, $753,209, and $945,461in royalty payments from Hospira and CJ from the sale of Hextend®. In 2012, license fee revenues include $752,896 in subscription and advertisement revenues by LifeMap Sciences. The following table shows the source of our 2012, 2011, and 2010 royalty and license fee revenues by geographic areas,

based on the country of domicile of the licensee:

	Revenues for Year Ending December 31,		
Geographic Area	2012	2011	2010
Domestic	$1,183,638	$719,958	$839,740
Asia	258,041	300,680	398,625
Total Revenues	$1,441,679	$1,020,638	$1,238,365

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Manufacturing

Facilities Required—Stem Cell Products

We lease a 19,000 square-foot building in Alameda, California. The building is cGMP-capable and has previously been certified as Class 1,000 and Class 10,000 laboratory space, and includes cell culture and manufacturing equipment previously validated for use in the cGMP of cell-based products. Our subsidiaries, OncoCyte, OrthoCyte, and ReCyte Therapeutics are also conducting their research and development activities at our Alameda facility.

ESI leases approximately 1,290 square feet of laboratory space in the Biopolis, a research and development park in Singapore devoted to the biomedical sciences. We will use this facility as a manufacturing and shipping point for sales in parts of Asia.

Cell Cure Neurosciences leases approximately 290 square meters of office and laboratory space located at Hadasa Ein Carem, in Jerusalem, Israel. Most of Cell Cure Neurosciences' research and development work is conducted by Hadasit at Hadassah University Hospital under contractual arrangements.

On January 7, 2013, BioTime entered into a lease for an office and research facility located at 230 Constitution Drive, Menlo Park, California that BioTime plans to make available for use by BAC. The building on the leased premises contains approximately 24,080 square feet of space. The lease is for a term of three years.

Facilities Required—Plasma Volume Expanders

Any products that are used in clinical trials for regulatory approval in the U.S. or abroad, or that are approved by the FDA or foreign regulatory authorities for marketing have to be manufactured according to GMP at a facility that has passed regulatory inspection. In addition, products that are approved for sale will have to be manufactured in commercial quantities, and with sufficient stability to withstand the distribution process, and in compliance with such domestic and foreign regulatory requirements as may be applicable. The active ingredients and component parts of the products must be of medical grade or themselves be manufactured according to FDA-acceptable cGMP.

Hospira manufactures Hextend® for use in the North American market, and CJ manufactures Hextend® for use in South Korea. Hospira and CJ have the facilities to manufacture Hextend® and our other products in commercial quantities. If Hospira and CJ choose not to manufacture and market other BioTime products, other manufacturers will have to be identified that would be willing to manufacture products for us or any licensee of our products as we do not have facilities to manufacture our plasma volume expander products in commercial quantities, or under cGMP. Acquiring a manufacturing facility would involve significant expenditure of time and money for design and construction of the facility, purchasing equipment, hiring and training a production staff, purchasing raw material, and attaining an efficient level of production. Although we have not determined the cost of constructing production facilities that meet FDA requirements, we expect that the cost would be substantial, and that we would need to raise additional capital in the future for that purpose. To avoid the incurrence of those expenses and delays, we are relying on Hospira and CJ for the production of Hextend®, but there can be no assurance that satisfactory arrangements will be made for any new products that we may develop.

Raw Materials—Plasma Volume Expanders

Although most ingredients in the products we are developing are readily obtainable from multiple sources, we know of only a few manufacturers of the hydroxyethyl starches that serve as the primary drug substance in Hextend® and PentaLyte®. Hospira and CJ presently have a source of supply of the hydroxyethyl starch used in Hextend® and PentaLyte® and have agreed to maintain a supply sufficient to meet market demand for Hextend® in the countries in

which they market the product. We believe that we will be able to obtain a sufficient supply of starch for our needs in the foreseeable future, although we do not have supply agreements in place. If for any reason a sufficient supply of hydroxyethyl starch could not be obtained, we or a licensee would have to acquire a manufacturing facility and the technology to produce the hydroxyethyl starch according to cGMP. We would have to raise additional capital to participate in the development and acquisition of the necessary production technology and facilities, which may not be feasible. The use of a different hydroxyethyl starch could require us or a licensee to conduct additional clinical trials for FDA or foreign regulatory approval to market Hextend® with the new starch.

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If arrangements cannot be made for a source of supply of hydroxyethyl starch, we would have to reformulate our solutions to use one or more other starches that are more readily available. In order to reformulate our products, we would have to perform new laboratory and clinical testing to determine whether the alternative starches could be used in a safe and effective synthetic plasma volume expander, low-temperature blood substitute, or organ preservation solution. We or our licensees would also have to obtain new regulatory approvals from the FDA and foreign regulatory agencies to market the reformulated product. If needed, such testing and regulatory approvals would require the incurrence of substantial cost and delay, and there is no certainty that any such testing would demonstrate that an alternative ingredient, even if chemically similar to the one currently used, would be safe or effective.

Marketing

Stem Cell Research Products

Our products for use in stem cell research are being offered to researchers at universities and other institutions, at companies in the bioscience and biopharmaceutical industries, and at other companies that provide research products to companies in those industries. By initially focusing our resources on products and technologies that will be used by researchers and drug developers at larger institutions and corporations, we believe that we will be able to commercialize products more quickly, and with less capital, than would be possible were we to develop therapeutic products ourselves.

We have designated our subsidiary LifeMap Sciences as our primary internet marketing arm for our research products. In addition to offering subscriptions to its database products, LifeMap Sciences is also utilizing its databases as part of its strategy for marketing our research products online to reach life sciences researchers at biotech and pharmaceutical companies and at academic institutions and research hospitals worldwide. The LifeMap Discovery™ data base provides access to available cell-related information and resources necessary to improve stem cell research and development of therapeutics based on regenerative medicine and may promote the sale of our PureStem™ hEPC by permitting data base users to follow the development of hES cell lines to the purified hEPC state.

We have also marketed some of our research products through arrangements with third party distributors.

The market for our stem cell products may be impacted by the amount of government funding available for research in the development of stem cell therapies.

Plasma Volume Expanders

Hextend® is being distributed in the U.S. by Hospira and in South Korea by CJ under exclusive licenses from us. Hospira also has the right to obtain licenses to manufacture and sell our other plasma volume expander products. We have granted CJ the right to market PentaLyte® in South Korea, and we have licensed to Summit the right to market Hextend® and PentaLyte® in Japan, China, and Taiwan, but our licensees will have to first obtain the foreign regulatory approvals required to sell our product in those countries.

Because Hextend® is a surgical product, sales efforts must be directed to physicians and hospitals. The Hextend® marketing strategy is designed to reach its target customer base through sales calls, through an advertising campaign focused on the use of a plasma-like substance to replace lost blood volume, and on the ability of Hextend® to support vital physiological processes.

Hextend® competes with other products used to treat or prevent hypovolemia, including albumin, generic 6% hetastarch solutions, and crystalloid solutions. The competing products have been commonly used in surgery and trauma care for many years, and in order to sell Hextend®, physicians must be convinced to change their product

loyalties. Although albumin is expensive, crystalloid solutions and generic 6% hetastarch solutions sell at low prices. In order to compete with other products, particularly those that sell at lower prices, Hextend® will have to be recognized as providing medically significant advantages.

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The FDA has required the manufacturers of 6% hetastarch in saline solutions to change their product labeling by adding a warning stating that those products are not recommended for use as a cardiac bypass prime solution, or while the patient is on cardiopulmonary bypass, or in the immediate period after the pump has been disconnected. We have not been required to add that warning to the labeling of Hextend®. An article discussing this issue entitled "6% Hetastarch in Saline Linked to Excessive Bleeding in Bypass Surgery" appeared in the December 2002 edition of Anesthesiology News. We understand that a number of hospitals have switched from 6% hetastarch in saline to Hextend® due to these concerns.

As part of the marketing program, a number of studies have been conducted that show the advantages of receiving Hextend® and our other products during surgery. As these studies are completed, the results are presented at medical conferences and articles are written for publication in medical journals. We are also aware of independent studies using Hextend® that are being conducted by physicians and hospitals who may publish their findings in medical journals or report their findings at medical conferences. For example, an independent study in hemodynamically unstable trauma patients conducted at the Ryder Trauma Center at University of Miami reported that initial resuscitation with Hextend® was associated with reduced mortality and no obvious coagulopathy compared to fluid resuscitation without Hextend®. This study was published in the May 2010 issue of the Journal of the American College of Surgeons. The outcome of future medical studies and timing of the publication or presentation of the results could have an effect on Hextend® sales.

Patents and Trade Secrets

We rely primarily on patents and contractual obligations with employees and third parties to protect our proprietary rights. We have sought, and intend to continue to seek, appropriate patent protection for important and strategic components of our proprietary technologies by filing patent applications in the U.S. and certain foreign countries. There can be no assurance that any of our patents will guarantee protection or market exclusivity for our products and product candidates. We also use license agreements both to access technologies developed by other companies and universities and to convey certain intellectual property rights to others. Our financial success will be dependent in part on our ability to obtain commercially valuable patent claims and to protect our intellectual property rights and to operate without infringing upon the proprietary rights of others.

As of March 18, 2013, we owned or controlled or licensed directly or through our subsidiaries 281 issued or allowed U.S. patents and we also owned or controlled over 141 pending U.S. patent applications, including provisional patent applications, to protect our proprietary technologies. We also licensed 140 IP patents and applications from WARF.

Our patents and patent applications are directed to compositions of matter, formulations, methods of use and/or methods of manufacturing, as appropriate. In addition to patenting our own technology and that of our subsidiaries, we and our subsidiaries have licensed patents and patent applications for certain stem cell technology, hEPC, and hES cell lines from other companies. See "Licensed Stem Cell Technologies and Stem Cell Product Development Agreements."

The patent positions of pharmaceutical and biotechnology companies, including ours, are generally uncertain and involve complex legal and factual questions. Our business could be negatively impacted by any of the following:

- the claims of any patents that are issued may not provide meaningful protection, may not provide a basis for commercially viable products or may not provide us with any competitive advantages;
- our patents may be challenged by third parties;

others may have patents that relate to our technology or business that may prevent us from marketing our product candidates unless we are able to obtain a license to those patents;

the pending patent applications to which we have rights may not result in issued patents;

we may not be successful in developing additional proprietary technologies that are patentable.

In addition, others may independently develop similar or alternative technologies, duplicate any of our technologies and, if patents are licensed or issued to us, design around the patented technologies licensed to or developed by us. Moreover, we could incur substantial costs in litigation if we have to defend ourselves in patent lawsuits brought by third parties or if we initiate such lawsuits

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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 hES 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 hES cell technologies in Europe.

The recent Supreme Court decision in Mayo Collaborative Services v. Prometheus Laboratories, Inc., will need to be considered in determining whether certain diagnostic methods 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. 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. The USPTO has issued interim guidelines in light of the Supreme Court decision indicating that process claims having a natural principle as a limiting step will be evaluated to determine if the claim includes additional steps that practically apply the natural principle such that the claim amounts to significantly more than the natural principle itself.

Patents Used in Our Plasma Volume Expander Business

We currently hold 26 issued U. S. patents with composition and methods-of-use claims covering our proprietary solutions, including Hextend® and PentaLyte®. The most recent U.S. patents were issued during March 2009. Some of our allowed claims in the U.S., which include the composition and methods-of-use of Hextend® and PentaLyte®, are expected to remain in force until 2014 in the case of the composition patents, and 2019 in the case of the methods-of-use patents. Patents covering certain proprietary solutions have also been issued in several countries of the European Union, Australia, Israel, Russia, South Africa, South Korea, Japan, China, Hong Kong, Taiwan, and Singapore, and we have filed patent applications in other foreign countries for certain products, including Hextend®, HetaCool®, and PentaLyte®. There is no assurance that any additional patents will be issued. Furthermore, the enforcement of patent rights often requires litigation against third party infringers, and such litigation can be costly to pursue.

General Risks Related to Obtaining and Enforcing Patent Protection

There is a risk that any patent applications that we file and any patents that we hold or later obtain could be challenged by third parties and be declared invalid or infringing on third party claims. A patent interference proceeding may be instituted with the U.S. Patent and Trademark Office ("PTO") 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 on patents and applications filed before March 16, 2013. At the completion of the interference proceeding, the PTO will 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 PTO's decision is subject to appeal. This means that if an interference 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. For patents and applications filed after March 16, 2013 a derivation proceeding may be initiated where the PTO may determine if one patent was derived from the work of an inventor on another patent. In addition to interference proceedings, the PTO can re-examine issued patents at the request of a third party seeking to have the patent invalidated. After March 16, 2013 an inter partes review proceeding will allow third parties to challenge the validity of an issued patent where there is a reasonable likelihood of invalidity. 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.

Oppositions to the issuance of patents may be filed under European patent law and the patent laws of certain other countries. As with the PTO 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. As of March 16, 2013, the PTO Post Grant Review will allow US patents to be challenged in a proceeding similar to European oppositions.

The enforcement of patent rights often requires litigation against third-party infringers, and such litigation can be costly to pursue. Even if we succeed in having new patents issued or in defending any challenge to issued patents, there is no assurance that our patents will be comprehensive enough to provide us with meaningful patent protection against our competitors.

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In addition to relying on patents, we rely on trade secrets, know-how, and continuing technological advancement to maintain our competitive position. We have entered into intellectual property, invention, and non-disclosure agreements with our employees, and it is our practice to enter into confidentiality agreements with our consultants. There can be no assurance, however, that these measures will prevent the unauthorized disclosure or use of our trade secrets and know-how, or that others may not independently develop similar trade secrets and know-how or obtain access to our trade secrets, know-how, or proprietary technology.

Competition

We and our subsidiaries face substantial competition in both our blood plasma expander business and our regenerative medicine and stem cell business. That competition is likely to intensify as new products and technologies reach the market. Superior new products are likely to sell for higher prices and generate higher profit margins once acceptance by the medical community is achieved. Those companies that are successful at being the first to introduce new products and technologies to the market may gain significant economic advantages over their competitors in the establishment of a customer base and track record for the performance of their products and technologies. Such companies will also benefit from revenues from sales that could be used to strengthen their research and development, production, and marketing resources. All companies engaged in the medical products industry face the risk of obsolescence of their products and technologies as more advanced or cost-effective products and technologies are developed by their competitors. As the industry matures, companies will compete based upon the performance and cost-effectiveness of their products.

Products for Regenerative Medicine

The stem cell industry is characterized by rapidly evolving technology and intense competition. Our competitors include major multinational pharmaceutical companies, specialty biotechnology companies, and chemical and medical products companies operating in the fields of regenerative medicine, cell therapy, tissue engineering, and tissue regeneration. Many of these companies are well established and possess technical, research and development, financial, and sales and marketing resources significantly greater than ours. In addition, certain smaller biotech companies have formed strategic collaborations, partnerships, and other types of joint ventures with larger, well-established industry competitors that afford the smaller companies' potential research and development as well as commercialization advantages. Academic institutions, governmental agencies, and other public and private research organizations are also conducting and financing research activities, which may produce products directly competitive to those we are developing.

We believe that some of our competitors are trying to develop hES cell-, iPS cell-, and hEPC-based technologies and products that may compete with our stem cell products based on efficacy, safety, cost, and intellectual property positions. We are aware that ACT has obtained approval from the FDA to commence clinical trials of a hES cell product designed to treat age-related macular degeneration. If the ACT product is proven to be safe and effective, it may reach the market ahead of Cell Cure Neuroscience's OpRegen™, which is not yet in clinical trials.

We may also face competition from companies that have filed patent applications relating to the cloning or differentiation of stem cells. Those companies include ACT, which has had claims allowed on a patent for RPE cells. We may be required to seek licenses from these competitors in order to commercialize certain products proposed by us, and such licenses may not be granted. Upon consummation of the asset acquisition transaction under the Asset Contribution Agreement, BAC will be substituted as the appellant in an appeal of certain decisions of the PTO in favor of Viacyte, Inc. in two patent interference proceedings that were brought by Geron against Viacyte. Viacyte is primarily engaged in the development of stem cell derived remedies for diabetes.

Plasma Volume Expanders

Our plasma volume expander solutions, including Hextend®, will compete with products currently used to treat or prevent hypovolemia, including albumin, other colloid solutions, and crystalloid solutions presently manufactured by established pharmaceutical companies, and with human blood products. Some of these products–crystalloid solutions in particular–are commonly used in surgery and trauma care, and they sell at low prices. In order to compete with other products, particularly those that sell at lower prices, our products will have to be recognized as providing medically significant advantages. The competing products are being manufactured and marketed by established pharmaceutical companies with large research facilities, technical staffs, and financial and marketing resources. B. Braun presently markets Hespan®, an artificial plasma volume expander containing 6% hetastarch in saline solution. Hospira and Baxter International manufacture and sell a generic equivalent of Hespan®. Hospira, which markets Hextend® in the U.S., is also the leading seller of generic 6% hetastarch in saline solution, and Voluven®, a plasma volume expander containing a 6% low molecular weight hydroxyethyl starch in saline solution. Sanofi-Aventis, Baxter International, and Alpha Therapeutics sell albumin, and Hospira, Baxter International, and B. Braun sell crystalloid solutions. As a result of the introduction of generic plasma expanders and new proprietary products, competition in the plasma expander market has intensified, and wholesale prices of both hetastarch products and albumin have declined which has forced Hospira and other vendors of hetastarch products to make additional price cuts in order to maintain their share of the market.

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To compete with new and existing plasma expanders, we have developed products that contain constituents that may prevent or reduce the physiological imbalances, bleeding, fluid overload, edema, poor oxygenation, and organ failure that can occur when competing products are used. To compete with existing organ preservation solutions, we have developed solutions that can be used to preserve all organs simultaneously and for long periods of time.

Government Regulation

FDA and Foreign Regulation

The FDA and foreign regulatory authorities will regulate our proposed products as drugs, biologicals, or medical devices, depending upon such factors as the use to which the product will be put, the chemical composition, and the interaction of the product with the human body. In the U.S., products, such as plasma volume expanders that are intended to be introduced into the body will be regulated as drugs, while tissues and cells intended for transplant into the human body will be regulated as biologicals, and both plasma volume expanders and tissue and cell therapeutic products will be reviewed by the FDA staff responsible for evaluating biologicals.

Our domestic human drug and biological products will be subject to rigorous FDA review and approval procedures. After testing in animals, an IND must be filed with the FDA to obtain authorization for human testing. Extensive clinical testing, which is generally done in three phases, must then be undertaken at a hospital or medical center to demonstrate optimal use, safety, and efficacy of each product in humans. Each clinical study is conducted under the auspices of an independent Institutional Review Board ("IRB"). The IRB will consider, among other things, ethical factors, the safety of human subjects, and the possible liability of the institution. The time and expense required to perform this clinical testing can far exceed the time and expense of the research and development initially required to create the product. No action can be taken to market any therapeutic product in the U.S. until an appropriate New Drug Application ("NDA") has been approved by the FDA. FDA regulations also restrict the export of therapeutic products for clinical use prior to NDA approval.

Even after initial FDA approval has been obtained, further studies may be required to provide additional data on safety or to gain approval for the use of a product as a treatment for clinical indications other than those initially targeted. In addition, use of these products during testing and after marketing could reveal side effects that could delay, impede, or prevent FDA marketing approval, resulting in FDA-ordered product recall, or in FDA-imposed limitations on permissible uses.

Obtaining regulatory approval of Renevia™ or a similar implantable matrix for tissue transplant or stem cell therapy will require the preparation of a Device Master File containing details on the basic chemistry of the product manufacturing and production methods, analytical controls to assure that the product meets its release specification, and data from analytical assay and process validations, ISO 10993 biocompatibility testing, and if stem cell line cultures are involved, safety and toxicology investigations of those cultures. Preparation of a Device Master File and completion of ISO biocompatibility testing represents a majority of the expenses associated with the regulatory application process in Europe. Clinical trials may also be required on pre-approval or post-approval basis in Europe. The procedures for obtaining FDA approval to sell products in the U.S. are likely to be more stringent, and the cost greater, than would be the case in an application for approval in Europe.

The FDA and comparable foreign regulatory agencies regulate the manufacturing process of pharmaceutical products, medical devices, and human tissue and cell products, requiring that they be produced in compliance with cGMP (see "Manufacturing"). The regulatory agencies also regulate the content of advertisements used to market pharmaceutical products and medical devices. Generally, claims made in advertisements concerning the safety and efficacy of a drug or biological product, or any advantages of a product over another product, must be supported by clinical data filed as part of an NDA or an amendment to an NDA, and statements regarding the use of a product must be consistent with

the approved labeling and dosage information for that product.

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Sales of pharmaceutical products outside the U.S. are subject to foreign regulatory requirements that vary widely from country to country. Even if FDA approval has been obtained, approval of a product by comparable regulatory authorities of foreign countries must be obtained prior to the commencement of marketing the product in those countries. The time required to obtain such approval may be longer or shorter than that required for FDA approval.

The U.S. government and its agencies have until recently refused to fund research which involves the use of human embryonic tissue. President Bush issued Executive Orders on August 9, 2001 and June 20, 2007 that permitted federal funding of research on hES cells using only the limited number of hES cell lines that had already been created as of August 9, 2001. On March 9, 2009, President Obama issued an Executive Order rescinding President Bush's August 9, 2001 and June 20, 2007 Executive Orders. President Obama's Executive Order also instructed the NIH to review existing guidance on human stem cell research and to issue new guidance on the use of hES cells in federally funded research, consistent with President's new Executive Order and existing law. The NIH has adopted new guidelines that went into effect July 7, 2009. The central focus of the new 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. Those 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.

In addition to President Obama's Executive Order, a bipartisan bill has been introduced in the U.S. Senate that would allow Federal funding of hES research. The Senate bill is identical to one that was previously approved by both Houses of Congress but vetoed by President Bush. The Senate Bill provides that hES cells will be eligible for use in research conducted or supported by federal funding if the cells meet each of the following guidelines: (1) the stem cells were derived from human embryos that have been donated from IVF clinics, were created for the purposes of fertility treatment, and were in excess of the clinical need of the individuals seeking such treatment; (2) prior to the consideration of embryo donation and through consultation with the individuals seeking fertility treatment, it was determined that the embryos would never be implanted in a woman and would otherwise be discarded, and (3) the individuals seeking fertility treatment donated the embryos with written informed consent and without receiving any financial or other inducements to make the donation. The Senate Bill authorizes the NIH to adopt further guidelines consistent with the legislation.

California State Regulations

The state of California has adopted legislation and regulations that require institutions that conduct stem cell research to notify, and in certain cases obtain approval from, a Stem Cell Research Oversight Committee ("SCRO Committee") before conducting the research. Advance notice, but not approval by the SCRO Committee, is required in the case of in vitro research that does not derive new stem cell lines. Research that derives new stem cell lines or that involves fertilized human oocytes or blastocysts, or that involves clinical trials or the introduction of stem cells into humans, or that involves introducing stem cells into animals, requires advanced approval by the SCRO Committee. Clinical trials may also entail approvals from IRB at the medical center at which the study is conducted, and animal studies may require approval by an Institutional Animal Care and Use Committee.

All human pluripotent stem cell lines that will be used in our research must be acceptably derived. To be acceptably derived, the pluripotent stem cell line must have been:

listed on the National Institutes of Health Human Embryonic Stem Cell Registry; or

deposited in the United Kingdom Stem Cell Bank; or

derived by, or approved for use by, a licensee of the United Kingdom Human Fertilisation and Embryology Authority; or

derived in accordance with the Canadian Institutes of Health Research Guidelines for Human Stem Cell Research under an application approved by the National Stem Cell Oversight Committee; or

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derived under the following conditions:

(a) Donors of gametes, embryos, somatic cells, or human tissue gave voluntary and informed consent,

(b) Donors of gametes, embryos, somatic cells, or human tissue did not receive valuable consideration. This provision does not prohibit reimbursement for permissible expenses as determined by an IRB,

(c) A person may not knowingly, for valuable consideration, purchase or sell gametes, embryos, somatic cells, or human tissue for research purposes. This provision does not prohibit reimbursement for permissible expenditures as determined by an IRB or SCRO Committee. "Permissible expenditures" means necessary and reasonable costs directly incurred as a result of persons, not including human subjects or donors, providing gametes, embryos, somatic cells, or human tissue for research purposes. Permissible expenditures may include but are not limited to costs associated with processing, quality control, storage, or transportation of materials,

(d) Donation of gametes, embryos, somatic cells, or human tissue was overseen by an IRB (or, in the case of foreign sources, an IRB equivalent),

(e) Individuals who consented to donate stored gametes, embryos, somatic cells, or human tissue were not reimbursed for the cost of storage prior to the decision to donate.

California regulations also require that certain records be maintained with respect to stem cell research and the materials used, including:

a registry of all human stem cell research conducted, and the source(s) of funding for this research; and

a registry of human pluripotent stem cell lines derived or imported, to include, but not necessarily limited to:

(a) the methods utilized to characterize and screen the materials for safety;

(b) the conditions under which the materials have been maintained and stored;

(c) a record of every gamete donation, somatic cell donation, embryo donation, or product of somatic cell nuclear transfer that has been donated, created, or used;

(d) a record of each review and approval conducted by the SCRO Committee.

California Proposition 71

During November 2004, California State Proposition 71 ("Prop. 71"), the California Stem Cell Research and Cures Initiative, was adopted by state-wide referendum. Prop. 71 provides for a state-sponsored program designed to encourage stem cell research in the State of California, and to finance such research with State funds totaling approximately $295 million annually for 10 years beginning in 2005. This initiative created CIRM, which will provide grants, primarily but not exclusively, to academic institutions to advance both hES cell research and adult stem cell research. During April 2009, we were awarded a $4,721,706 research grant from CIRM. We believe that Prop. 71 funding for research in the use of hES cells for various diseases and conditions will contribute to the demand for stem cell research products.

Employees

As of December 31, 2012, we employed 73 persons on a full-time basis and 3 persons on a part-time basis. Thirty-one full-time employees and one part-time employee hold Ph.D. Degrees in one or more fields of science. None of our employees are covered by a collective bargaining agreement.

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COMPANY INFORMATION

We are a reporting company and file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy these reports, proxy statements and other information at the SEC's Public Reference Room at 100 F Street N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 or e-mail the SEC at publicinfo@sec.gov for more information on the operation of the public reference room. Our SEC filings are also available at the SEC's website at http://www.sec.gov. Our Internet address is: http://www.biotimeinc.com. There we make available, free of charge, our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and any amendments to those reports, as soon as reasonably practicable after we electronically file such material with, or furnish such material to, the SEC.

Item 1A. Risk Factors

Our business is subject to various risks, including those described below. You should consider the following risk factors, together with all of the other information included in this report, which could materially adversely affect our proposed operations, our business prospects, and financial condition, and the value of an investment in our business. 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 fiscal years ended December 31, 2012, 2011, and 2010 were $21,362,524, $17,535,587, and $10,287,280, respectively, and we had an accumulated deficit of $101,895,712, $80,470,009, and $63,954,509, as of December 31, 2012, 2011, and 2010, respectively. Since inception, we have primarily financed our operations through the sale of equity securities, licensing fees, royalties on product sales by our licensees, and borrowings. More recently, we have financed a portion of our operations with research grants and subscription fees for the database products marketed by our subsidiary LifeMap Sciences. Ultimately, our ability to generate sufficient operating revenue to earn a profit depends upon our success in developing and marketing or licensing our 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 $18,116,6881, $13,699,691, and $8,191,314 during the fiscal years ended December 31, 2012, 2011, and 2010, respectively.

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.

Completion of the proposed acquisition of stem cell related assets by our subsidiary BAC from Geron Corporation will result in an increase in our operating expenses and losses on a consolidated basis

BAC will use the stem cell assets that it will acquire from Geron for the research and development of products for regenerative medicine. BAC's research and development efforts will involve substantial expense, including but not limited to hiring additional research and management personnel, and the rent of a new office and research facility, that will add to our losses on a consolidated basis for the near future.

BAC will become a public company in connection with the completion of the asset contribution transaction under the Asset Contribution Agreement and the distribution of BAC Series A Common Stock by Geron to its stockholders. As a public company, BAC 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.

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

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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 research 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 pharmaceutical 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 restrictions and religious, moral, and ethical concerns with respect to use of embryos or human embryonic stem (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 human embryonic stem cells.

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

Hextend® is presently the only plasma expander product that we have on the market, and it is being sold only in the U.S. and South Korea. The royalty revenues that we have received from sales of Hextend® 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 will receive additional license fees and royalties if our licensees are successful in marketing Hextend® and PentaLyte® in Japan, Taiwan, and China, but they have not yet obtained the regulatory approvals required to begin selling those products.

We are also beginning to bring 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.

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/McGaw presently markets Hespan®, an artificial plasma volume expander, and Hospira and Baxter International, Inc. manufacture and 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.

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We might 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 pharmaceutical and medical device products, depends upon the amount of money we have

At December 31, 2012, we had $4,349,967 of cash and cash equivalents on hand. Although we have raised an additional $13,431,430 of equity capital during 2013, there can be no assurance that we or our subsidiaries will be able to raise additional 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.

We have already curtailed the pace and scope of our plasma volume expander development efforts due to the limited amount of funds available, and we may have to postpone other laboratory research and development work unless our cash resources increase through a growth in revenues or additional equity investment or borrowing.

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

Our stem cell research program is directed primarily by our Chief Executive Officer, Dr. Michael West. BAC's stem cell research programs will be directed primarily by its Chief Executive Officer, Dr. Thomas Okarma, and by its President of Research and Development, Dr. Jane Lebkowski. The loss of the services of Dr. West, Dr. Okarma or Dr. Lebkowski 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

Our experience in independently identifying acquisition candidates and integrating their operations with our company is limited to our acquisitions of ESI in 2010, Glycosan and CTI in 2011, and XenneX in 2012. During January 2013 we entered into an agreement for our subsidiary BAC to acquire stem cell related assets from Geron. 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.

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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 our 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 the 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 recourses 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.

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 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 pharmaceutical and medical device products

The pharmaceutical 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 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 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 NDAs 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.

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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 drug 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;

delays in obtaining Independent 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 trial,

limited or no availability of coverage, reimbursement and adequate payment from health maintenance organizations and other third party payers 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 drug candidates and possibly resulting in the FDA or other regulatory authorities denying approval of our drug candidates;

unforeseen safety issues;

uncertain dosing issues;

approval and intro 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 certain dosing issues.

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 U.S. 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.

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California law requires that stem cell research be conducted under the oversight of a SCRO committee. 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 U.S. 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 U.S. 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 hES 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 hES cell technologies in Europe.

The recent Supreme Court decision in Mayo Collaborative Services v. Prometheus Laboratories, Inc., will need to be considered in determining whether certain diagnostic methods 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. 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 PTO for the patenting of products that test for biological substances.

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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 PTO 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 PTO 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 PTO's decision is subject to appeal. This means that if an interference 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.

After March 16, 2013 a derivation proceeding may be instituted by the PTO 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 PTO 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 PTO 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 and patent applications pending in the U.S., Canada, the European Union countries, Australia, Israel, Russia, South Africa, South Korea, Japan, Hong Kong, and Singapore, and have filed patent applications in other foreign countries for our plasma volume expander products, certain 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 PTO 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. As of September 16, 2012 our patents may be subject to inter partes review, (replacing the inter partes reexamination proceeding) 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 could 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.

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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 may be limited by health insurance coverage and government regulation

Success in selling our pharmaceutical products 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 U.S., 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

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 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 pharmaceutical 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 drug 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 drug 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 drug candidates.

Risks Related to the Asset Contribution Agreement

BAC will assume Geron’s appeal of two adverse patent rulings, and if the appeal is not successful, BAC may not realize value from the Geron patent applications at issue in the appeal and might be precluded from developing therapies to treat certain diseases, such as diabetes.

At the closing of the asset contribution transaction under the Asset Contribution Agreement, BAC will be substituted for Geron as a party in interest in an appeal filed by Geron in the United States District Court for the Northern District of California, appealing two adverse rulings in favor of ViaCyte, Inc. (formerly Novocell Inc.) by the United States Patent and Trademark Office’s Board of Patent Appeals and Interferences. These rulings related to interference proceedings involving patent filings relating to definitive endoderm cells. Geron had requested that the Board of Patent Appeals and Interferences declare this interference after ViaCyte was granted patent claims that conflicted with subject matter Geron filed in a patent application having an earlier priority date. Those Geron patent applications are among the patent assets that Geron will contribute to BAC. BAC will assume all liabilities arising with respect to the ViaCyte Appeal, other than expenses incurred by Geron relating to the ViaCyte Appeal prior to the closing of the asset contribution transaction. Appeals of this nature may involve costly and time-consuming legal proceedings and if BAC is not successful in the appeal, these rulings may prevent or limit development of BAC product candidates in

certain fields such as diabetes treatment and BAC may be unable to realize value from the patent applications at issue in the appeal.

We and BAC may be unable to complete the asset contribution transaction under the Asset Contribution Agreement, and failure to complete the transaction could adversely affect the market price of our common shares, our reputation, and our ability to obtain financing and, under certain circumstances, may result in our being required to pay a $1,800,000 termination fee to Geron.

We may be unable to complete the asset contribution transaction if the conditions to closing the transaction specified in the Asset Contribution Agreement are not satisfied, including if our shareholders do not approve the Shareholder Proposals.

The price at which our common shares trade on the NYSE MKT, and the daily trading volume, increased significantly after we announced the signing of the Asset Contribution Agreement. If the asset contribution transaction does not close, as a result of our shareholders failing to approve the Shareholder Proposals or for any other reason, the trading price of our common shares could be immediately adversely affected.

Failure to close the asset contribution transaction could also harm our reputation and we may be viewed as a less attractive investment by investors.

Failure of our shareholders to approve the Shareholder Proposals, a withdrawal of our Board of Directors' recommendation in favor of those proposals, or a material breach of a Support Agreement, will, under most circumstances, result in our being required to pay a $1,800,000 termination fee to Geron upon termination of the Asset Contribution Agreement.

We could be liable to indemnify Geron for certain liabilities and must also bear the cost of an insurance policy for the benefit of Geron.

We and BAC have agreed to indemnify Geron from and against certain liabilities relating to (a) Geron's distribution of the BAC Series A common stock to Geron's stockholders, (b) BAC's distribution of the Contribution Warrants to the holders of BAC Series A common stock and (c) any distribution of securities by BAC to the holders of the BAC Series A common stock within one year following the closing under the Asset Contribution Agreement, from the date of the first effective date of either of the Registration Statements through the fifth anniversary of the earliest to occur of the date on which all of the Contribution Warrants have either expired, or been exercised, cancelled or sold. We have also agreed to use our reasonable best efforts to obtain at our cost and expense prior to the closing under the Asset Contribution Agreement a policy of insurance to provide $10,000,000 of coverage for those indemnification obligations for a period of five years. The cost of obtaining and maintaining the insurance policy in place for five years could be significant, and the insurance would be for the benefit of Geron and its affiliates.

We and BAC have also agreed to indemnify Geron, from and against certain expenses, losses, and liabilities arising from, among other things, breaches of our or BAC's 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 limited exceptions, is limited to $2 million.

Completing the asset contribution transaction may divert our management's attention away from ongoing operations and could adversely affect ongoing operations and business relationships.

Completing the asset contribution transaction will require a significant amount of time and attention from our management. Moreover, after the closing of transaction, our management will be required to provide more management attention to BAC. 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 BAC.

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.

Because we are engaged in the development of medical 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 therapy or medical device, even though the outcome of those trials and the likelihood of ultimate FDA or foreign regulatory 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 or foreign regulatory 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.

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 the common shares.

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 will not be paid out as dividends to our shareholders. This means that our stock may not be a suitable investment for anyone who needs to earn income from their investments.

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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 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. If securities analysts do cover our shares, they could issue reports or recommendations that are unfavorable to the price of our shares, and they could downgrade a previously favorable report or recommendation, and in either case our share price could decline as a result of the report. If one or more of these analysts does not initiate coverage, ceases to cover our shares or fails to publish regular reports on our business, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

You may experience dilution of your ownership interests because of the future issuance of additional common 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 76,000,000 shares of capital stock consisting of 75,000,000 common shares and 1,000,000 “blank check” preferred shares. As of March 14, 2013, there were 54,906,793 common shares outstanding 4,771,301 common shares reserved for issuance upon the exercise of outstanding options under our employee stock option plans; and 816,612 shares reserved for issuance upon the exercise of common share purchase warrants. No preferred shares are presently outstanding.

We expect to issue a minimum of 8,902,077 common shares and a maximum of 11,463,464 common shares to BAC under the Asset Contribution Agreement. We also expect to issue 8,000,000 common share purchase warrants to BAC under the Asset Contribution Agreement.

We also plan to issue 810,000 additional common shares and 389,998 common share purchase warrants to an investor under a Stock and Warrant Purchase Agreement concurrently with the consummation of the asset contribution transactions under the Asset Contribution Agreement.

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 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.

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The market price of our common shares could be impacted by the issuance of the common shares and warrants to BAC and to an investor

Under the Asset Contribution Agreement and subject to closing, we have agreed to issue to BAC a minimum of 8,902,077 common shares, and a maximum of 11,463,464 common shares, and 8,000,000 common share purchase warrants. We have also issued 540,000 common shares and 259,999 warrants to an investor under a Stock and Warrant Purchase Agreement and we have agreed to issue to that investor an additional 810,000 common shares and 389,998 warrants. BAC and the investor may sell the common shares that they will receive from us. Those sales may take place from time to time on the NYSE MKT and may create downward pressure on the trading price of our common shares.

BAC expects to distribute the warrants it receives from us to the future holders of its Series A common stock. The warrants we issue to BAC will be exercisable for a period of five years at an exercise price of $5.00 per share, subject to adjustment for certain stock splits, reverse stock splits, stock dividends, recapitalizations and other transactions. The warrants we issue to the investor will be exercisable for a period of three years at an exercise price of $5.00 per share, subject to adjustment for certain stock splits, reverse stock splits, stock dividends, recapitalizations and other transactions. During the period that the warrants are outstanding, the actual or potential exercise of those warrants and sale of the underlying common shares may create downward pressure on the trading price of our common shares.

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 whole and could impact the price at which our common shares trade in the market. A sale of capital stock of any 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 subsidiary based on those share prices will be fully reflected in the market value of our common shares.

Item 1B. Unresolved Staff Comments

None

Item 2. Properties

Our offices and laboratory facilities are located at 1301 Harbor Bay Parkway, in Alameda, California, where we occupy approximately 19,000 square feet of office and research laboratory space. The facility is cGMP-capable and has previously been certified as Class 1,000 and Class 10,000 laboratory space, and includes cell culture and manufacturing equipment previously validated for use in cGMP manufacture of cell-based products. We will use the laboratory facility for the production of hEPCs, and products derived from them.

Base monthly rent for this facility is $29,856 from December 2012 and will increase by three percent each year. In addition to the base rent, we pay a pro rata share of real property taxes and certain costs associated to the operation and maintenance of the building in which the leased premises are located.

We also currently pay $5,050 per month for the use of approximately 900 square feet of office space in New York City, which is made available to us by one of our directors at his cost for use in conducting meetings and other

business affairs.

We have entered into a lease for an office and research facility located in, Menlo Park, California that we plan to make available for use by our subsidiary BioTime Acquisition Corporation. The building on the leased premises contains approximately 24,080 square feet of space. The lease is for a term of three years commencing January 7, 2013. We will pay base rent of $31,785.60 per month, plus real estate taxes and certain costs of maintaining the leased premises.

ESI leases approximately 1,290 square feet of laboratory space and leased approximately 590 square feet of office space in the Biopolis, a research and development park in Singapore devoted to the biomedical sciences. ESI paid on average approximately $7,100 as base monthly rent for the laboratory space and $1,800 as base monthly rent for the office space. The office space lease expired on October 31, 2012 and was not renewed. In addition to base rent, ESI pays a pro rata share of real property taxes and certain costs related to the operation and maintenance of the building in which the leased premises are located.

Cell Cure Neurosciences leases approximately 290 square meters of office and laboratory space located at Hadasa Ein Carem, in Jerusalem, Israel. Base monthly rent for this facility is approximately $8,800. In addition to base rent, Cell Cure Neurosciences pays a pro rata share of real property taxes and certain costs related to the operation and maintenance of the building in which the leased premises are located.

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LifeMap Sciences leases approximately 259 square meters of office space in Tel Aviv, Israel. The lease expired on April 30, 2012. Base monthly rent under that lease was $4,000 per month. The lease was renewed with additional space effective June 1, 2012 through May 31, 2015. Base monthly rent under the renewed lease is currently $5,550 per month. The original lease was extended through May 31 as the new space was not ready on May 1. In addition to base rent, LifeMap pays a pro rata share of real property taxes and certain costs related to the operation and maintenance of the building in which the leased premises are located.

LifeMap Sciences also currently leases office space in Hong Kong. Base monthly rent under the lease is approximately $825 per month for the use of approximately 80 square feet of office space. In addition to base rent, LifeMap pays certain costs related to the operation of the building in which the leased premises are located.

LifeMap Sciences also currently leases office space in Marshfield, Massachusetts. Base monthly rent under the lease is approximately $1,100 per month for the use of approximately 750 square feet of office space. The lease was assumed in connection with the merger with XenneX which occurred in May 2012.

On January 8, 2013, we entered into a lease for an office and research facility located at 230 Constitution Drive, Menlo Park, California that are subleasing to BAC. The building on the leased premises contains approximately 24,080 square feet of space. The lease is for a term of three years commencing January 7, 2013. We will pay base rent of $31,786 per month, plus real estate taxes and certain costs of maintaining the leased premises. As additional consideration for the lease, we issued to the landlord BioTime common shares having a market value of $242,726, determined based upon the average closing price of our common shares on the NYSE MKT for a designated period of time prior to the signing of the lease. We agreed to register those shares under the Securities Act and if it fails to file a registration statement for such purpose within 120 days the landlord will have a right to return the shares to us, in which case the base rent will increase to $38,528 per month, retroactive to the commencement date of the lease.

Item 3. Legal Proceedings

We are not presently involved in any material litigation or proceedings, and to our knowledge no such litigation or proceedings are contemplated. However, upon consummation of the asset acquisition transaction under the Asset Contribution Agreement, BAC will be substituted as the appellant in an appeal of certain decisions of the PTO in two patent interference proceedings that were brought by Geron against Viacyte, Inc.

Item 4. Mine Safety Disclosures

Not applicable

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PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters, and Issuer Purchases of Equity Securities

Our common shares are traded on the NYSE MKT under the ticker symbol BTX. The following table sets forth the range of high and low closing prices for our common shares for the fiscal years ended December 31, 2011 and 2012 as reported by the NYSE MKT:

The following table sets forth the range of high and low closing prices for our common shares for the fiscal years ended December 31, 2011 and 2012 as reported by the NYSE MKT:

Quarter Ended	High	Low
March 31, 2011	9.50	6.53
June 30, 2011	7.73	4.15
September 30, 2011	5.70	4.34
December 31, 2011	6.02	3.74
March 31, 2012	6.12	4.41
June 30, 2012	4.79	3.47
September 30, 2012	4.98	3.81
December 31, 2012	4.40	2.91

On March 14, 2013 the closing price of our common stock reported on the NYSE MKT was $4.41 per share.

As of February 5, 2013, there were 15,138 holders of the common shares based on the share position listing.

The following table shows certain information concerning the options and warrants outstanding and available for issuance under all of our compensation plans and agreements as of December 31, 2012:

Plan Category	Number of Shares to be Issued upon Exercise of Outstanding Options, Warrants, and Rights	Weighted Average Exercise Price of the Outstanding Options, Warrants, and Rights	Number of Shares Remaining Available for Future Issuance under Equity Compensation Plans
BioTime Equity Compensation Plans Approved by Shareholders	3,381,301	$ 1.85	-
BioTime Equity Compensation Plans Not Approved by Shareholders*	255,000	$ 3.45	3,745,000

*The 2012 Equity Incentive Plan which has not yet been approved by the BioTime shareholders.

The following table shows certain information concerning the options outstanding and available for issuance under all of the compensation plans and agreements for our subsidiary companies as of December 31, 2012:

Plan Category	Number of Shares to be Issued upon	Weighted Average	Number of Shares Remaining Available

	Exercise of Outstanding Options, Warrants, and Rights	Exercise Price of the Outstanding Options, Warrants, and Rights	for Future Issuance under Equity Compensation Plans
OrthoCyte Equity Compensation Plans Approved by Shareholders**	2,605,000	$ 0.09	1,395,000
OncoCyte Equity Compensation Plans Approved by Shareholders**	2,730,000	$ 0.75	1,270,000
ReCyte Therapeutics Equity Compensation Plans Approved by Shareholders**	1,550,000	$ 2.05	2,450,000
BioTime Asia Equity Compensation Plans Approved by Shareholders**	400	$ .01	1,200
Cell Cure Neurosciences Compensation Plans Approved by Shareholders**	12,240	$ 23.93	1,860
LifeMap Sciences Equity Compensation Plans Approved by Shareholders**	918,773	$ 1.20	923,496

**BioTime is the majority shareholder.

Additional information concerning our stock option plan and the stock options of our subsidiaries may be found in Note 10 to the Consolidated Financial Statements.

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Dividend Policy

We have never paid cash dividends on our capital stock and 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 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.

Performance Measurement Comparison (1)

The following graph compares total stockholder returns of BioTime, Inc. for the last five fiscal years beginning December 31, 2007 to two indices: the NYSE Amex Market Value – U.S. Companies (Amex Market Value) and the NYSE Amex Biotechnology Index (Amex Biotechnology Index). The total return for our stock and for each index assumes the reinvestment of dividends, although we have never declared dividends on BioTime stock, and is based on the returns of the component companies weighted according to their capitalizations as of the end of each quarterly period. The NYSE Amex Market Value tracks the aggregate price performance of equity securities of U.S. companies listed therein. The NYSE Amex Biotechnology Index represents biotechnology companies, trading on NYSE MKT (formerly NYSE Amex) under the Standard Industrial Classification (SIC) Code Nos. 283 (Drugs) and 382 (Laboratory Apparatus and Analytical, Optical) main categories (2834:Pharmaceutical Preparations; 2835: Diagnostic Substances; 2836: Biological Products; 3826: Laboratory Analytical Instruments; and 3829: Measuring & Controlling Devices). BioTime common stock trades on the NYSE MKT (formerly NYSE Amex) and is a component of the NYSE Amex Market Value – US Companies.

Comparison of Five-Year Cumulative Total Return on Investment

		2007	2008	2009	2010	2011	2012
BioTime, Inc.	Return %		331.63	138.98	96.93	-30.24	-45.96
	Cum $	100.00	667.89	1,596.13	3,143.22	2,192.56	765.76
AMEX Market Value (US Companies)	Return %		-36.26	22.30	27.22	-8.89	9.61
	Cum $	100.00					