BIOTIME INC
Form 10-K
March 17, 2014

UNITED STATES
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, 2013

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 each class	Name of exchange on which registered
Common shares, no par value	NYSE MKT

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 whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).
Yes x o No

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

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, 2013 was $135,804,066. 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 5, 2014 was 69,598,709.

Documents Incorporated by Reference
Portions of the registrant's Proxy Statement for 2014 Annual Meeting of Shareholders are incorporated by reference in Part III

BioTime, Inc.

Table of Contents

Table of Contents
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, for use in a variety of fields of medicine, including: neuroscience, oncology, orthopedics, and blood and vascular diseases. BioTime's commercial strategy targets near-term yet strategic commercial opportunities such as: Renevia™ (a product currently in clinical trials in Europe to facilitate cell transplantation); ReGlyde™ and Premvia™ for tendon and dermatological applications; PanC-Dx™ (a family of novel blood and urine-based cancer screens); our current line of research products including PureStem® cell lines, associated ESpan™ culture media, and cGMP-capable human embryonic stem cell lines; and the LifeMap Database Suite. Four of our subsidiaries, Asterias Biotherapeutics, Inc. ("Asterias"), Cell Cure Neurosciences, Ltd (Cell Cure Neurosciences"), OrthoCyte Corporation ("OrthoCyte"), and ReCyte Therapeutics, Inc. ("ReCyte Therapeutics") are focused on developing cell based therapeutic products for diseases such as neurological disorders, cancer, age related macular degeneration, orthopedic disorders, and age-related cardiovascular disease."

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

The field of regenerative medicine includes a broad range of disciplines, including tissue banking, cellular therapy, gene therapy, and tissue engineering. Our commercial efforts in regenerative medicine include the development and sale of products designed for research applications in the near term as well as products designed for diagnostic and therapeutic applications in the medium and long term. Through our ESI BIO division, we offer advanced human stem cell products and technologies 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 in compliance with the principles of 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 our ESI BIO division at http://esibio.com/products/. We are working with several collaborators to enable the use of these lines for production of cell therapy products for investigational new drug enabling studies. ESI BIO also markets human embryonic progenitor cells ("hEPCs"), which are called PureStem® progenitors and were developed using PureStem® (previously designated 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® progenitors are also available for purchase through http://esibio.com/products/.

Table of Contents

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. Certain research products, such as ESI hES lines and HyStem® hydrogels, have the advantage of being "translatable to the clinic" meaning that these products are available as economical research grade or clinical grade products. Consequently, these products allow researchers more assurance that they will be acceptable for use in future clinical trials. 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 that could be derived from cell-based therapeutic products under development at our subsidiaries, provide us with a balanced commercial strategy.

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™ is a clinical grade formulation of our 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 United States Food and Drug Administration (the "FDA") and comparable regulatory agencies in foreign countries in order to market Renevia™ as a medical device. We recently conducted our first European clinical trial of Renevia™ without cells to determine the safety, tolerability, and acceptance of Renevia™ after subcutaneous injection. Examinations of the subjects after they received Renevia™ injections and through the four-week follow-up period have shown that Renevia™ was well-tolerated by all subjects with no serious adverse events or subject withdrawals. Subsequent clinical studies are planned to document the efficacy of Renevia™ as a delivery matrix for adipose cells to restore normal skin contours in patients where the subcutaneous adipose tissue has been lost to lipoatrophy, beginning with HIV related facial lipoatrophy. Lipoatrophy is a localized loss of fat beneath the skin. Lipoatrophy is often a consequence of the normal aging process where the loss of fat in the cheeks or the back of the hands contributes to an aged appearance, but lipoatrophy can also be associated with trauma, surgery, and diseases, and is frequently suffered by HIV patients being treated with anti-viral drugs.

We have commenced development of two new products based on our HyStem® technology platform. The new products are unique formulations utilizing some of the same cGMP components that we are using in our clinical trials of Renevia.™ The first of these new products is ReGlyde,™ a cross-linked thiol-modified hyaluronan hydrogel for the management and protection of tendon injuries following surgical repair of the digital flexor or extensor tendons of the hand. The product is intended to be applied to the repaired tendon area via a syringe or similar device immediately prior to closing of the surgical area in order to prevent the tendon from attaching to the surrounding tissue. Separation of the tendon from surrounding tissue has been shown to significantly reduce post-surgical adhesions that can lead to complications such as restricted finger mobility and flexibility. The second new product, Premvia,™ is a HyStem® hydrogel formulation of cross-linked thiol-modified hyaluronan and thiol-modified gelatin for the management of wounds by providing a hydrating tissue matrix that permits cell, tissue, and vasculature in-growth.

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

highlighted the combined use of HyStem® hydrogels with PureStem® progenitors resulting in a combined product that produces cartilage-producing cell masses known as chondrocytes. We call this experimental product HyStem®-4D. In collaboration with William Marsh Rice University, we are also using HyStem® technology to develop 3D cell culture platforms for improved methods of screening new anti-cancer drug candidates.

Table of Contents

Our subsidiary OncoCyte is developing novel products for the diagnosis and treatment of cancer in order to improve the quality and length of life of cancer patients. Based on large unmet need, market size, and data generated thus far from patient sample screening, OncoCyte is presently focusing its efforts on developing PanC-Dx™ diagnostic products for use in detecting breast, bladder, and lung cancers. Clinical studies designed to test the performance of PanC-Dx™ markers in these three cancers are currently underway, and completion of the studies is expected by the end of 2014. The performance of the marker panels in determining the presence or the progression of disease in various categories of patients in these clinical studies will determine the specific nature of the test to be developed and the approval pathway that OncoCyte will pursue.

Our subsidiary, LifeMap Sciences, Inc. ("LifeMap Sciences") markets, sells and distributes 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.

Our majority owned subsidiary Cell Cure Neurosciences is developing cell therapies for retinal and neural degenerative diseases. Cell Cure Neurosciences' lead product is OpRegen®, a proprietary formulation of embryonic stem cell-derived retinal pigmented epithelial cells developed to address the high, unmet medical needs of people suffering from age-related macular degeneration.

On October 1, 2013, our subsidiary Asterias acquired the stem cell assets of Geron Corporation ("Geron"), including patents and other intellectual property, biological materials, reagents and equipment for the development of new therapeutic products for regenerative medicine. The product candidates under development from various cell types that Asterias acquired from Geron are summarized in the following table:

Product Candidate Description	Target Market	Estimated Number of Potential Patients [1]	Status
OPC1 – Glial Cells	Spinal Cord Injury	12,000 new cases per year in U.S.	Phase I Trial initiated in U.S. 5 Patients treated – no serious adverse events related to the OPC1 drug product to date.
	Multiple Sclerosis ("MS")	180,000 new cases per year in U.S.	Proof of principle achieved in animal models.
	Canavan's Disease[2]	Rare	Proof of principle achieved in animal models.
	Stroke	800,000 new cases per year in U.S.	Pre-clinical research.
VAC1 – Autologous Monocyte – Derived Dendritic Cells (infused cells derived from the treated patient)	Cancer	Prostate: 240,000 new cases per year in U.S.	Phase I study in metastatic prostate cancer completed (Journal of Immunology, 2005, 174: 3798-3807).
VAC2 – Dendritic Cells	Lung Cancer	Acute myelogenous leukemia: more than 12,000 new cases per year in U.S. 226,000 new cases per year in U.S.	Phase I/II study in acute myelogenous leukemia completed. Manuscript in preparation. Cells derived and characterization studies performed (parameters analyzed

		showed normal cell functions in vitro[3]).
Multiple Myeloma	22,000 new cases per year in U.S.	Scalable manufacturing methods under development
Prostate Cancer	240,000 new cases per year in U.S	Proof of concept established in multiple human in vitro[3] systems.

Table of Contents

Product Candidate Description	Target Market	Estimated Number of Potential Patients	Status
CHND1 – Chondrocytes	Osteoarthritis	25 million total patients in U.S.	Cells derived and partly characterized. Early non-clinical studies have been performed in animal models of osteoarthritis.
	Degenerative Disk Disease	400,000 new spinal fusion cases per year in U.S.	Pre-clinical research.
CM1 – Cardiomyocytes	Heart Failure	6 million total patients in U.S.	Cells derived and characterization studies performed (parameters analyzed showed normal cell functions in vitro[3]).
	Myocardial Infarction	900,000 new cases per year in U.S.	Proof of concept in three animal models of disease. Scalable manufacturing established. First in man clinical trial designed.
IC1 – Islet Cells	Type 1 and some Type 2 Diabetes	5 million total insulin dependent patients in U.S.	Cells derived and partly characterized (most, not all normal cell functions verified in vitro[3]). Proof of concept in rodent diabetes model. Scalable manufacturing methods under development.

(1) The estimates of the numbers of potential patients shown in the table are based on data for the United States only and do not include potential patients in other countries.

(2) Canavan's Disease is a congenital neurological degenerative disease in which the growth of the myelin sheath surrounding nerves is inhibited resulting in mental retardation, loss of motor function, abnormal muscle tone, poor head control and enlarged head. Death usually occurs before age 4.

(3) In vitro means in tissue culture dishes.

Asterias 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. Asterias' product development efforts may be conducted by Asterias alone or in collaboration with others if suitable co-development arrangements can be made.

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 Cheil Jedang Corp. ("CJ"), under license from us.

Table of Contents

Key Accomplishments in 2013

- Our subsidiary, Asterias completed its acquisition of Geron's stem cell assets, including patents and other intellectual property, biological materials, reagents and equipment for the development of new therapeutic products for regenerative medicine. The contributed assets include four cell lines, each with animal proof of concept, from which multiple therapeutic product candidates may be selected by Asterias for development in the fields of neurology, oncology, orthopedics, and cardiology.

- We conducted a clinical safety study of Renevia™ at The Stem Center in Palma de Mallorca, Spain, a patient therapy center, laboratory, and research facility located within the hospital Clinica USP Palmaplanas in Palma. Examinations of the subjects after they received Renevia™ injections have shown that Renevia™ was well tolerated by all subjects with no serious adverse events or subject withdrawals.

- Our subsidiary OncoCyte Corporation entered into a Sponsored Research Agreement and a Material Transfer Agreement with The Wistar Institute to collaboratively develop lung cancer diagnostic products. OncoCyte scientists will analyze blood samples obtained from patients in a Wistar clinical study to determine levels of tumor-associated proteins found in the blood samples. The data obtained from the samples received from Wistar's ongoing multi-center study may allow OncoCyte to more rapidly develop a diagnostic test for lung cancer to be marketed in the U.S. and other countries.

- Our subsidiary, Asterias entered into a Non-Exclusive License Agreement with the Wisconsin Alumni Research Foundation ("WARF") under which Asterias was granted a worldwide non-exclusive license to use certain WARF patents and WARF-owned embryonic stem cell lines in the development and commercialization of therapeutic, diagnostic and research products.

- We commenced the development of two new products based on our HyStem® technology platform. The new products are unique formulations utilizing some of the same cGMP components used in Renevia.™ The first of these new products is ReGlyde,™ a cross-linked thiol-modified hyaluronan hydrogel for the management and protection of tendon injuries following surgical repair of the digital flexor or extensor tendons of the hand. The second new product, Premvia,™ is a HyStem® hydrogel formulation of cross-linked thiol-modified hyaluronan and thiol-modified gelatin for the management of wounds by providing a hydrating tissue matrix that permits cell, tissue, and vasculature in-growth.

- We consolidated our research products business into a new ESI BIO division and a new ESI BIO branding program. The ESI BIO brand and US-based operating division will now be our primary developer, manufacturer and distributor of our growing portfolio of stem cell based research products. This new division includes our Singapore subsidiary ES Cell International Pte Ltd. , that will serve as an Asian manufacturer and research product distribution point. This consolidation will allow for a more focused approach on the branding, development, manufacture and marketing of our research products portfolio.

Additional Information

HyStem®, Hextend®, ESpy®, *PureStem*®, and PentaLyte® are registered trademarks of BioTime, Inc., and Renevia,™ Premvia,™ ReGlyde,™ and ESpan™ are trademarks of BioTime, Inc. ACTCellerate™ is a trademark licensed to us by Advanced Cell Technology, Inc. ReCyte™ is a trademark of ReCyte Therapeutics. PanC-Dx™ is a trademark of OncoCyte. LifeMap Discovery® is a registered trademark of LifeMap Sciences. OpRegen® is a registered trademark of Cell Cure Neurosciences. 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.

8

Table of Contents

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 the U.S. and world population. Second, chronic degenerative 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 care for these diseases.

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.

During September 2012, we formed Asterias to acquire assets in the stem cell field for use in developing and commercializing products for regenerative medicine. During January 2013, Asterias entered into an Asset Contribution Agreement to acquire assets that Geron had used in its stem cell research and development programs. We believe that the acquisition of Geron’s stem cell assets is a good strategic fit as it enhances and expands the intellectual property estate of the BioTime family of companies and should position us for future growth in the regenerative medicine field. Benefits from Asterias’ acquisition of Geron's stem cell assets include:

- The acquisition of a significant intellectual property estate consisting of Geron’s human hES patent portfolio of over 400 patents and patent applications.
- The assets give Asterias multiple potential opportunities to advance products derived from hES cells;
- The potential to leverage the combined technology expertise of BioTime and Asterias to provide enhanced research and development activities;
- The potential expansion of a clinical product pipeline through Asterias’ acquisition of OPC-1 cells previously in a Phase I clinical trial of hES cell-derived oligodendrocytes in patients with acute spinal cord injury, and a Phase II trial treating cancer with a dendritic cell therapeutic vaccine targeting telomerase; and
- Synergies associated with our and Geron’s stem cell assets, merging foundational technologies and allowing Asterias to build upon the pluripotent stem cell technology platform.

By acquiring Geron’s stem cell assets, Asterias now has exclusive 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 cGMP and suitable for human therapeutic use;

Table of Contents

- 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, directly and through subsidiaries, as at December 31, 2013, and the country where their principal business is located:

Subsidiary	Field of Business	BioTime Ownership	Country
Asterias Biotherapeutics, Inc.	Research, development and commercialization of human therapeutic products from stem cells potentially in the fields of neurology, oncology, orthopedics, and cardiology	71.6%[1]	USA
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 chronic back pain and osteoarthritis	100%	USA
Cell Cure Neurosciences Ltd.	Age-related macular degeneration Multiple sclerosis Parkinson's disease	62.5%	Israel
ReCyte Therapeutics, Inc.	Vascular disorders, including cardiovascular-related diseases, ischemic conditions, vascular injuries Stem cell-derived endothelial and cardiovascular related progenitor cells for research, drug testing, and therapeutics	94.8%	USA
BioTime Asia, Limited	Stem cell products for research	81%	Hong Kong
LifeMap Sciences, Inc.	Genetic, disease, and stem cell databases	73.2%	USA
LifeMap Sciences, Ltd.	Stem cell database	(2)	Israel

(1) BioTime's percentage ownership was reduced from approximately 96.7% to approximately 71.6% on October 1, 2013 when Asterias issued common stock to BioTime and Geron Corporation pursuant to an Asset Contribution Agreement and sold common stock and warrants to a private investor for cash in a related transaction.

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

The joint ownership of subsidiaries with other investors allows us to fund the expensive development costs 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. This structure also allows investors the flexibility to invest in BioTime, which is a broad portfolio of companies focused on regenerative medicine, or to invest in a particular subsidiary that is targeting a specific field of medicine or product market. 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. (“Teva”) and HBL-Hadasit Bio-Holdings, Ltd.

Table of Contents

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.

Renevia™ and Other HyStem® Cell Delivery Medical Devices

Our HyStem® hydrogel product line is one of the components in our near-term revenue strategy. HyStem® is a patented biomaterial that mimics the extracellular matrix ("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.

The patented technology underlying our HyStem® hydrogels such as ReGlyde™ and Premvia™ was developed at the University of Utah and has been licensed to us for human therapeutic uses. The HyStem® technology is based on a unique thiol cross-linking strategy to prepare hyaluronan-based hydrogels from thiol-modified hyaluronan. Since the first published report in 2002, there have been over 120 academic scientific publications supporting the biocompatibility of thiol cross-linked hyaluronan based hydrogels and their applications as medical devices and in cell culture, tissue engineering, and animal models of cell-based therapies.

The building blocks for HyStem® hydrogels are hyaluronan and in some applications, gelatin, each of which has been thiol-modified by carbodiimide mediated hydrazide chemistry. HyStem® hydrogels are formed by cross-linking mixtures of these thiolated macromolecules with polyethylene glycol diacrylate ("PEGDA"). This unique cross-linking chemistry works through an elegant chemical reaction between the acrylate groups on the PEGDA and the sulfhydryl groups on the thiolated macromolecules, that does not generate any toxic by-products, pH change or heat. The rate of the cross-linking reaction turning the liquid mixture into a hydrogel (gelation rate) as well as hydrogel stiffness can be controlled by varying the amount of the PEGDA cross-linker. Due to the unique cross-linking chemistry, HyStem® hydrogels can be injected or applied as a liquid which allows the hydrogel to conform to the cavity or space, and gelation occurs in situ without harming the recipient tissue. This property of HyStem® hydrogels offers several distinct advantages over other hydrogels, including the possibility of mixing bioactive materials with the hydrogel at the point of use and the ability to inject or otherwise apply the material in its liquid state with precision at surgical or wound sites. Building upon this platform, we have developed the HyStem® family of unique, biocompatible resorbable hydrogels.

Renevia™

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 this issue 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 also 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.

Table of Contents

During the fourth quarter of 2013 we completed a safety trial, Renevia™-01 evaluating Renevia™ followed by a four week follow-up procedure evaluating the trial subjects. Ten healthy volunteers each received one subcutaneous injection of Renevia™ without cells. The primary objective of the trial was to determine the safety, tolerability, and acceptance of Renevia™ without cells as determined by monitoring subjects for any post-treatment reactions. Examinations of the subjects post treatment have shown that Renevia™ was well-tolerated by all subjects with no serious adverse events or subject withdrawals. The trial was conducted at The Stem Center in Palma de Mallorca, Spain located within the hospital Clinica USP Palmaplanas in Palma.

A protocol for a pivotal clinical study, Renevia™-02, is under development and submission to Spanish regulatory authorities is planned for the first quarter of 2014. This clinical study will document the efficacy of Renevia™ as a delivery matrix for adipose cells to restore normal skin contours in patients where the subcutaneous adipose tissue has been lost to lipoatrophy, specifically HIV related facial lipoatrophy. Lipoatrophy is a localized loss of fat beneath the skin and is often a consequence of the normal aging process, but lipoatrophy can also be associated with trauma, surgery, and diseases. Lipoatrophy is frequently experienced by HIV patients being treated with anti-viral drugs. According to published estimates, at least several hundred thousand patients in Europe, and a similar number in the U.S., are affected by lipoatrophy and related conditions such as lipodystrophy. These patients have very limited treatment options and these conditions therefore represent a significant unmet medical need. The Renevia™-02 study will also be conducted at the Stem Center in Mallorca. Our plan to proceed with the Renevia™-02 pivotal clinical trial is subject to obtaining required regulatory and institutional approvals.

Renevia™ is manufactured in the US in compliance with cGMP requirements and has been tested pursuant to ISO 10993 standards for implantable medical devices and shown to be biocompatible without adverse effects in animal studies. 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.

ReGlyde™ and Premvia™

We have commenced development of two new products based on our HyStem® technology platform. The new products are unique formulations utilizing some of the same cGMP components that will be used in our clinical trials of Renevia.™

The first of these new products is ReGlyde,™ a cross-linked thiol-modified hyaluronan hydrogel for the management and protection of tendon injuries following surgical repair of the digital flexor or extensor tendons of the hand. The product is intended to be applied to the repaired tendon area via a syringe or similar device immediately prior to closing of the surgical area. Separation of the tendon from surrounding tissue has been shown to significantly reduce post-surgical adhesions that can lead to complications such as restricted finger mobility and flexibility. We believe that the flowable and in-situ gelling capability of ReGlyde™ could provide an advantage over the existing technology that is in the form of a sheet causing difficulty in application in what is often a small compartment after surgery.

The second new product, Premvia,™ is a HyStem® hydrogel formulation of cross-linked thiol-modified hyaluronan and thiol-modified gelatin for the management of wounds including partial and full-thickness wounds, ulcers, tunneled/undermined wounds, surgical wounds, and burns. Due to its high water content, Premvia™ is able to donate water molecules to the wound surface and to maintain a moist environment at the wound bed, which is critical for wound healing. Additionally, the biodegradable matrix provides a scaffold for the cellular infiltration and proliferation as well as capillary growth needed to promote healing. There is significant competition in the wound healing dressing space, however, one advantage that Premvia™ appears to have over most other technologies is the ability to flow into the wound and cross-link, or change from a flowing liquid to a semi-solid gel consistency, in-situ,

thereby providing a moist environment to every part of a wound which a traditional covering cannot.

12

Table of Contents

Both ReGlyde™ and Premvia™ are expected to be regulated as medical devices in the United States, and we believe that they are each eligible for 510(k) market approvals. We have initiated for these development-stage products the requisite studies for marketing approval, including ISO 10993 biocompatibility studies and animal studies to demonstrate safety and efficacy. If these requisite studies do not show biocompatibility and efficacy, we will have to reconsider our development plans. We may be required to provide human clinical data demonstrating safety and efficacy for approval as a medical device if the FDA determines that marketing approval should not be granted on the basis of a 510(k) application.

Premvia™ is also intended to serve as a foundation for the further development of bioactive wound healing products that could deliver biological factors or cells to accelerate wound healing before marketing Premvia,™ which would likely require clinical testing to demonstrate safety and efficacy of the new products, and additional FDA review and approval.

HyStem® Hydrogel in Research

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 PureStem® technology. Recent publications have highlighted the combined use of HyStem® hydrogels with PureStem® progenitors resulting in a combined product that produces cartilage- producing cell masses known as chondrocytes. We call this experimental product HyStem®-4D. In collaboration with William Marsh Rice University, we are also using HyStem® technology to develop 3D cell culture platforms for improved methods of screening new anti-cancer drug candidates

We have submitted a Device Master File (called an MAF) to the FDA with the details of the manufacturing, testing, and biocompatibility of the HyStem® hydrogels, of which Renevia™ is one version. The MAF was filed in order to allow the FDA to easily access the manufacturing and biocompatibility information to support any future clinical studies that third party investigators may elect to initiate for their cell or drug products utilizing HyStem® hydrogels.

OncoCyte: Novel Cancer Diagnostics and Therapeutics.

Formed in 2009, OncoCyte is developing novel products for the diagnosis and treatment of cancer in order to improve the quality and length of life of cancer patients. OncoCyte is presently focusing its efforts on developing PanC-Dx™ diagnostic products for use in detecting breast, bladder, and lung cancers.

PanC-Dx™ for Diagnosis of Cancer

OncoCyte's lead product is PanC-Dx™ a class of non-invasive cancer diagnostics based on a proprietary set of cancer markers characterized, in part, by broad gene expression patterns in numerous cancer types. The diagnostic products under development are designed to detect cancer using simple, low cost blood tests or, in the case of bladder cancer, a urine test. The apparent high correlation of certain combinations of biomarkers in breast cancer and bladder cancer has made these indications attractive initial targets. OncoCyte is also evaluating markers that may be used in a PanC-Dx™ screen for lung cancer. Clinical studies designed to test the performance of PanC-Dx™ markers in these three cancers are currently underway, and completion of the studies is expected by the end of 2014. The performance of the marker panels in determining the presence or the progression of disease in various categories of patients in these clinical studies will determine the specific nature of the tests to be developed and the approval pathway that OncoCyte will pursue.

The PanC-Dx™ biomarkers were discovered as a result of ongoing research within OncoCyte and BioTime on the gene expression patterns associated with embryonic development. This research has demonstrated that many of the same genes associated with normal growth during development are abnormally reactivated by cancer cells. These genes regulate such diverse processes as cell proliferation, cell migration and blood vessel formation. Many of these genes have not been previously associated with cancer. Moreover, expression of a large subset of these genes is found 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. In addition to their potential value in developing diagnostic biomarkers, an understanding of the pattern of expression of these genes may also enable the development of powerful new cancer therapeutics that target rapidly proliferating cancer cells.

Table of Contents

OncoCyte has initiated clinical development of its bladder cancer diagnostic test in both the United States and China. In the United States, OncoCyte has entered into a Clinical Trial Agreement with a leading medical institution with an international reputation for excellence and discovery, while in China, OncoCyte has entered into a Fee-for-Service Agreement with China Medicine Inc., a contract research organization serving nine major medical institutions. The goal of these clinical studies is the testing of OncoCyte's proprietary diagnostic technology in the most common type of bladder cancer, urothelial carcinoma ("UC") (previously designated transitional cell carcinoma). Investigators in the collaborating institutions will collect urine samples from patients at the time of bladder cancer diagnosis as well as from those with a risk for recurrent disease. In certain cases, current standard-of-care diagnostic strategies such as the cellular microscopic analysis of the urine samples will be compared with OncoCyte's proprietary markers. A statistical analysis of these and other results will be performed to determine the overall relative performance of OncoCyte's PanC-Dx™ markers. Completion of these studies is expected by late 2014.

The ability of the markers tested in the studies to determine the absence, presence, or progression of UC in patients will determine the specific nature of the bladder cancer test to be developed and the regulatory approval pathway that OncoCyte will pursue. UC constitutes more than 90% of bladder cancers in the Americas, Europe and Asia. Although most patients with bladder cancer can be treated with organ-sparing chemotherapy, UC has a relapse rate of nearly 70% and can progress to invasive, metastatic, and lethal disease. The regular surveillance and treatment of recurrent disease from the time of diagnosis for the remainder of a patient's life makes UC the most costly malignancy on a per patient basis. The problem is amplified because the standard of care for surveillance – microscopic assessment of urinary cytology specimens – often lacks the sensitivity sufficient to ever declare a patient truly disease free. While cytology has a very high positive predictive value (low false positive rate), it has a low negative predictive value and a high indeterminate rate. Patients who have indeterminate urine cytology results commonly undergo cystoscopy, which is painful, time consuming, costly, and unnecessary in many cases since a neoplasm is often not present. In UC, as in virtually all other cancers, earlier and more accurate diagnosis, including diagnosis of disease recurrence, is generally associated with better outcomes and lower cost.

Overall markets for bladder cancer diagnostics are large and growing. Based on National Cancer Institute statistics released in 2012, it was estimated that in 2013 over 72,000 new cases of bladder cancer would occur in the United States and a total of over 550,000 men and women alive would have a history of bladder cancer and be subject to recurrence surveillance testing using cystoscopy or urine cytology. Based on data released in 2012, the overall incidence of bladder cancer in China is 6.1 cases per 100,000 individuals. That number is expected to increase markedly in the next two decades. It is estimated that the annual number of urine cytological analyses performed in the U.S. is over 1.5 million, with more than 3 million tests performed annually in the developed world.

During October 2013, OncoCyte entered into a Sponsored Research Agreement and a Material Transfer Agreement with The Wistar Institute to collaboratively develop lung cancer diagnostic products. As part of the collaboration, Wistar investigators are conducting a multi-center patient study in which they are assessing gene expression patterns in blood cells of patients with malignant versus non-malignant lung disease. OncoCyte scientists will analyze blood samples obtained from patients in the study to determine levels of tumor-associated proteins using its proprietary PanC-Dx™ diagnostic tests. The performance of markers tested in the study in determining the presence or the progression of disease in various categories of patients may determine the specific nature of the lung cancer test to be developed and the regulatory approval pathway that OncoCyte will pursue. OncoCyte will have an option to exclusively license any inventions, discoveries or technology developed by Wistar, or by OncoCyte using Wistar technology, in the course of the collaborative research.

Lung cancer remains a primary cause of cancer-related death, in part because there is no effective diagnostic test to screen patients for lung cancer at an early stage. The current study is being conducted on patients recruited through grant partners at multiple clinical sites. Thus far over 400 patient samples out of a planned total of 600 have been obtained. Completion of the study, which began mid-2012, is expected in mid-2014

14

Table of Contents

OncoCyte has achieved several key advances in its PanC-Dx™ program during 2013, including:

- Entrance into Sponsored Research and Material Transfer Agreements with the Wistar Institute to collaboratively develop lung cancer diagnostics;
- Formalization of additional relationships with key opinion leaders at major medical institutions to advance breast and bladder cancer programs;
- Institutional review board (IRB) approval and initiation of a large, prospective multicenter patient study at Scottsdale Medical Imaging Laboratories to assess performance of PanC-Dx™ markers in women undergoing mammography;
- Continued manufacturing and characterization of monoclonal antibodies for potential use in diagnostic kits; and
- Publication of results relating to FSIP1, a marker unique to breast cancer.

OncoCyte's key goals for 2014 will be:

- Recruitment and initiation of additional clinical study sites for breast, bladder and lung cancer diagnostics;
- Completion of ongoing clinical studies in breast, bladder and lung cancer diagnostics;
- Assessments of clinical study data and strategic product development path decisions in breast, bladder and lung cancer programs;
- Presentation of key findings at major oncology-related scientific conferences; and
- Submission of manuscripts to peer-reviewed scientific journals for publication.

Cancer Therapy

Although OncoCyte is presently devoting its research and development efforts to PanC-Dx,™ OncoCyte has also conducted research to derive vascular endothelial cells 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.

Through the acquisition of Cell Targeting, Inc., OncoCyte has access to 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, OncoCyte has been able to produce tissue-specific and disease-specific cell modification agents. This technology may be used in conjunction with the development of genetically modified hES-derived vascular progenitors designed to target and destroy malignant tumors.

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, 2013, options to purchase 2,750,000 shares of OncoCyte common stock had been granted.

Table of Contents
Asterias: Stem Cell Therapies

Asterias and the Asset Contribution Agreement

During September 2012, we formed Asterias to acquire assets in the stem cell field for use in developing and commercializing products for regenerative medicine. During January 2013, Asterias entered into an Asset Contribution Agreement to acquire assets that Geron had used in its stem cell research and development programs.

Asterias' acquisition of the Geron stem cell assets pursuant to the Asset Contribution Agreement was completed on October 1, 2013. Asterias issued 6,537,779 shares of its Series A common stock to Geron and 21,773,340 shares of Asterias Series B common stock and warrants to purchase an additional 3,150,000 shares of Asterias Series B common stock to BioTime. See Note 15 to Consolidated Financial Statements.

Concurrently with the close of the asset contribution under the Asset Contribution Agreement, Asterias issued 2,136,000 shares of its Series B Common Stock and warrants to purchase 350,000 additional shares of Series B common stock to the private investor for $5,000,000 in cash pursuant to the Stock and Warrant Purchase Agreement.

In connection with its acquisition of the stem cell assets from Geron on October 1, 2013, Asterias entered into a Royalty Agreement with Geron and received from Geron an exclusive sublicense of certain patents owned by the University of Colorado; University License Equity Holdings, Inc. relating to telomerase. The Royalty Agreement and the agreement sublicensing the telomerase patents are described in more detail below under "Licensed Stem Cell Technology and Stem Cell Product Development Agreements – Asterias Royalty Agreement with Geron" and "– Telomerase Sublicenses,"

By acquiring Geron's stem cell assets, Asterias now has 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 areas:

- The establishment of cell banks of undifferentiated hES cells produced under cGMP and suitable for the manufacture of differentiated cells 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 that we believe will be sufficient 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.

Asterias has acquired 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.

Table of Contents

The product candidates under development from various cell types that Asterias acquired from Geron are summarized in the following table:

Product Candidate Description	Target Market	Estimated Number of Potential Patients[1]	Status
OPC1 – Glial Cells	Spinal Cord Injury	12,000 new cases per year in U.S.	Phase I Trial completed in U.S. 5 Patients treated – no serious adverse events related to the OPC1 drug product to date.
	Multiple Sclerosis (“MS”)	180,000 new cases per year in U.S.	Proof of principle achieved in animal models.
	Canavan's Disease[2]	Rare	Proof of principle achieved in animal models.
	Stroke	800,000 new cases per year in U.S.	Pre-clinical research.
VAC1 – Autologous Monocyte – Derived Dendritic Cells (infused cells derived from the treated patient)	Cancer	Prostate: 240,000 new cases per year in U.S.	Phase I study in metastatic prostate cancer completed (Journal of Immunology, 2005, 174: 3798-3807).
		Acute myelogenous leukemia: more than 12,000 new cases per year in U.S.	Phase I/II study in acute myelogenous leukemia completed. Manuscript in preparation.
VAC2 – Dendritic Cells	Lung Cancer	226,000 new cases per year in U.S.	Cells derived and characterization studies performed (parameters analyzed showed normal cell functions in vitro[3]).
	Multiple Myeloma	22,000 new cases per year in U.S.	Scalable manufacturing methods under development
	Prostate Cancer	240,000 new cases per year in U.S.	Proof of concept established in multiple human in vitro[3] systems.
CHND1 – Chondrocytes	Osteoarthritis	25 million total patients in U.S.	Cells derived and partly characterized.
			Early non-clinical studies have been performed in animal models of osteoarthritis.
	Degenerative Disk Disease	400,000 new spinal fusion cases per year in U.S.	Pre-clinical research.
CM1 – Cardiomyocytes	Heart Failure	6 million total patients in U.S.	Cells derived and characterization studies performed (parameters analyzed showed normal cell functions in vitro[3].

	Myocardial Infarction	900,000 new cases per year in U.S.	Proof of concept in three animal models of disease. Scalable manufacturing established.
IC1 – Islet Cells	Type 1 and some Type 2 Diabetes	5 million total insulin dependent patients in U.S.	First in man clinical trial designed. Cells derived and partly characterized (most, not all normal cell functions verified in vitro[3]). Proof of concept in rodent diabetes model. Scalable manufacturing methods under development.

Table of Contents

(1) The estimates of the numbers of potential patients shown in the table are based on data for the United States only and do not include potential patients in other countries.

(2) Canavan's Disease is a congenital neurological degenerative disease in which the growth of the myelin sheath surrounding nerves is inhibited resulting in mental retardation, loss of motor function, abnormal muscle tone, poor head control and enlarged head. Death usually occurs before age 4.

(3) In vitro means in tissue culture dishes.

The cost and time required to develop products from the acquired assets is not presently known with certainty due to many factors including the following:

- the functional state of the cells, cell lines and other biological reagents transferred to Asterias cannot be determined until they are tested in an appropriate laboratory setting by qualified scientific personnel using validated equipment, which may not be completed until the second quarter of 2014. The functionalities of the cells were within specification at the time of initial manufacturing and subsequent storage. However, the cells have remained in storage (under cGMP conditions) for more than two years. Therefore, all the functional tests need to be repeated to verify that the cells remain within specification after the two year period of frozen storage.

- the views of the FDA and comparable foreign regulatory agencies on the pre-clinical product characterization studies required to submit an IND in order to initiate human clinical testing of potential therapeutic products;

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

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

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

Asterias has commenced efforts to obtain project funding, manufacturing expertise, and clinical trial management for the VAC2, CHND1 and CM1 programs by initiating discussions with certain third parties that either had agreements with Geron related to, or had expressed an interest in participating in, the development of therapeutic products with those cell lines and related technologies. The extent and pace of the work Asterias can do to develop product candidates in those three programs will depend in large part on the consummation of agreements for one or more of those potential collaborations. Discussions with the third parties are in the early stages and there is no assurance that they will lead to any agreements. Asterias may also pursue discussions with other third parties for financial, manufacturing, or clinical trial management, or other co-development arrangements for those programs.

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

We presently own 71.6% of the outstanding Asterias common stock, Geron now owns approximately 21.4% of the outstanding Asterias common stock, and a private investor now owns approximately 7.0%, of the outstanding Asterias common stock. Pursuant to the Asset Contribution Agreement, Geron has agreed to distribute its shares of Asterias Series A common stock to its stockholders on a pro rata basis. Asterias has adopted a stock option plan under which it may issue up to 4,500,000 shares of its common stock to officers, directors, employees, and consultants. As of December 31, 2013, options to purchase 2,840,000 shares of Asterias common stock had been granted.

Table of Contents

OPC1 Glial Progenitor Cells

Asterias acquired from Geron a quantity of glial progenitor cells, which are cells that become glial cells after injection, derived from a cGMP master cell bank of undifferentiated hES cells that has been fully qualified for human use. These cells, which are stored frozen until ready for use, are produced under cGMP conditions and screened for adventitious agents. These glial progenitor cells were Geron's first hES cell-derived cellular therapy to enter human clinical testing and are known as OPC1.

Glial cells are nature's neuronal insulating cells. Like the insulation covering an electrical wire, glial cells enable the conduction of electrical impulses along nerve fibers throughout the central and peripheral nervous system. They are also known to promote neural growth, as well as induce blood vessel formation around nerve axons. OPC1 cells reproduce all of the natural functions of glial cells in animal models, including: producing myelin that wraps around nerve fibers; producing neurotrophic factors which encourage neuro-regeneration and sprouting of new nerve endings, and inducing new blood vessels which provide nutrients and remove waste matter from neural tissue as it functions in the body.

The pathology of spinal cord injury involves extensive loss of the myelin sheath (insulation) produced by glial cells at the site of injury. Although neurons are lost, the prime pathology of spinal cord injury is loss of glial insulation which prevents transmission of nerve impulses above or below the point of injury.

There are currently no drugs approved by the FDA specifically for the treatment of spinal cord injury although methylprednisolone, a corticosteroid generally used as an anti-inflammatory drug, is sometimes prescribed on an off-label basis to reduce acute inflammation in the injured spinal cord immediately after injury. It is believed that in order to effect substantial benefit in treating this complex injury, multiple mechanisms of action are required, such as re-myelination of the demyelinated axons, generation of new blood vessels to repair the ischemic damage from injury, and the presence of biologics that cause neuro-sprouting or new nerve growth to enable the severed axons to repair. In studies to date, OPC1 cells have been shown to exhibit all three effects, and therefore we believe they have potential to effectively treat acute spinal cord injury.

Geron has published multiple studies in a validated rat model of spinal cord injury showing that a single injection of OPC1 cells at the site of injury produces durable re-myelination, new blood vessel formation, and new neuronal sprouting, all of which result in sustained and significant improvement in the animal's locomotion within several months after injection. These data provided the rationale to initiate the world's first clinical trial using hES cell-derived glial cells (OPC1) to treat acute spinal cord injury in humans. No toxicity was seen in the animals after injection – no systemic toxicity, nerve pain, benign growths (known as teratomas), or toxicity of any kind other than rare observations of benign cyst-like structures at the point of injection. Extensive in vitro immune assays demonstrated the absence of direct immune recognition of OPC1 by human immune cells. The cyst-like structures that appeared in certain rat model studies were microscopic in size, had very few dividing cells, did not grow, and were found exclusively in the spinal cord injury site where the OPC1 cells were injected. Because of the discovery of the cyst-like structures in early animal models, the FDA placed Geron's planned clinical trial on hold. The presence of cyst-like structures was investigated in additional animal studies. In four separate animal studies using the clinical grade OPC1 product, cyst-like structures were found in the frequencies shown in the following table:

Number of Animals Developing Cyst-Like Structures	Number of Animals Studied
5	128
0	62
1	68
1	108

After discussions that Geron had with the FDA, the clinical trial investigators, and the data monitoring safety board, the unanimous opinion was that these cyst-like structures were of low risk to subjects and the clinical trial was permitted to proceed. Nevertheless a plan was developed to monitor subjects in clinical trials for the development of such cyst-like structures. In the completed Phase I safety study in which 5 patients received OPC1 cells in their injured spinal cords, no cyst-like structures were detected in multiple magnetic resonance imaging exams during a one year follow-up.

Table of Contents

Phase I Trial Design

After FDA authorization, Geron began the world's first human embryonic stem cell trial in patients with acute spinal cord injury in October 2010. The trial was an open label design conducted at seven U.S. neuro-trauma sites. Patients enrolled in the study received a single dose of 2 x 10^6 cells at the injury site between 7 and 14 days after injury. All subjects received temporary low dose immune suppression treatment for 45-60 days. The primary endpoint of the study was safety, with secondary endpoints of neurologic function assessed by five different validated measures of sensory and motor function.

Five patients have received OPC1 and have completed a one year follow-up data set. No surgical complications during or post-surgery have been observed, and there have been no significant adverse events to date in any patient attributable to the OPC1 product. There have been five minor adverse events possibly related to OPC1 such as transient fever and nerve pain. There have been no unexpected neurological changes to date, nor has there been evidence of adverse changes or cavitation on multiple MRIs. Immune monitoring, conducted in some of the patients, has not detected any evidence of immune responses to OPC1, an important clinical finding that was predicted by extensive in vitro immune testing of OPC1 prior to initiating the trial.

Proposed New Study Population: Subjects with Neurologically Complete Cervical Spinal Cord Injuries

Based on the results of the completed Phase I trial of OPC1 in thoracic Spinal Cord Injury (SCI), the next target patient population in which Asterias plans to clinically test OPC1 is patients with neurologically complete cervical spinal cord injuries. Asterias believes that there are both medical and scientific rationales for the transition to subjects with cervical SCI. Individuals with neurologically complete cervical SCI have an enormous unmet medical need due to the loss of function in all four limbs as well as multiple additional impairments such as impaired bowel and bladder function, reduced sensation, spasticity, sudden changes in blood pressure, deep vein thrombosis, sexual dysfunction, increased infections, skin pressure sores, and chronic pain. These individuals frequently require significant assistance for their care and activities of daily living.

Scientifically, the injured cervical spinal cord is a much better location than the upper or middle thoracic spinal cord to test the safety and potential activity of OPC1. This is partly due to the fact that damaged and demyelinated nerve axons in thoracic injuries need to regrow over several spinal segments in order to restore neural function. In contrast, damaged and demyelinated nerve axons in cervical injuries only need to regrow a short distance to restore neural function. Therefore, in cervical injuries, regeneration and/or repair of damaged axons mediated by OPC1 could result in substantial re-innervation of cervical segments and thereby have a significant impact on upper extremity motor and/or sensory function.

Asterias plans to initiate a new Phase I/IIa dose escalation trial of OPC1 in patients with complete cervical injuries and to conduct additional research and planning for subsequent trials and for other possible indications for the use of OPC1. Asterias will need to raise additional capital in order conduct the Phase I/IIa clinical trial and subsequent clinical trial and product development work.

OPC1 for the Treatment of Multiple Sclerosis and Other Diseases

In addition or as an alternative to spinal cord injury, Asterias may test the OPC1 cells in other alternative indications, including multiple sclerosis (MS), Canavan's Disease, and stroke. Because of its functional properties, OPC1 is a candidate for the repair of central nervous system lesions found in subjects with MS. In these lesions, axons are "demyelinated," meaning that they have lost the sheaths that provide insulation for nerve conduction. In many cases, lesions located in the spinal cord of patients with MS are responsible for progressive clinical deterioration and a loss of ambulatory function. OPC1 may have the potential to repair such spinal cord lesions and to reverse clinical deterioration associated with the lesions.

20

Table of Contents

In Canavan's Disease, a genetic mutation leads to the accumulation of toxic materials that result in the death of glial cells leading to consequent demyelination. OPC1 cells have been injected into a mouse model of Canavan's Disease in which the cells were shown to survive and significantly improve rotation behavior after injection, thereby establishing the rationale to possibly extend OPC1 use into that genetic disease.

VAC2 and VAC1, Technology for Potential New Cancer Vaccines

Asterias acquired from Geron two experimental therapeutic cancer vaccines designed to target cancer cells by targeting the cancer cell's expression of telomerase. Telomerase is a ubiquitous cancer target, expressed at high levels in all human cancers but at very low levels or not at all, in normal human cells. The premise underlying these vaccines is to "teach" the patient's own immune system to attack cancer cells while sparing other cells. This may be possible by repeatedly exposing the immune system to a substance (an antigen) that is either specifically expressed or over-expressed by cancer cells in a way that subsequently induces an immune response to any cells that express that antigen on their surface. Asterias believes that the characteristics of telomerase make it an ideal antigen for cancer vaccines.

VAC2: hES Cell Derived Dendritic Cells

Dendritic cells can be likened to the quarterback of the immune system. They are antigen processing and presenting cells which are potent initiators of a cellular and humoral (antibody) immune response. Immature dendritic cells initiate an antigen specific suppressive response, such as would be required to terminate an abnormal autoimmune reaction as occurs in diseases like rheumatoid arthritis, and systemic lupus erythematosis. Mature dendritic cells, on the other hand, initiate active cellular and humoral immunity such as is required for immune targeting cancer and infectious disease. VAC2 is a dendritic cell population that is produced from human embryonic stem cells that can be modified with any antigen. VAC2 can be produced in the form of immature dendritic cells for antigen specific immune suppressive therapies, or in mature form to generate antigen restricted cytotoxic responses. There is a significant amount of global clinical literature that describes the use of dendritic cells isolated from peripheral blood samples and used in various vaccination schemes, especially in various cancers (see our discussion of VAC1, below). Although effective in generating an antigen specific immune response, and in several cases showing a significant clinical impact, the drawbacks of autologous peripheral blood-derived dendritic cell vaccination schemes such as VAC1 are the limited supply of cells, the high cost of production, the long production time, and high patient to patient variability.

As a second generation dendritic cell technology, VAC2 is designed to specifically obviate theses drawbacks. VAC2 can be produced in large quantities, similar to the other hES cell-based therapeutic cells. Additionally, because VAC2 is an allogeneic cell, it is believed to be potentially more potent than an autologous dendritic cell, by means of partial antigen mismatch in the HLA system (Human Leukocyte Antigen – markers of immune system types, akin to blood types). The differentiation process for VAC2 has been optimized, the protocol is patent protected and clinically compliant (suitable for use in humans), and no serum or animal feeder cells are used. The production protocol is robust, achieving fully matured dendritic cells within 30 days with reliable process controls. The differentiation protocol is scalable to flasks in the near-term and suspended micro-beads in bioreactors in the medium-term.

VAC2 cells have been extensively characterized in vitro and have high migratory and antigen presenting functionality with limited phagocytic activity (ability to engulf other cells – not a characteristic of dendritic cells), as would be expected for mature dendritic cells. They express high levels of all the appropriate surface markers defining them as mature human dendritic cells. VAC2 cells are phenotypically similar to dendritic cells derived from peripheral blood mononuclear cells, further enabling them to be potentially used in lieu of peripheral blood derived dendritic cell vaccination protocols. VAC2 and peripheral blood monocyte derived dendritic cells produce similar cytokine profiles (patterns of biologically active proteins) before and after antigen stimulation. VAC2 has been shown to demonstrate functionality in chemotactic responses (cells are specifically attracted by certain molecules) and T-cell stimulation.

VAC2 in-vitro stimulates a TH-1 type cytokine production (T-helper 1 – a subtype of T cells) from lymphocytes in a mixed lymphocyte reaction in vitro (a test in which lymphocytes from two different individuals are mixed together to determine whether one individual "recognizes" the other's lymphocyte type) resulting in highly activated antigen restricted T-cell populations (lymphocytes that recognizes only one specific substance). In vitro studies have demonstrated that a single HLA match between VAC2 cells and responding lymphocytes is required to stimulate antigen specific T-cell responses. VAC2 has been shown to retain antigen presentation functionally (ability to "present" antigen on its surface to induce an immune response in another cell) after cryo-preservation. Irradiation of VAC2 after introduction of antigen eliminates the proliferative capacity of the dendritic cells and removes any safety concerns due to the presence of any residual undifferentiated embryonic stem cells in the preparation. Irradiated and cryo-preserved VAC2 cells are fully capable of presenting antigen to T-cells, resulting in antigen specific T-cell activation.

Table of Contents

A clinical protocol for the potentially first-in-man safety study of VAC2 has been outlined for prostate cancer, although Asterias believes that other tumor targets, such as lung cancer and multiple myeloma, are possible. Telomerase, a ubiquitous tumor antigen, would be the first antigen to be used with VAC2. If Asterias proceeds with clinical development in prostate cancer, approximately 15-20 prostate cancer patients who have developed a biochemical (PSA) relapse after either local radical treatment or adjuvant hormonal therapy would be eligible to participate in the trial. Patients would initially be restricted to HLA-A 2.1 and would receive 6 vaccinations at two different doses (1×10^6 and 1×10^7) at weeks 0, 1, 2, 3, 4, 8 and 16.

In summary, VAC2, a second generation dendritic cell technology, has been demonstrated to exhibit a mature dendritic cell phenotype of reproducibly characterized cellular composition. The cells activate allogenic T-cells and migrate in response to chemokine stimulation. VAC2 stimulates a TH-1 type cytokine production and can present antigen delivered to the cells in either mRNA, or protein form. VAC2 can stimulate Class 1 and Class 2 antigen specific T-cells (two types of antigens - type 1 is within a cell, type 2 is outside the cell) and has been shown to prime and stimulate naive antigen restricted T-cells even with only a single HLA-antigen match. Lastly, the feasibility of cryo-presentation and irradiation without alteration of VAC2 function has been demonstrated. These attributes will potentially allow for a greater margin of safety in clinical studies utilizing VAC2 and reduce the number of additional preclinical studies required for an IND submission. Specifically, long-term cell survival and engraftment studies may not be required for a VAC2 IND submission.

Asterias plans to scale up the manufacturing process for the VAC2 drug product and transition it to cGMP production to support the first in man clinical study of VAC2 cancer immunotherapy in lung or prostate cancer. Asterias also will need to develop the quality, purity and potency assays needed for clinical testing, and to transfer to clinical study sites the immunological monitoring assays that will be used to measure patient immune responses in the clinical trial.

Telomerase Therapeutic Vaccine (VAC1)

Asterias acquired from Geron rights to its immunological cancer therapy product VAC1, including the IND for clinical trials conducted by Geron and the related drug master files. VAC1 is an autologous product (using cells that come from the treated patient) consisting of mature antigen-presenting dendritic cells pulsed with RNA for the protein component of human telomerase (“hTERT”) and a portion of a lysosomal targeting signal ("LAMP"). LAMP directs the telomerase RNA to the lysosome, the subcellular organelle that directs the RNA to a particular part of the cell membrane. VAC1 is injected into the patient’s skin; and from there the dendritic cells travel to the lymph nodes and instruct cytotoxic T-cells (T-cells that "kill" other cells) to kill tumor cells that express telomerase on their surface.

A Geron-sponsored Phase I/II clinical trial of VAC1 was conducted at six U.S. medical centers in patients with acute myelogenous leukemia (“AML”) in complete clinical remission. The trial examined the safety and feasibility of a prime-boost vaccination regimen (an initial injection ("prime") followed by multiple additional injections ("boost")) to generate and extend the duration of telomerase immunity. Geron evaluated the immune response to VAC1 and explored the effects of vaccination on minimal residual disease and relapse rates. This trial completed patient enrollment in December 2009.

In the Phase I/II clinical trial, patients with AML entered the study in their first or second complete remission. Prior to or shortly after completing consolidation chemotherapy, patients underwent leukapheresis (collection of white blood cells) to harvest normal peripheral blood mononuclear (white blood) cells for vaccine manufacture. VAC1 was produced at a centralized manufacturing facility from the patient-specific leukapheresis harvests. Patient mononuclear cells were differentiated in culture to immature dendritic cells, which were transfected with messenger RNA encoding hTERT and LAMP. Transfected dendritic cells were matured, aliquoted and cryopreserved. VAC1 was released for patient dosing contingent on several product specifications that included identity of mature dendritic cells, confirmation of positive transfection with hTERT, number of viable cells per dose after thawing, and product sterility.

Table of Contents

VAC1 was successfully manufactured and released in 21 out of the 31 patients enrolled in the study. These results reflect the variability of patient derived starting material that is often associated with an autologous, patient-specific product. Patients were vaccinated weekly for six weeks with VAC1 administered intra-dermally, followed by a non-treatment period of four weeks, and then subsequent boost injections every other week for 12 weeks. Monthly extended boost injections were then administered until the vaccine product supply was depleted or the patient relapsed.

Twenty-one patients received VAC1 in the study, including 19 in clinical remission and two in early relapse. Of the 19 patients in clinical remission, eight were considered at intermediate risk for relapse and eleven were at high risk for relapse as predicted by their cytogenetics (gene expression pattern in the AML cells), FAB type (French-American-British classification of AML into 8 subtypes), or because they were in second clinical remission. Thirteen out of 21 patients in the trial remained in clinical remission at a median duration of follow-up from first vaccination of 13.2 months. At 12 months after vaccination with VAC1, estimated disease-free survival was 81% for patients at high-risk of relapse (95% CI: 42-95%). The confidence interval ("CI") of 95% means that the true value is between 42 and 95 with a probability of 95%. Previously published data on this patient population suggests that approximately 45% of patients would normally remain free from relapse at this stage. VAC1 was found to have a favorable safety and tolerability profile in this study over multiple vaccinations, with up to 32 serial vaccinations administered (median = 17). Idiopathic thrombocytopenic purpura (bleeding into the skin caused by low platelets in blood) (grade 3-4) was reported in one patient. Other toxicities (grade 1-2) included rash or headache. These data from the Phase I/II trial were presented at the December 2010 American Society of Hematology annual meeting.

Expression of WT-1, a marker of minimal residual disease, was sequentially analyzed by qPCR (quantitative polymerase chain reaction - a method to identify DNA modules) in 21 patients. The 13 patients who remain in clinical remission remain negative for WT-1, while six of seven with clinical relapse were WT-1 positive. One patient was positive for WT-1 prior to vaccination with VAC1 and became WT-1 negative during the course of vaccination. This patient relapsed after 30 months. Asterias has begun follow-up data collection on the 21 patients treated in the study at the six participating U.S. medical centers to determine the long term effects, if any, of the VAC1 administration on remission duration and disease-free survival. Depending upon the results of that analysis, Asterias will then decide whether to continue VAC1 development in AML or another cancer indication ourselves or in conjunction with a development partner. Asterias expects the follow-up data collection to be completed in the first half of 2014.

CHND1: Chondrocytes for Cartilage Disorders and Degenerative Disc Disease

Articular cartilage is the shock absorber for joints. Cartilage is a complex tissue with multiple cell levels and is avascular (without blood vessels), and without neurons or lymphatics, and has very low cell division. Injury or chronic wear and tear can cause defects in cartilage in both joints and intervertebral discs that increase over time and leads to permanent disability due to the fact that damaged cartilage cannot generally regenerate itself in response to damage to the tissue. Current procedures for cartilage repair using adult-derived cells generally show less than ideal efficacy. The unmet medical need is for a source of reparative cells that can regenerate true articular cartilage and that does not require biopsy or multiple surgical procedures for installation. Pluripotent stem cell-derived chondrocytes have been shown in animal models of osteoarthritis to mature in situ (in place) and form stable articular cartilage for at least nine months in the knee joint.

The global market for surgical and pharmacological interventions for patients with osteo-arthritis is estimated to exceed $12 billion per year. The CDC has estimated that there are 27 million osteoarthritis sufferers in the U.S. alone, so a suitable supply of therapeutic cells for use in cartilage regeneration could potentially address a very large market. The market for degenerative disc disease is thought to be even larger.

Asterias' CHND1 cells are hES cell-derived human cartilage-forming cells. Sourced from large cGMP human embryonic stem cell banks, they can be potentially produced in large multi-dose production lots, quality controlled and cryo-preserved for shipping and storage to achieve an "off-the-shelf" product description. The differentiation process developed for CHND1 produces human cartilage forming cells that express the appropriate chondrocyte genes, including SOX9, COL2A1, COL9A1, and ACAN with embryonic stem cell markers undetectable in the final preparation. The chondrocytes produced by this methodology have undergone a significant degree of characterization and produce the appropriate markers of articular cartilage in vitro.

The CHND1 cells have been tested in two animal models of osteoarthritis, in which a trochlear groove defect is made in the knee of immune-competent rats into which a single injection of CHND1 is implanted as a micromass into the articular defect without immune suppression. CHND1 cells have also been tested in a large sheep animal model of osteoarthritis in which an 8 millimeter defect was surgically created in the animal's knee and CHND1 cells were implanted in the injured site under a nylon membrane. As in the rodent studies, no immune suppression was required. Defect repair was studied after 21 days in vivo in the sheep model as articular cartilage and repaired subchondral (beneath cartilage) bone. Further optimization will be required to enable full thickness, long-term cartilage regeneration in this large animal, weight bearing joint model. Asterias anticipates that the next steps for CHND1 product development would be to improve the surgical delivery and retention in the large, weight bearing sheep model by integrating their CHND1 cells with our HyStem® hydrogel technology, and to continue scale-up and process optimization to enable the generation of animal data sufficient for an IND submission, which could potentially lead to a Phase I clinical trial in patients with osteoarthritis.

Although Asterias has not yet tested CHND1 in models of degenerative disc disease (DDD) the pathology of DDD is similar to that of osteoarthritis and several groups, including our subsidiary OrthoCyte, have demonstrated disc repair in animals using chondrogenic cells similar to CHND1.

Table of Contents

An additional feature of Asterias' CHND1 program involves the integration of BioTime HyStem® hydrogel technology with CHND1. The hydrogel is essentially a covalently linked extra cellular matrix formulation that is mixed with cells just prior to injection while the gel is in the liquid phase. A cross linker is then added to the gel and cell mixture as the cells are injected into the tissue to be repaired. Depending upon the amount of cross linker added and other controllable characteristics of the hydrogel, the final gel and cell mixture can quickly congeal into a jello-like consistency with the cells imbedded in the gel, which is subsequently resorbed by the body over several weeks, or, on the other extreme, the gel can harden into a much firmer, fibrocartilage-like material with a retention in the body for many months. BioTime collaborators have demonstrated that chondrogenic cells are highly compatible with the hydrogel both in vitro and in vivo, providing the rationale for us to optimize the formulation of the hydrogel for application in both osteoarthritis and DDD.

Near-term Development Strategy for CHND1

Asterias plans to develop a scalable manufacturing process for CHND1 and to optimize a formulation of our HyStem® hydrogel that will improve CHND1 retention after injection into weight-bearing joints or degenerating intervertebral discs of animal models. Asterias has identified the steps in the current process that need improvement or scale up and have identified cellular markers on CHND1 that can be used in the assay development work required to support clinical grade manufacturing of the product candidate for use in animal studies from which Asterias plans to acquire data to support an IND filing with the FDA. Asterias will also need to develop methods to cryopreserve CHND1 after manufacturing to enable long term storage, shipment to clinical trial sites and off the shelf availability for subjects in the planned trials.

The hydrogel formulation will need to be optimized to ensure compatibility with CHND1 cells and to improve the retention of the cells after injection into weight bearing arthritic joints and degenerating intervertebral discs of animal models of these two conditions. Appropriate concentrations of various components of the hydrogel will need to be determined to maximize the viability and retention of the injected cells into the damaged joint or disc.

Asterias has entered into a Material Transfer Agreement with us through which they may obtain BioTime hydrogel for research use, but Asterias will need to enter into a sublicense agreement with us in order to use the patented hydrogel technology with their CHND1 cells in humans.

Potential Development Collaboration for manufacture of CHND1

Asterias is in early-stage discussions with a United Kingdom based technology innovation center seeking their support for the development of advanced manufacturing processes for CHND1. Methods developed at the technology innovation center would be incorporated in future commercial manufacturing processes for the product. An alliance with the technology innovation center would be on a specific project basis and would require multiple approvals from different committees and boards at the center. There can be no assurance that Asterias will reach an agreement with the center for this project.

CM1: Cell Therapy for Myocardial Disease

In heart failure, ischemic injury to the myocardium, or heart, in the form of myocardial infarction leads to cell death and loss of contractility. In a process called pathological remodeling, progressive deterioration of tissue structure leads to further cell death and loss of contractility. Although heart failure is treatable by a wide variety of pharmacologic agents with varied success, no conventional drug or biologic can restore the damaged heart wall muscle structure. Therefore, there is an urgent, unmet medical need to restore contractile function and prevent pathological remodeling.

CM1, hES cell-derived cardiomyocytes, have been extensively characterized in vitro and in vivo. The product is predominantly composed of ventricular cardiomyocytes that have been shown to electrically and mechanically couple to the animal myocardium in which they are injected and contract in synchrony with the animal host ventricular cells. CM1 has been shown in animal studies to repopulate a scar with healthy cardiac tissue. The cells have shown to be completely responsive to all major classes of current cardiac pharmacologic agents, which is important because patients who may receive CM1 for heart failure will also concurrently be treated with existing drugs. It is therefore important that the injected tissue responds to cardiac drugs appropriately. Geron had optimized and validated a scalable production methodology to meet the volumes of product required for such a large medical market.

CM1 cells have been subjected to extensive pharmacologic, electro-physiologic and molecular biological testing both in-house and in the laboratories of numerous academic collaborators. Extensive immuno-cytochemical analysis using antibodies that mark specific cell structures has shown that CM1 cells express cardiac sarcomeric and gap junction proteins (biochemical components of heart muscle cells) and appropriate transcription factors (molecules that allow the expression of a specific gene) to unequivocally identify them as human ventricular cardiac cells. Over 80% of cells in the CM1 preparation are ventricular cardiomyocytes with the appropriate electrophysiological de-polarization pattern and appropriate drug responses to HERG-channel blockers (drugs that block certain ion transport channels in heart cells), calcium channel blockers (drugs that block calcium transport into and out of heart cells) and other cardio-active agents. The cells display mature excitation contraction coupling properties, including the influx of external calcium ions through L-type calcium channels which are required for electro-chemical coupling. As is the case for OPC1, CM1 cells have been shown to not be susceptible to immune responses to genetically different human cells in vitro. The cells express HL-A B and C alleles, but not Class 2 alleles. These alleles are markers of human immune "types", akin to blood "types". Even after in vitro treatment with interferon gamma, CM1 cells do not stimulate allogenic T-cells in vitro. The use of allogenic T-cells in the studies means that the T-cells came from an individual who is genetically different from the source of the CM1 cells. Furthermore, CM1 is resistant to human serum antibody mediated cyto-toxicity. These results suggest, as in the case of OPC1, the need for only transient, low-dose immune suppression in the immediate post-injection period.

Table of Contents

CM1 cells have been tested in three animal models of myocardial infarction: the rat, the guinea pig and large pig. In all three animal models, CM1, after a single injection, forms long lasting cardiomyocyte grafts which form in the scar tissue into which they are injected. The cells induce host vascular proliferation which enables the long-term survival of the injected human cells. CM1 has been shown to couple electrically and mechanically with the host myocardium. The cells significantly improve ejection fraction (blood pumping efficiency) in both acute rat infarcts, and chronic infarcts in a large pig model. The rat ejection fraction improved from 45% to 50% (p=0.05); the pig ejection fraction improved by 12 percentage points (from 40% to 52%) (p=0.002). The P Value is the probability that the observed difference occurred by chance. P Values equal to or less than .05 are considered to be "significant" or unlikely to be due to chance alone.

Toxicity studies have demonstrated a favorable safety profile for these cells. The cells did not increase arrhythmias in two of three animal models, even during the induction of an arrhythmia after injection. In one of the models (guinea pig) the frequency of induced arrhythmias was decreased in animals that have received the CM1 product, presumably because the CM1 product increases normal electrical conductivity across the infarct zone. In the large pig model, arrhythmias were observed, possibly due to the inflammation at the injection site due to incomplete immune suppression. Improved ejection fraction has been documented in two animal models using echo cardiography. The magnitude of the improvement in ejection fraction is clinically and statistically significant. We believe that CM1 is the only hES cell-based cardiomyocyte cell therapy for myocardial disease that has shown stable and durable engraftment with living functional cardiomyocytes after injection into animal models of myocardial disease. The beneficial effects in the animal models are likely due to the persistence of the injected cells rather than a transient effect produced by secretion factors of cells that do not persist after injection, such as injected bone marrow cells, or mesenchymal stem cells.

IC1: hES Cell-Derived Islets for the Treatment of Diabetes

Approximately 26% of adult diabetic patients receive insulin therapy. Injected insulin, while effective at reducing hyperglycemic (high blood sugar) episodes, requires constant monitoring. Despite sophisticated pump systems and rapid glucose monitoring tests, changes in blood glucose levels still occur and exogenous insulin fails to prevent systemic complications of the disease. Proof of concept for cell therapy interventions in diabetes were provided by the cadaveric islet transplants performed according to the so-called Edmonton protocol. Although these cells reversed hypoglycemia (low blood sugar), the cadaveric islets have poor viability, differ widely in function and are often associated with a severe complication called portal hypertension (high blood pressure in the liver). The annual availability of cadaveric islets is less than 0.1% of the number of cases of Type 1 diabetes prevalent in North America. Therefore, a substantial unmet medical need exists for a consistent and scalable source of high quality human islet cells for transplantation. IC1 is a highly viable hES cell-derived islet progenitor population that potentially could satisfy that unmet medical need. Multiple animal studies have shown that IC1 cells, after injection, mature in the animal to express all islet hormones, process and release insulin in response to high glucose challenge, and reverse hyperglycemia in vivo in rodent models of diabetes.

The IC1 product profile is envisioned to require 10^8 hES cell-derived islet cells for injection into an immuno-isolation device that would be implanted subcutaneously. The immuno-isolation device would prevent the patient’s autoimmune reaction, the hallmark of Type 1 Diabetes, from destroying or damaging the IC1 cell product. Additionally, the immuno-isolation device, with a rechargeable core, would enable the periodic re-injection of fresh IC1 cells to recharge the device, if necessary, on a yearly basis. This device is intended to avoid the requirement for any immune suppression. The prevalence of Type 1 Diabetes is nearly 2 million persons in the United States, most of whom require exogenous insulin and could therefore be potential candidates for the IC1 product. There are over 20 million Type 2 diabetics in the United States and about 20% of them also become insulin dependent, thereby creating a large potential market opportunity for the IC1 product.

Table of Contents

The patented differentiation protocol generates islet progenitor cells in a manner that mimics the development path for that cell in the normal human embryo. The cells that are injected in the animal models of diabetes mature in vivo over the course of several weeks into mature human islets that produce the three main islet hormones: C-peptide, glucagon and somatostatin, as well as characteristic transcription factors that identify them as human islet cells. After maturation in vivo the injected IC1 cells are shown to express one hormone per cell type; alpha cells producing glucagon, beta cells producing insulin and C-peptide, and delta cells producing somatostatin. After injection into diabetic mice, the presence of human C-peptide is detectible in blood at physiologically relevant concentrations (amounts sufficient to produce significant changes in blood glucose). When IC1 treated mice are challenged with a glucose load, they appropriately increase their insulin level in response to the glucose challenge. Studied long-term, IC1 injected diabetic animals maintain normal glucose regulation for over 140 days, the length of the animal study. Their average blood glucose concentration is normal for humans, and slightly hypoglycemic for mice, indicating the complete take-over of glucose homeostasis by the human cells injected into the animal. Importantly, IC1 treated animals maintain mormoglycemic levels following an intra-peritoneal (in the belly cavity) glucose challenge, indicating the capacity of IC1 treated mice to maintain normoglycemia in the face of a glucose challenge.

A definitive decision whether to develop IC1 will depend largely on the outcome of the appeal proceedings in the U.S. District Court for the Northern District of California (the "ViaCyte Appeal") in which Asterias is appealing two adverse rulings in favor of ViaCyte, Inc. ("ViaCyte") by the United States Patent and Trademark Office's Board of Patent and Interference. 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 relate to IC1 are among the patent assets that Geron has contributed to us, and we have been substituted as a party in interest in the appeal in place of Geron.

If Asterias is not successful in the ViaCyte Appeal, ViaCyte would retain its patent claims directed to definitive endoderm. Definitive endoderm is an early pre-cursor of numerous cell types including liver and -cells of the pancreas that could potentially treat diabetes, and it is likely that the derivation of any of the endodermal lineage cells from embryonic stem cells would necessarily pass through the definitive endoderm stage. As a result, Asterias would be unable to develop and commercialize those cell types, including IC1, without a license from ViaCyte, which we may not be able to obtain at all or on terms acceptable to Asterias.

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® cell lines 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 follow on studies in large 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.

Table of Contents

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 that 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, directly and through our subsidiary Asterias, 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, 2013, options to purchase 2,645,000 shares of OrthoCyte common stock had been granted.

Cell Cure Neurosciences: Therapies for Retinal and Neural Degenerative Diseases

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.

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.

Table of Contents

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 development 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 that 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.

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.

Table of Contents

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 increased our ownership interest in that subsidiary. Pursuant to that agreement, we purchased 87,456 additional 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, we now own, directly and through our subsidiaries ESI and Asterias, approximately 62.5% of the outstanding ordinary shares of Cell Cure Neurosciences.

Table of Contents

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 investments by private shareholders and by us.

The therapeutic indications targeted by ReCyte Therapeutics products include age-related cardiovascular diseases such as coronary artery disease, heart failure, and peripheral artery disease. Therapeutics for age-related vascular disease represent some of the largest, fastest-growing actual and potential markets in the U.S. due to the aging baby boom generation. Cardiovascular disease is among the leading causes of death and disability in the U.S., and they consume a major and every-increasing proportion of health care costs. The National Academy of Sciences has estimated that a potential 58 million Americans are currently afflicted with cardiovascular disease.

ReCyte Therapeutics is working to produce novel first-in-class therapies for the unmet needs of these patients. Its products in development include vascular cells derived from hES and iPS cell sources.

Table of Contents

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 ReCyte 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 has used the Cornell technology in combination with the PureStem® technology to produce highly purified monoclonal embryonic vascular endothelial progenitor stem cells.

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, are conducting 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 94.8% 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, 2013, options to purchase 1,290,000 shares of ReCyte Therapeutics common stock had been granted.

Table of Contents

LifeMap Sciences: On-Line Data Bases for Genetic, Stem Cell, and Disease Research

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 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 2,342,269 shares of its common stock to officers, directors, employees, and consultants of LifeMap Sciences and BioTime. As of December 31, 2013, options to purchase 1,928,768 shares of LifeMap Sciences common stock had been granted.

Stem Cells and Related Products for Regenerative Medicine Research

We have consolidated the marketing of our existing research products and will be launching all new research products through ESI BIO. During 2014, we will be building the ESI BIO brand to create a single well-recognized brand and outlet for our current and future research products. One focus of ESI BIO’s research product offering will be to provide products that can be offered at both a less expensive research grade and also at a “clinical grade” if needed by our customers. This two-tiered grade and price approach will give our customers an easier transition from their therapeutic research to clinical applications and also will provide future therapeutic out-licensing opportunities for our research products and technologies.

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 PureStem® 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.

Table of Contents

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/collections/human-embryonic-stem-cells and http://esibio.com/products/.

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 cGMP-grade cell lines, along with certain documentation and complete genomic DNA sequence information, available for sale. We will charge a price for the cGMP-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 cGMP cell lines for therapeutic or diagnostic products, or for any other commercial purposes, may do so only after signing commercialization agreements acceptable to us..

PureStem® Human Embryonic Progenitor Cells

We acquired a license from Advanced Cell Technology to make and sell hEPCs using PureStem® technology. This technology allows the rapid isolation of novel, highly purified progenitors, which are cells that are intermediate in the developmental process between embryonic stem cells and fully differentiated cells. Using the PureStem® technology we derived more than 200 progenitors and are marketing a subset of these cells to the research community. Not only do PureStem® hEPCs 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.

We now offer 12 PureStem® hEPC for purchase at http://esibio.com/products/, and http://bioreagents.lifemapsc.com. 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® hEPCs. Through our current inventory of over 200 hEPCs, we plan to continually add additional PureStem® cells to our product offering.

We have been awarded a SBIR Phase 1 Small Business Grant from the National Institute of General Medical Sciences at the National Institutes of Health (NIH) for a project aimed at developing a simple cell culture additive that will reduce the risk of contamination of therapeutic stem cell formulations by residual pluripotent stem cells. Unlike our PureStem® technology, first generation protocols used in many laboratories to manufacture cell types from pluripotent stem cells can be contaminated with undesired cell types. Under the grant, we will work to develop reagents that selectively identify and kill residual pluripotent cells while leaving the intended therapeutic stem cells unharmed. Any products that may be developed may be marketed to the stem cell research community and to cell therapy companies that are developing pluripotent stem cell derived products without our PureStem® technology, for the treatment of degenerative diseases and injury.

We have also begun the PureStem® grant program which will award a $100,000 grant in 2014 to a winning applicant who offers the most innovative research plan to BioTime that utilizes one of our PureStem® progenitors.

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.

Table of Contents

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.

ESpy® Cell Lines

Additional new products that we have targeted for launch in 2014 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.

HyStem® Hydrogels

We offer hydrogel cell culture matrix products for our customers to grow ESI BIO stem cells and differentiated derivatives in a three-dimentional matrix that mimics the environment that is found in a living animal. The market is recognizing the need to culture cells in an environment that is similar to a living model, and since these hydrogel products can be provided at a research grade and at a clinical grade, they fit well within the ESI BIO product family of products that allow an easier transition from the research laboratory into the clinic.

Products for Differentiating and Reprogramming Cells

We plan to develop and launch a new line of research products to reprogram, differentiate, expand and characterize cells. These products will be designed to utilize technologies and materials that are more likely to be compliant with regulatory requirements for translation to the clinic, such as products that do not utilize animal-derived components or viruses. These products will continue our strategy of providing our customers cell based research products that are more likely to translate to therapeutic applications and that provide outlicensing opportunities for use of ESI BIO products in various therapeutic fields.

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.

Wisconsin Alumni Research Foundation—Research Products

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.

Table of Contents

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.

Wisconsin Alumni Research Foundation License to Asterias—Therapeutic Products, Diagnostic and Research Products

Asterias has entered into a Non-Exclusive License Agreement with WARF under which Asterias was granted a worldwide non-exclusive license under certain WARF patents and WARF-owned embryonic stem cell lines to develop and commercialize therapeutic, diagnostic and research products. The licensed patents include patents covering primate embryonic stem cells as compositions of matter, as well as methods for growth and differentiation of primate embryonic stem cells. The licensed stem cell lines include the H1, H7, H9, H13 and H14 human embryonic stem cell lines.

In consideration of the rights licensed, Asterias has agreed to pay WARF an upfront license fee, payments upon the attainment of specified clinical development milestones, royalties on sales of commercialized products, and, subject to certain exclusions, a percentage of any payments that Asterias may receive from any sublicenses that it may grant to use the licensed patents or stem cell lines.

The license agreement will terminate with respect to licensed patents upon the expiration of the last licensed patent to expire. Asterias may terminate the license agreement at any time by giving WARF prior written notice. WARF may terminate the license agreement if payments of earned royalties, once begun, cease for a specified period of time or if Asterias and any third parties collaborating or cooperating with Asterias in the development of products using the licensed patents or stem cell lines fail to spend a specified minimum amount on research and development of products relating to the licensed patents or stem cell lines for a specified period of time.

WARF also has the right to terminate the license agreement if Asterias breaches the license agreement or becomes bankrupt or insolvent or if any of the licensed patents or stem cell lines are offered to creditors.

Asterias will indemnify WARF and certain other designated affiliated entities from liability arising out of or relating to the death or injury of any person or damage to property due to the sale, marketing, use, or manufacture of products that are covered by the licensed patents, or licensed stem cells, or inventions or materials developed or derived from the licensed patents or stem cell lines

Table of Contents

PureStem® 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 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 this 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.

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.

Table of Contents

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 genesOCT4 , 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.

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.

Table of Contents

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.

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.

Table of Contents

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.

Telomerase Sublicense

Asterias has received from Geron an exclusive sublicense under certain patents owned by the University of Colorado's University License Equity Holdings, Inc. relating to telomerase (the "Telomerase Sublicense"). The Telomerase Sublicense entitles Asterias to use the technology covered by the patents in the development of VAC1 and VAC2 as immunological treatments for cancer. Under the Telomerase Sublicense, Asterias paid Geron a one-time upfront license fee of $65,000, and will pay Geron an annual license maintenance fee of $10,000 due on each anniversary of the effective date of the Telomerase Sublicense, and a 1% royalty on sales of any products that Asterias may develop and commercialize that are covered by the sublicensed patents. The Telomerase Sublicense will expire concurrently with the expiration of Geron's license. That license will terminate during April 2017 when the licensed patents expire. The Telomerase Sublicense may also be terminated by Asterias by giving Geron 90 days written notice, by Asterias or by Geron if the other party breaches its obligations under the sublicense agreement and fails to cure their breach within the prescribed time period, or by Asterias or by Geron upon the filing or institution of bankruptcy, reorganization, liquidation or receivership proceedings, or upon an assignment of a substantial portion of the assets for the benefit of creditors by the other party.

Asterias is obligated to indemnify Geron, Geron's licensor, and certain other parties for certain liabilities, including those for personal injury, product liability, or property damage relating to or arising from the manufacture, use, promotion or sale of a product, or the use by any person of a product made, created, sold or otherwise transferred by Asterias or its sublicensees that is covered by the patents sublicensed under the agreement.

License Agreement with the University of California

Geron assigned to Asterias its Exclusive License Agreement with The Regents of the University of California for patents covering a method for directing the differentiation of multipotential human embryonic stem cells to glial-restricted progenitor cells that generate pure populations of oligodendrocytes for remyelination and treatment of spinal cord injury. Pursuant to this agreement, Asterias has an exclusive worldwide license under such patents, including the right to grant sublicenses, to create products for biological research, drug screening, and human therapy using the licensed patents. Under the license agreement, Asterias will be obligated to pay the university a royalty of 1% from sales of products that are covered by the licensed patent rights, and a minimum annual royalty of $5,000 starting in the year in which the first sale of a product covered by any licensed patent rights occurs, and continuing for the life of the applicable patent right under the agreement. The royalty payments due are subject to reduction, but not by more than 50%, to the extent of any payments that Asterias may be obligated to pay to a third party for the use of patents or other intellectual property licensed from the third party in order to make, have made, use, sell, or import products or otherwise exercise its rights under the Exclusive License Agreement. Asterias will be obligated to pay the university 7.5% of any proceeds, excluding debt financing and equity investments, and certain reimbursements, that

its receives from sublicensees, other than Asterias' affiliates and joint ventures relating to the development, manufacture, purchase, and sale of products, processes, and services covered by the licensed patent.

39

Table of Contents

The license agreement will terminate on the expiration of the last-to-expire of the university's issued licensed patents. If no further patents covered by the license agreement are issued, the license agreement would terminate in 2024. The university may terminate the agreement in the event of Asterias' breach of the agreement. Asterias can terminate the agreement upon 60 days' notice.

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.

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 Cell Targeting, Inc. ("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.

Table of Contents

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.

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.

Table of Contents

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.

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.

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.

Table of Contents

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.

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.

Table of Contents

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.

Table of Contents

Under the Supply Agreement, USCN has agreed to sell us certain assay test kits. 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.

Asterias Royalty Agreement with Geron

In connection with its acquisition of stem cell assets from Geron, Asterias entered into a Royalty Agreement with Geron pursuant to which Asterias agreed to pay Geron a 4% royalty on net sales (as defined in the Royalty Agreement), by Asterias or any of its affiliates or sales agents, of any products that Asterias develops and commercialize that are covered by the patents Geron contributed to Asterias. In the case of sales of such products by a person other than Asterias or one of its affiliates or sales agents, Asterias will be required to pay Geron 50% of all royalties and cash payments received by it or by its affiliate in respect of a product sale.

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.

Hextend® is manufactured and distributed in the U.S. by Hospira, Inc., and in South Korea by CJ CheilJedang ("CJ"), under license from us.

45

Table of Contents

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®

Hextend® has been formulated to maintain the patient's tissue and organ function by sustaining the patient's fluid volume and physiological balance. Hextend® is composed of a hydroxyethyl starch, electrolytes, sugar, and lactate in an aqueous base. 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.

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 0.22% 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.

Table of Contents

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.

Major Customers

During 2013, 2012, and 2011, 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 and Summit Pharmaceuticals International Corporation ("Summit"). We received the license fees from CJ and Summit during the years 2003 -2005. Full recognition of the revenues derived from those license fees was deferred and revenues have been recognized over the lives of the respective contracts, which had been estimated to last until approximately 2019 based on the current expected life of the governing patent covering our products in Korea and Japan. However, we recognized the unamortized balance of the Summit license fees during the fourth quarter of 2013 as a result of the termination of our license agreements with Summit. The following table shows revenues paid by customers that were recognized during the past three fiscal years and that accounted for 5% or more of our total annual revenues.

	% of Total Revenues for the Year Ending December 31,		
Licensee	2013	2012	2011
Hospira	11%	30%	63%
CJ	3 %	8 %	15%
Summit	35%	10%	14%

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 2013 and 2012, license fee revenues include subscription and advertisement revenues received by LifeMap Sciences. Revenues earned in Asia during 2013 reflect, in part, the recognition of the unamortized balance of the pre-paid Summit license fees, as a result of the termination of our license agreements with them. The following table shows the source of our 2013, 2012, and 2011 royalty and license fee revenues by geographic areas, based on the country of domicile of the licensee:

Table of Contents

	Revenues for Year Ending December 31,		
Geographic Area	2013	2012	2011
Domestic	$1,606,945	$1,183,638	$719,958
Asia	978,004	258,041	300,680
Total Revenues	$2,584,949	$1,441,679	$1,020,638

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 had leased approximately 125 square meters of laboratory space in Singapore that ESI used as a manufacturing and shipping point for sales in parts of Asia through February 28, 2014. ESI will continue to pursue our ongoing plans to establish new laboratory facilities in Singapore for manufacturing and distribution of ESI BIO research products in Asia.

Cell Cure Neurosciences leases approximately 290 square meters of office and laboratory space located at Hadassah Ein Kerem, in Jerusalem, Israel.

We have leased an office and research facility located in Menlo Park, California for use by Asterias. The building on the leased premises contains approximately 24,080 square feet of space. The lease is for a term of three years. Asterias has also entered into a new lease for a 44,000 square foot facility in Fremont, California at which it plans to construct a cGMP compliant facility for the production of its product candidates, using a $4,400,000 tenant improvement allowance from the landlord. Occupancy of the newly leased facility is expected to commence during the fourth quarter of 2014.

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 cGMP 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.

Table of Contents

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®. Hospira and CJ presently have a source of supply of the hydroxyethyl starch used in Hextend® 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.

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 through our ESI BIO division, and our marketing of existing sub-brands PureStem® embryonic progenitors, HyStem® hydrogel matrix products, ESI cGMP hES cell lines, and our new differentiation and stem cell reprogramming products is being consolidated under the new ESI BIO branding program and through our subsidiary LifeMap Sciences. These research products 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. We are focusing our branding program on our product features and strengths of being “translatable” to the clinic, extending to our customers the benefit of an easier transition of their research into clinical applications. We expect our products and technologies for the research market to provide us with a source of revenues more quickly, and with the expenditure of less capital, than our therapeutic products, and to generate therapeutic out-licensing opportunities as well.

LifeMap Sciences sells subscriptions to its database products to biotech and pharmaceutical companies 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® progenitors by permitting data base users to follow the development of hES cell lines to the purified progenitors state.

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.

49

Table of Contents

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.

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.

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.

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

Therapeutic Products and Medical Devices

Because our planned therapeutic products and medical devices are still in the research and development stage, we and our subsidiaries will not initially need to have our own marketing personnel. If we or our subsidiaries are successful in developing marketable therapeutic products and medical devices we will need to build our own marketing and distribution capability for those products, which would require the investment of significant financial and management resources, or we and our subsidiaries will need to find collaborative marketing partners, independent sales representatives, or wholesale distributors for the commercial sale of those 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. This means that our gross profit from product sales may be less than would be the case if we were to sell our products directly to end users at retail prices through our own sales force. On the other hand, selling to distributors or through independent sales representatives would allow us to avoid the cost of hiring and training our own sales employees. There can be no assurance we or any of our

subsidiaries will be able to negotiate distribution or sales agreements with third parties on favorable terms to justify our investment in our products or achieve sufficient revenues to support our operations.

Table of Contents

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 11, 2014, we owned or controlled or licensed directly or through our subsidiaries over 700 patents and pending patent applications worldwide including more than 340 issued or allowed U.S. patents. We also owned or controlled over 210 pending U.S. patent applications, including provisional patent applications, to protect our proprietary technologies. We also licensed 140 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

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 United States Patent and Trademark Office ("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.

Table of Contents

Patents Used in Our Stem Cell Business

The patents Asterias acquired from Geron and that have been licensed to Asterias by assignment of third party licenses have been issued in certain key countries and will expire at various times.

Oligodendrocyte progenitor cells: The patent rights relevant to oligodendrocyte progenitor cells include rights licensed from the University of California and various developed patent families covering the growth of hES cells and their differentiation into neural cells. There are issued patents in the United States, Australia, China, United Kingdom, Japan, Singapore and Israel. The expiration dates of these patents range from 2023 to 2030.

Cardiomyocytes: The patent rights relevant to cardiomyocytes include various patent families covering the growth of hES cells and their differentiation into cardiomyocytes. There are issued patents in the United States, Australia, United Kingdom, Hong Kong, Korea, Japan, India, Singapore and Israel. The expiration dates of these patents range from 2022 to 2031.

Pancreatic islet cells: The patent rights relevant to pancreatic islet cells include various patent families covering the growth of hES cells and their differentiation into pancreatic islet cells. There are issued patents in the United States, Australia, Canada, United Kingdom, Hong Kong, Korea, Japan, China, Singapore and Israel. The expiration dates of these patents are in 2022.

Hepatocytes: The patent rights relevant to hepatocytes include various patent families covering the growth of hES cells and their differentiation into hepatocytes. There are issued patents in the United States, Australia, Canada, United Kingdom, Korea, India, Singapore and Israel. The expiration dates of these patents are in 2021.

Neural cells: The patent rights relevant to neural cells include various patent families covering the growth of hES cells and their differentiation into neural cells. There are issued patents in the United States, Australia, Canada, United Kingdom, Japan, China, Hong Kong, India, Korea, Singapore and Israel. The expiration dates of these patents are in 2021.

Hematopoietic cells: The patent rights relevant to hematopoietic cells include rights licensed from certain third parties and various patent families covering the growth of hES cells and their differentiation into hematopoietic cells. There are issued patents in the United States, Australia, United Kingdom, Singapore and Israel. The expiration dates of these patents are in 2022.

Osteoblasts: The patent rights relevant to osteoblasts include various patent families covering the growth of hES cells and their differentiation into osteoblasts. There are issued patents in the Australia, United Kingdom, India, Singapore and Israel. The expiration dates of these patents are in 2022.

Chondrocytes: The patent rights relevant to chondrocytes include various patent families covering the growth of hES cells and their differentiation into chondrocytes. There are issued patents in the United States, Australia, Korea, Singapore and Israel. The expiration dates of these patents are in 2022.

Dendritic cells: The patent rights relevant to dendritic cells include rights licensed from third parties and various patent families covering the growth of hES cells and their differentiation into dendritic cells. There are issued patents in the United States, Australia, Europe, Canada, China, Hong Kong, Japan, Singapore and Israel. The expiration dates of these patents range from 2019 to 2029.

Platform patents: The platform patent rights include various patent families covering the growth of hES cells. There are issued patents in the United States, Australia, Canada, United Kingdom, Hong Kong, China, India, Japan, Singapore and Israel. The expiration dates of these patents range from 2018 to 2020.

52

Table of Contents

ViaCyte Patent Interference Proceedings

Asterias has been 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 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 us. Asterias will also assume the USPTO interferences upon which the appeal is based, as well as certain oppositions filed by Geron against certain ViaCyte patent filings in Australia and in the European Patent Office. Asterias has agreed to assume all liabilities relating to the ViaCyte Appeal and the related interference proceedings, including the costs of litigation, other than expenses incurred by Geron prior to October 1, 2013.

Patents Used in Our Plasma Volume Expander Business

We currently hold 26 issued U. S. patents with composition and methods-of-use claims covering Hextend®. 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®, 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 ("EU"), 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®. 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 USPTO 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 USPTO 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 USPTO'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 USPTO may determine if one patent was derived from the work of an inventor on another patent. In addition to interference proceedings, the USPTO can re-examine issued patents at the request of a third party seeking to have the patent invalidated. 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.

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

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

Table of Contents

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.

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, Asterias was substituted as the appellant in an appeal of certain decisions of the USPTO in

favor of ViaCyte 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.

Table of Contents

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.

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

Government authorities at the federal, state and local level, and in other countries, extensively regulate among other things, the development, testing, manufacture, quality, approval, distribution, labeling, packaging, storage, record keeping, marketing, import/export and promotion of drugs, biologics, and medical devices. Authorities also heavily regulate many of these activities for human cells, tissues and cellular and tissue-based products or HCT/Ps.

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 United States, the FDA regulates drugs and biologicals under the Federal Food, Drug and Cosmetic Act or FDCA, the Public Health Service Act, or PHSA, and implementing regulations. In addition, establishments that manufacture human cells, tissues, and cellular and tissue-based products are subject to additional registration and listing requirements, including current good tissue practice regulations. Many of Asterias' proposed products will be reviewed by the FDA staff in its Center for Biologics Evaluation and Research (CBER) Office of Cellular, Tissue and Gene Therapies

Our domestic human drug and biological products will be subject to rigorous FDA review and approval procedures. After testing in animals to evaluate the potential efficacy and safety of the product candidate, an IND must be submitted to 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.

Clinical trials are generally conducted in three “phases.” Phase I clinical trials are conducted in a small number of healthy volunteers or volunteers with the target disease or condition to assess safety. Phase II clinical trials are conducted with groups of patients afflicted with the target disease or condition in order to determine preliminary efficacy, optimal dosages and expanded evidence of safety. In some cases, an initial trial is conducted in diseased patients to assess both preliminary efficacy and preliminary safety, in which case it is referred to as a Phase I/II trial. Phase III trials are large-scale, multi-center, comparative trials and are conducted with patients afflicted with the target disease or condition in order to provide enough data to demonstrate the efficacy and safety required by the FDA. The FDA closely monitors the progress of each of the three phases of clinical testing and may, at its discretion, re-evaluate, alter, suspend, or terminate the clinical trial based upon the data which have been accumulated to that point and its assessment of the risk/benefit ratio to the intended patient population. All adverse events must be reported to the FDA. Monitoring of all aspects of the study to minimize risks is a continuing process. 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

Table of Contents

No action can be taken to market any therapeutic product in the U.S. until an appropriate New Drug Application ("NDA") or Biologics License Application (BLA) has been approved by the FDA. Submission of the application is no guarantee that the FDA will find it complete and accept it for filing. If an application is accepted for filing, following the FDA's review, the FDA may grant marketing approval, request additional information or deny the application if it determines that the application does not provide an adequate basis for approval. FDA regulations also restrict the export of therapeutic products for clinical use prior to FDA approval. To date, the FDA has not granted marketing approval to any hES-based therapeutic products and it is possible that the FDA or foreign regulatory agencies may subject our product candidates to additional or more stringent review than drugs or biologicals derived from other technologies.

The FDA may grant accelerated approval status to products that treat serious or life-threatening illnesses and that provide meaningful therapeutic benefits to patients over existing treatments. Under its accelerated approval regulations, the FDA may approve a product based on a surrogate endpoint that is reasonably likely to predict clinical benefits or based on an effect on a clinical endpoint other than survival or irreversible morbidity. The applicant will then be required to conduct additional, post-approval confirmatory trials to verify and describe clinical benefit, and the product may have certain post-marketing restrictions as necessary to assure safe use. The FDA may withdraw approval granted under the traditional route or under an accelerated approval, if it is warranted. The FDA may also consider ways to use the accelerated approval pathway for rare or very rare diseases, and a new review designation has been created to help foster the innovation of promising new therapies with the potential to shorten the timeframe for conducting pivotal trials and speed up patient access to the approved product. There is no assurance that the FDA will grant accelerated approval status to any of our product candidates

Certain Medical Devices

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. 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.

Combination Products

If we develop any products that are used with medical devices, they may be considered combination products, which are defined by the FDA to include products comprised of two or more regulated components or parts such as a biologic and a device. For example, our HyStem® hydrogel products such as Renevia™ may be used to administer one or more hES cell-based therapy products. When regulated independently, biologics and devices each have their own regulatory requirements. However, the regulatory requirements for a combination product comprised of a biologic administered with a delivery device can be more complex, because in addition to the individual regulatory requirements for each component, additional combination product regulatory requirements may apply. There is an Office of Combination Products at the FDA that coordinates the review of such products and determines the primary mode of action of a combination product. The definition and regulatory requirements for combination products may differ significantly among other countries in which we may seek approval of our product candidates

Table of Contents

Post-Approval Matters

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. Use of a product during testing and after marketing could reveal side effects that could delay, impede, or prevent FDA marketing approval, result in an FDA-ordered product recall, or in FDA-imposed limitations on permissible uses or in withdrawal of approval. For example, if the FDA becomes aware of new safety information after approval of a product, it may require us to conduct further clinical trials to assess a known or potential serious risk and to assure that the benefit of the product outweigh the risks. If we are required to conduct such a post-approval study, periodic status reports must be submitted to the FDA. Failure to conduct such post-approval studies in a timely manner may result in substantial civil or criminal penalties. Data resulting from these clinical trials may result in expansions or restrictions to the labeled indications for which a product has already been approved.

FDA Regulation of Manufacturing

The FDA regulates the manufacturing process of pharmaceutical products, and human tissue and cell products, requiring that they be produced in compliance with cGMP. See “Manufacturing.” The FDA regulates and inspects equipment, facilities, laboratories and processes used in the manufacturing and testing of products prior to providing approval to market products. If after receiving approval from the FDA, a material change is made to manufacturing equipment or to the location or manufacturing process, additional regulatory review may be required. The FDA also conducts regular, periodic visits to re-inspect the equipment, facilities, laboratories and processes of manufacturers following an initial approval. If, as a result of those inspections, the FDA determines that that equipment, facilities, laboratories or processes do not comply with applicable FDA regulations and conditions of product approval, the FDA may seek civil, criminal or administrative sanctions and/or remedies against the manufacturer, including suspension of manufacturing operations. Issues pertaining to manufacturing equipment, facilities or processes may also delay the approval of new products undergoing FDA review.

FDA Regulation of Advertising and Product Promotion

The FDA also regulates the content of advertisements used to market pharmaceutical and biological products. Claims made in advertisements concerning the safety and efficacy of a product, or any advantages of a product over another product, must be supported by clinical data filed as part of an NDA or BLA or an amendment to an NDA or BLA, and must be consistent with the FDA approved labeling and dosage information for that product.

Foreign Regulation

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.

Federal Funding of Research

The United States 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.

Table of Contents

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

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

- Been deposited in the United Kingdom Stem Cell Bank; or

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

- Been 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

- Been approved by the California Institute for Regenerative Medicine ("CIRM") in accordance with California Code of Regulation Title 17, Section 100081; or

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

(d) 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.

Table of Contents

Other hES lines may be deemed acceptably derived if they were derived in accordance with (a), (b), and (d) above and the hES line was derived prior to the publication of the National Academy of Sciences guidelines on April 26, 2005 and a SCRO Committee has determined that the investigator has provided sufficient scientific rationale for the need for use of the line, which should include establishing that the proposed research cannot reasonably be carried out with covered lines that did have IRB approval.

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.

Medicare, Medicaid, and Similar Reimbursement Programs

Sales of our products will depend, in part, on the extent to which the costs of our products will be covered by third-party payors, such as government health programs, commercial insurance and managed healthcare organizations. These third-party payors are increasingly challenging the prices charged for medical products and services. Additionally, the containment of healthcare costs has become a priority of federal and state governments and the prices of drugs have been a focus in this effort. The U.S. government, state legislatures and foreign governments have shown significant interest in implementing cost-containment programs, including price controls, restrictions on reimbursement and requirements for substitution of generic products. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit our net revenue and results. If these third-party payors do not consider our products to be cost-effective compared to other therapies, they may not cover our products after approved as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow us to sell our products on a profitable basis.

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act of 2010, collectively referred to as the ACA, enacted in March 2010, is expected to have a significant impact on the health care industry. ACA is expected to expand coverage for the uninsured while at the same time containing overall healthcare costs. With regard to pharmaceutical products, among other things, ACA is expected to expand and increase industry rebates for drugs covered under Medicaid programs and make changes to the

coverage requirements under the Medicare Part D program. We cannot predict the impact of ACA on pharmaceutical companies, as many of the ACA reforms require the promulgation of detailed regulations implementing the statutory provisions which has not yet occurred. In addition, although the United States Supreme Court upheld the constitutionality of most of the ACA, some states have indicated that they intend to not implement certain sections of the ACA, and some members of the U.S. Congress are still working to repeal parts of the ACA. These challenges add to the uncertainty of the legislative changes enacted as part of ACA.

Table of Contents

In addition, in some non-U.S. jurisdictions, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing vary widely from country to country. For example, the UE provides options for its member states to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. A member state may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market. There can be no assurance that any country that has price controls or reimbursement limitations for pharmaceutical products will allow favorable reimbursement and pricing arrangements for any of our products. Historically, products launched in the EU do not follow price structures of the United States and generally tend to be significantly lower

Employees

As of December 31, 2013, we employed 106 persons on a full-time basis and 3 persons on a part-time basis. Thirty-seven full-time employees and two part-time employees hold Ph.D. Degrees in one or more fields of science. None of our employees are covered by a collective bargaining agreement.

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, 2013, 2012, and 2011 were $43,760,366, $21,362,524, and $17,535,587, respectively, and we had an accumulated deficit of $145,778,547, $101,895,712, and $80,470,009, as of December 31, 2013, 2012, and 2011, respectively. Our net loss for the year ended December 31, 2013 and our accumulated deficit as of that date include $17,458,766 charged as in process research and development expenses in accordance with Accounting Standards Codification (“ASC”) 805-50 on account of Asterias’ acquisition of certain assets from Geron. See Notes 2 and 15 to Consolidated Financial Statements. 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.

60

Table of Contents

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

- We are attempting to develop new medical products and technologies.

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

- The experimentation we are doing is costly, time consuming, and uncertain as to its results. We incurred research and development expenses amounting to $26,609,423, $18,116,688, and $13,699,691 during the fiscal years ended December 31, 2013, 2012, and 2011, respectively, excluding $17,458,766 charged as in process research and development expenses during 2013 in accordance with ASC 805-50 on account of Asterias' acquisition of certain assets from Geron. See Notes 2 and 15 to Consolidated Financial Statements.

- If we are successful in developing a new technology or product, refinement of the new technology or product and definition of the practical applications and limitations of the technology or product may take years and require the expenditure of large sums of money. Future clinical trials of new therapeutic products, particularly those products that are regulated as drugs or biological, will be very expensive and will take years to complete. We may not have the financial resources to fund clinical trials on our own and we may have to enter into licensing or collaborative arrangements with larger, well-capitalized pharmaceutical companies in order to bear the cost. Any such arrangements may be dilutive to our ownership or economic interest in the products we develop, and we might have to accept a royalty payment on the sale of the product rather than receiving the gross revenues from product sales.

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

- Asterias will use the stem cell assets that it has acquired from Geron for the research and development of products for regenerative medicine. Asterias' research and development efforts will involve substantial expense, including but not limited to hiring additional research and management personnel, and possibly the rent of additional research or manufacturing space that will add to our losses on a consolidated basis for the near future.

- Asterias has become a public company. As a public company, Asterias will incur costs associated with audits of its financial statements, filing annual, quarterly, and other periodic reports with the Securities and Exchange Commission (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 therapeutic products derived from hES or iPS cells, Asterias will face substantially the same kind of risks that affect our business, as well as the risks related to our industry generally.

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

- The success of our business of selling products for use in stem cell research depends on the growth of stem cell research, without which there may be no market or only a very small market for our products and technology. The likelihood that stem cell research will grow depends upon the successful development of stem cell products that can be used to treat disease or injuries in people or that can be used to facilitate the development of other therapeutic products. The growth in stem cell research also depends upon the availability of funding through private investment and government research grants.

- There can be no assurance that any safe and efficacious human medical applications will be developed using stem cells or related technology.

61

Table of Contents

- Government-imposed bans, restrictions and religious, moral, and ethical concerns with respect to use of embryos or hES cells in research and development could have a material adverse effect on the growth of the stem cell industry, even if research proves that useful medical products can be developed using hES cells.

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 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 presently markets Hespan®, an artificial plasma volume expander, and Hospira and Teva sell a generic equivalent of Hespan®. Hospira also markets Voluven®, a plasma volume expander containing a 6% low molecular weight hydroxyethyl starch in saline solution.

- Competing products for the diagnosis and treatment of cancer are being manufactured and marketed by established pharmaceutical companies, and more cancer diagnostics and therapeutics are being developed by those companies and by other smaller biotechnology companies. Other companies, both large and small, are also working on the development of stem cell based therapies for the same diseases and disorders that are the focus of the research and development programs of our subsidiaries.

- There also is a risk that our competitors may succeed at developing safer or more effective products that could render our products and technologies obsolete or noncompetitive.

Sales of Hextend® could be adversely affected by safety and use labeling changes required by the FDA

Sales of Hextend® could be adversely affected by certain safety labeling changes required by the FDA for the entire class of hydroxyethyl starch products, including Hextend®. The labeling changes were approved by the FDA in November 2013 and include a boxed warning stating that the use of hydroxyethyl starch products, including Hextend®, increases the risk of mortality and renal injury requiring renal replacement therapy in critically ill adult patients, including patients with sepsis, and that Hextend® should not be used in critically ill adult patients, including patients with sepsis. New warning and precaution information is also required along with new information about contraindications, adverse reactions, and information about certain recent studies. The new warning and precautions include statements to the effect that the use of Hextend® should be avoided in patients with pre-existing renal

dysfunction, and the coagulation status of patients undergoing open heart surgery in association with cardiopulmonary bypass should be monitored as excess bleeding has been reported with hydroxyethyl starch solutions in that population and use of Hextend® should be discontinued at the first sign of coagulopathy. The liver function of patients receiving hydroxyethyl starch products, including Hextend® should also be monitored.

Table of Contents

The approved revised label may adversely affect Hextend® sales since some users of plasma volume expanders might elect to abandon the use of all hydroxyethyl starch products, including Hextend®.

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

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

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

- Sales of additional equity securities by us or our subsidiaries could result in the dilution of the interests of present shareholders.

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

- At December 31, 2013, we had $5,495,478 of cash and cash equivalents on hand. Although we have raised an additional $11,974,005 of equity capital during 2014, 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 may have to postpone or limit the pace of our research and development work and planned clinical trials of our product candidates unless our cash resources increase through a growth in revenues or additional equity investment or borrowing.

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

The cells, cell lines and other biological materials that Asterias acquired are being stored under cryopreservation protocols intended to preserve their functionality. However, the functional condition of those materials cannot be certified until they are tested in an appropriate laboratory setting by qualified scientific personnel using validated equipment, which may not be completed until the second quarter of 2014.

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

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

- hES derived therapeutic cells have only been produced on a small scale and not in quantities and at levels of purity and viability that will be needed for wide scale commercialization. If we are successful in developing products that

consist of hES cells or other cells or products derived from hES or other cells, we will need to develop, alone or in collaboration with one or more pharmaceutical companies or contract manufacturers, technology for the commercial production of those products.

Table of Contents

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

Asterias has assumed certain obligations and potential liabilities with regard to clinical trials conducted by Geron, and we do not yet know the scope of any resulting expense

Asterias has assumed Geron's obligations to obtain information and prepare reports about the health of patients who participated in clinical trials of Geron's GRNOPC1 cell replacement therapy for spinal cord damage and its GRNVAC1 immunological therapy for certain cancers. Although the future cost of patient health information gathering and reporting is not presently determinable, we do not expect that the cost will be material to our financial condition.

Asterias has also assumed any liabilities to those patients that might arise as result of any injuries they may have incurred as a result of their participation in the clinical trials. We are not aware of any claims by patients alleging injuries suffered as a result of the Geron clinical trials, but if any claims are made and if liability can be established, the amount of any liability that Asterias may incur, depending upon the nature and extent of any provable injuries incurred, could exceed any insurance coverage that we or Asterias may obtain and the amount of the liability could be material to our financial condition.

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

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

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

Our experience identifying acquisition candidates and integrating their operations with our company is limited to our acquisitions of ESI in 2010, Glycosan BioSystems, Inc. and Cell Targeting, Inc. in 2011, and XenneX, Inc. in 2012. In addition, Asterias acquired stem cell related assets from Geron on October 1, 2013. If appropriate opportunities become available, we might attempt to acquire approved products, additional drug candidates, technologies or businesses that we believe are a strategic fit with our business. If we pursue any transaction of that sort, the process of negotiating the acquisition and integrating an acquired product, drug candidate, technology or business might result in operating difficulties and expenditures and might require significant management attention that would otherwise be available for ongoing development of our business, whether or not any such transaction is ever consummated. Moreover, we might never realize the anticipated benefits of any acquisition. Future acquisitions could result in potentially dilutive issuances of equity securities, the incurrence of debt, contingent liabilities, or impairment expenses related to goodwill, and impairment or amortization expenses related to other intangible assets, which could harm our financial condition.

Table of Contents

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

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

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

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

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

Risks Related to Our Industry

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

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

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

- We will have to conduct expensive and time-consuming clinical trials of new products. The full cost of conducting and completing clinical trials necessary to obtain FDA and foreign regulatory approval of a new product cannot be presently determined, but could exceed our current financial resources.

- Clinical trials and the regulatory approval process for a pharmaceutical or cell-based product can take several years to complete. As a result, we will incur the expense and delay inherent in seeking FDA and foreign regulatory approval of new products, even if the results of clinical trials are favorable.

- Data obtained from preclinical and clinical studies is susceptible to varying interpretations that could delay, limit, or prevent regulatory agency approvals. Delays in the regulatory approval process or rejections of an application for approval of a new product may be encountered as a result of changes in regulatory agency policy.

Table of Contents

- Because the therapeutic products we are developing with hES and iPS technology involve the application of new technologies and approaches to medicine, the FDA or foreign regulatory agencies may subject those products to additional or more stringent review than drugs or biologicals derived from other technologies.

- A product that is approved may be subject to restrictions on use.

- The FDA can recall or withdraw approval of a product if problems arise.

- We will face similar regulatory issues in foreign countries.

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

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

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

- delays in obtaining IRB and other regulatory approvals to commence a clinical trial;

- slower than anticipated rates of patient recruitment and enrollment, or failing to reach the targeted number of patients due to competition for patients from other trials;

- limited or no availability of coverage, reimbursement and adequate payment from health maintenance organizations and other third party payors for the use of agents used in our clinical trials;

- negative or inconclusive results from clinical trials;

- unforeseen side effects interrupting, delaying or halting clinical trials of our product candidates and possibly resulting in the FDA or other regulatory authorities denying approval of our product candidates;

- unforeseen safety issues;

- uncertain dosing issues;

- approval and introduction of new therapies or changes in standards of practice or regulatory guidance that render our clinical trial endpoints or the targeting of our proposed indications obsolete;

- inability to monitor patients adequately during or after treatment or problems with investigator or patient compliance with the trial protocols;

- inability to replicate in large controlled studies safety and efficacy data obtained from a limited number of patients in uncontrolled trials;

- inability or unwillingness of medical investigators to follow our clinical protocols; and

- unavailability of clinical trial supplies.

66

Table of Contents

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

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

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

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

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

- Our success will depend in part on our ability to obtain and enforce patents and maintain trade secrets in the United States and in other countries. If we are unsuccessful at obtaining and enforcing patents, our competitors could use our technology and create products that compete with our products, without paying license fees or royalties to us.

- The preparation, filing, and prosecution of patent applications can be costly and time consuming. Our limited financial resources may not permit us to pursue patent protection of all of our technology and products throughout the world.

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

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

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

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

Table of Contents

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 Corporation 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 USPTO for the patenting of products that test for biological substances.

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

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

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

- Post Grant Review under the new America Invents Act will make available after March 16, 2013 opposition-like proceedings in the United States. As with the USPTO interference proceedings, Post Grant Review proceedings will be very expensive to contest and can result in significant delays in obtaining patent protection or can result in a denial of a patent application.

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

Our patents may not protect our products from competition

We or our subsidiaries have patents in the United States, Canada, the European Union countries, the United Kingdom, Australia, Israel, Russia, South Africa, India, China, South Korea, Japan, Hong Kong, and Singapore, and have filed patent applications in other foreign countries for our plasma volume expander, stem cell products, HyStem® and other hydrogels, certain genes related to the development of cancer, and other technologies.

- We might not be able to obtain any additional patents, and any patents that we do obtain might not be comprehensive enough to provide us with meaningful patent protection.

- There will always be a risk that our competitors might be able to successfully challenge the validity or enforceability of any patent issued to us.

Table of Contents

- In addition to interference proceedings, the USPTO can re-examine issued patents at the request of a third party seeking to have the patent invalidated. This means that patents owned or licensed by us may be subject to re-examination and may be lost if the outcome of the re-examination is unfavorable to us. 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 may limit our ability to use disputed technologies, and which could prevent us from pursuing research and development or commercialization of some of our products, require us to pay licensing fees to have freedom to operate, and/or result in monetary damages or other liability for us

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

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

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

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

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

Risks Related to our Dependence on Third Parties

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

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

Table of Contents

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

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

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

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

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

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 therapeutic products that we are developing. Accordingly, we will be dependent on our ability to build our own marketing and distribution capability for our new products, which would require the investment of significant financial and management resources, or we will need to find collaborative marketing partners or sales representatives, or wholesale distributors for the commercial sale of our products.

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

70

Table of Contents

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

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

Risks Related to the Asset Contribution Agreement

Asterias has been substituted for Geron in an appeal of two adverse patent rulings, and if the appeal is not successful, Asterias 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.

Asterias has been 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 (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 contributed to Asterias. Asterias 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 Asterias is not successful in the appeal, these rulings may prevent or limit development of Asterias product candidates in certain fields such as diabetes treatment and Asterias may be unable to realize value from the patent applications at issue in the appeal.

We could be liable to indemnify Geron from certain liabilities

We and Asterias have agreed to indemnify Geron from and against certain liabilities relating to (a) the distribution of shares of Asterias Series A common stock to Geron stockholders, (b) Asterias' distribution of certain BioTime warrants to the holders of Asterias Series A common stock, and (c) any distribution of securities by Asterias to the holders of the Asterias Series A common stock within one year following Asterias' acquisition of Geron's stem cell assets. That indemnification obligation will last through the fifth anniversary of the earliest to occur of the date on which all of the BioTime warrants have either expired, or been exercised, cancelled or sold.

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

Table of Contents

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

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

Risks Pertaining to Our Common Shares

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

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

- The market price of our common shares, like that of the shares of many biotechnology companies, has been highly volatile.

- The price of our common shares may rise rapidly in response to certain events, such as the commencement of clinical trials of an experimental new drug, even though the outcome of those trials and the likelihood of ultimate FDA approval remain uncertain.

- Similarly, prices of our common shares may fall rapidly in response to certain events such as unfavorable results of clinical trials or a delay or failure to obtain FDA approval.

- The failure of our earnings to meet analysts' expectations could result in a significant rapid decline in the market price of our common shares.

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

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

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

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

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

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

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

Table of Contents

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

Under the Asset Contribution Agreement, we issued to Asterias 8,902,077 common shares and 8,000,000 common share purchase warrants. We have also issued 1,350,000 common shares and 649,998 warrants to an investor under a Stock and Warrant Purchase Agreement. Asterias and the investor may sell the common shares they received 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.

Asterias expects to distribute the warrants it receives from us to the future holders of its Series A common stock. The warrants we issued to Asterias 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 issued 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.

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

In the future, we may issue our authorized but previously unissued equity securities, resulting in the dilution of the ownership interests of our present shareholders. We are currently authorized to issue an aggregate of 127,000,000 shares of capital stock consisting of 125,000,000 common shares and 2,000,000 “blank check” preferred shares. As of March 5, 2014, there were 69,598,709 common shares outstanding of which 10,602,035 were held by certain of our subsidiaries for resale in “at-the-market” transactions, 4,542,135 common shares reserved for issuance upon the exercise of outstanding options under our employee stock option plans; and 9,751,615 shares reserved for issuance upon the exercise of common share purchase warrants. Our Board of Directors has designated 300,000 preferred shares as Series A Convertible Preferred Stock, of which 70,000 shares were outstanding as of March 5, 2014 and are convertible at the election of the holders into 875,000 common shares.

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

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

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

73

Table of Contents

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

Item 1B. Unresolved Staff Comments

None

Item 2. Properties

BioTime Facilities

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 $30,752 from December 2013 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 lease an office and research facility located in La Jolla, California. The building on the leased premises contains approximately 1,519 square feet of space. The lease is for a term one year plus one half month commencing October 15, 2013. BioTime will pay base rent of $4,330 per month, plus operational costs of maintaining the leased premises. This facility is utilized for the development of our new differentiation and cellular reprogramming research products and for small-scale manufacture.

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.

Asterias Facilities

We have entered into a lease for an office and research facility located in Menlo Park, California that we are making available for use by Asterias. 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 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 have subleased this facility to Asterias under terms that require Asterias to pay all rent and other amounts due, and to perform all of our other obligations as a tenant, under the lease.

Asterias has entered into a lease for an office and research facility located in Fremont, California. The building on the leased premises contains approximately 44,000 square feet of space. The lease is for a term of 96 months. The estimated term commencement date is October 1, 2014 but the term may commence earlier if Asterias commences its use of the premises prior to that date. Asterias will pay base monthly rent of $99,000 during the first 12 months commencing on the term commencement date, except that during the first 15 months of the lease term, Asterias will pay base rent on only 22,000 square feet rather than 44,000 square feet provided that Asterias is not in default in performing its obligations under the lease beyond any notice and cure periods. Base monthly rent will increase by approximately 3% annually.

Table of Contents

In addition to monthly base rent Asterias will pay all real estate taxes, insurance, a management fee in the amount of 3% of base rent, and the cost of maintenance, repair and replacement of the leased premises. During the first 15 months of the lease term, Asterias will pay only 50% of the real estate taxes assessed on the premises provided that Asterias is not in default in performing its obligations under the lease beyond any notice and cure periods. However, if any improvements or alterations to the premises that Asterias constructs or adds are assessed for real property tax purposes at a valuation higher than the valuation of the improvements on the Premises on the date signed the lease, Asterias will pay 100% of the taxes levied on the excess assessed valuation.

The landlord will provide Asterias with a tenant improvement allowance of $4,400,000, which Asterias plans to use to construct a laboratory and production facility that can be used to produce human embryonic stem cells and related products under current good manufacturing procedures (cGMP). The landlord's obligation to fund the tenant improvement allowance will expire in 18 months with respect to any portion of the allowance not expended by then.

ESI Facilities

ESI had leased approximately 125 square meters of laboratory space in Singapore under a lease that expired on February 28, 2014. Base monthly rent under the Singapore laboratory lease was S$11,000 (approximately US$8,700). In addition to base rent, ESI paid 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 were located. ESI will continue to pursue our ongoing plans to establish new laboratory facilities in Singapore for manufacturing and distribution of ESI BIO research products in Asia.

Cell Cure Facilities

Cell Cure Neurosciences leases approximately 290 square meters of office and laboratory space in Hadassah Ein Kerem, in Jerusalem, Israel under a lease that expires on June 1, 2014. Base monthly rent for that facility is approximately ILS 33,000 (approximately US$9,500). 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. Cell Cure Neurosciences will be liable for ILS 872,000 (approximately US$251,000) in improvement costs if the company renews the lease agreement for five additional years.

LifeMap Facilities

LifeMap Sciences leases approximately 320 square meters of office space in Tel Aviv, Israel under a lease expiring on May 31, 2015. Base monthly rent under the lease was originally ILS 21,800 (approximately US$6,300) per month and increased to ILS 25,889 (approximately US$7,400) per month in July 1, 2013 when additional space was added to the leased premises. In addition to base rent, LifeMap Sciences 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 leases several parking spots.

LifeMap Sciences leases approximately 120 square meters of office space in Hong Kong under a lease that commenced on December 1, 2013 and expires on November 30, 2015. Base monthly rent under the lease is HK$7,500 (approximately US $970) per month. In addition to base rent, LifeMap pays certain costs related to the operation of the building in which the leased premises are located.

LifeMap also leases approximately 750 square feet of office space in Marshfield, Massachusetts under a lease that expires on September 30, 2015. Base monthly rent under the lease is $1,082 per month.

Table of Contents

Item 3. Legal Proceedings

From time to time, we and our subsidiaries may be involved in routine litigation incidental to the conduct of our business.

Asterias has assumed Geron's position as appellant in an appeal filed in the United States District Court in Civil Action No. C12-04813 (the "ViaCyte Appeal") seeking the reversal of two adverse determinations by the United States Patent and Trademark Office's Board of Patent Appeals and Interferences with respect to two patent applications in U.S. Patent Interference 105,734, involving U.S. patent 7,510,876 (ViaCyte) and U.S. patent application 11/960,477 (Geron), and U.S. Patent Interference 105,827 involving U.S. patent 7,510,876 (ViaCyte) and U.S. patent application 12/543,875 (Geron). Asterias has also assumed the interference proceedings upon which the appeal is based, as well as certain oppositions filed by Geron against certain ViaCyte patent filings in Australia and in the European Patent Office. The 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 contributed to Asterias. Asterias also assumed the USPTO interferences upon which the appeal is based, as well as certain oppositions filed by Geron against certain ViaCyte patent filings in Australia and in the European Patent Office. Asterias has agreed to assume all liabilities relating to the ViaCyte Appeal and the related interference proceedings, including the costs of litigation, other than expenses incurred by Geron prior to October 1, 2013.

If Asterias is not successful in the ViaCyte Appeal, ViaCyte would retain its patent claims directed to definitive endoderm. Definitive endoderm is an early pre-cursor of numerous cell types including liver and -cells of the pancreas that could potentially treat diabetes, and it is likely that the derivation of any of the endodermal lineage cells from embryonic stem cells would necessarily pass through the definitive endoderm stage. As a result, Asterias would be unable to develop and commercialize those cell types without a license from ViaCyte, and may be unable to realize value from the Geron patent applications at issue in the appeal.

Item 4. Mine Safety Disclosures

Not applicable

Table of Contents

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, 2012 and 2013 as reported by the NYSE MKT:

Quarter Ended	High	Low
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
March 31, 2013	4.99	3.20
June 30, 2013	4.82	3.39
September 30, 2013	4.29	3.64
December 31, 2013	4.12	3.28

On March 6, 2014 the closing price of our common stock reported on the NYSE MKT was $3.83 per share.

As of February 28, 2014, there were 15,074 holders of the common shares based on the share position listing.

The following table shows certain information concerning the options outstanding and available for issuance under all of our compensation plans and agreements as of December 31, 2013:

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	4,567,135	$ 2.71	2,315,000

Table of Contents

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, 2013:

	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
Asterias Equity Compensation Plans Approved by Shareholders[1][2]	2,840,000	$ 2.34	1,660,000
OrthoCyte Equity Compensation Plans Approved by Shareholders[2]	2,645,000	$ 0.08	1,355,000
OncoCyte Equity Compensation Plans Approved by Shareholders[2]	2,750,000	$ 0.76	1,250,000
ReCyte Therapeutics Equity Compensation Plans Approved by Shareholders[2]	1,290,000	$ 2.05	2,710,000
BioTime Asia Equity Compensation Plans Approved by Shareholders[2]	400	$ 0.01	1,200
Cell Cure Neurosciences Compensation Plans Approved by Shareholders[2]	23,978	$ 27.89	1,860
LifeMap Sciences Equity Compensation Plans Approved by Shareholders[2]	1,928,768	$ 1.49	413,501

(1) Includes 50,000 options for which the exercise prices had not been determined as of December 31, 2013.

(2) BioTime is, directly or through one or more subsidiaries, 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.

Dividend Policy

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

Table of Contents

Performance Measurement Comparison (1)

The following graph compares total stockholder returns of BioTime, Inc. for the last five fiscal years beginning December 31, 2008 to two indices: the NYSE Amex Market Value – U.S. Companies (Amex Market Value) and the NYSE Arca Biotechnology Index (NYSE Arca 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 Arca Biotechnology Index represents biotechnology companies, trading on NYSE MKT 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 and is a component of the NYSE Amex Market Value – US Companies.

Comparison of Five-Year Cumulative Total Return on Investment

		2008	2009	2010	2011	2012	2013
BioTime, Inc.	Return %		138.98	96.93	-30.24	-45.96	14.65
	Cum $	100.00	238.98	470.62	328.25	177.40	203.39
AMEX Market Value (US Companies)	Return %		22.30	27.17	-8.85	9.64	9.61
	Cum $	100.00	122.30	155.53	141.77	155.43	170.38
NYSE Arca Biotechnology Index	Return %		45.56	45.23	-15.85	41.88	50.80
	Cum $	100.00	145.56	211.40	177.91	252.41	380.63

Table of Contents

BioTime, Inc., the Amex Market Value and Amex Biotechnology Index (2)

(1) This Section is not "soliciting material," is not deemed "filed" with the SEC and is not to be incorporated by reference in any filing of BioTime under the Securities Act of 1933, or the Securities Exchange Act of 1934, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

(2)) Shows the cumulative total return on investment assuming an investment of $100 in each of BioTime, Inc., the Amex Market Value and NYSE Arca Biotechnology Index on December 31, 2008. The cumulative total return on BioTime stock has been computed based on a price of $1.77 per share, the price at which BioTime's shares closed on December 31, 2008

Table of Contents

Item 6. Selected Financial Data

	Year Ended December 31,				
	2013	2012	2011	2010	2009
Consolidated Statements of Operations Data:					
REVENUES:					
License fees	$2,218,174	$899,998	$263,757	$292,904	$292,904
Royalties from product sales	366,775	541,681	756,950	945,521	1,079,951
Grant income	1,573,329	2,222,458	2,767,181	2,336,325	546,795
Sales of research products	276,058	251,190	646,271	133,268	5,590
Total revenues	4,434,336	3,915,327	4,434,159	3,708,018	1,925,240
Cost of sales	(792,659)	(434,271)	(79,397)	(27,718)	(72)
Total revenues, net	3,641,677	3,481,056	4,354,762	3,680,300	1,925,168
EXPENSES:					
Research and development	(26,609,423)	(18,116,688)	(13,699,691)	(8,191,314)	(3,181,729)
Acquired in-process research and development[1]	(17,458,766)	-	-	-	-
General and administrative	(15,558,674)	(10,365,045)	(9,341,502)	(5,341,119)	(2,263,705)
Total expenses	(59,626,863)	(28,481,733)	(23,041,193)	(13,532,433)	(5,445,434)
Loss from operations	(55,985,186)	(25,000,677)	(18,686,431)	(9,852,133)	(3,520,266)
OTHER INCOME (EXPENSES):					
Interest income/(expense)	(578)	19,383	29,727	(124,300)	(1,653,755)
Gain/(loss) on sale of fixed assets	5,120	(6,856)	(6,246)	-	-
Modification cost of warrants	-	-	-	(2,142,201)	-
Other income/(expense), net	(209,177)	(317,710)	219,067	(68,573)	30,112
Total other income/(expenses), net	(204,635)	(305,183)	242,548	(2,335,074)	(1,623,643)
LOSS BEFORE INCOME TAX BENEFITS	(56,189,821)	(25,305,860)	(18,443,883)	(12,187,207)	$(5,143,909)
Deferred income tax benefit	3,280,695	-	-	-	-
NET LOSS	(52,909,126)	-	-	-	-
Net loss/(income) attributable to the noncontrolling interest	9,026,291	3,880,157	1,928,383	1,002,589	(590)
Net loss attributable to BioTime, Inc.	(43,882,835)	(21,425,703)	(16,515,500)	(11,184,618)	(5,144,499)
Foreign currency translation (loss)/gain	119,469	63,179	(1,020,087)	897,338	-
Unrealized gain on available-for-sale securities, net	3,000	-	-	-	-
COMPREHENSIVE NET LOSS	$(43,760,366)	$(21,362,524)	$(17,535,587)	$(10,287,280)	$(5,144,499)
BASIC AND DILUTED LOSS PER COMMON SHARE	$(0.81)	$(0.44)	$(0.35)	$(0.28)	$(0.18)
WEIGHTED AVERAGE NUMBER OF COMMON SHARES OUTSTANDING:BASIC AND DILUTED	54,226,219	49,213,687	47,053,518	40,266,311	29,295,608

(1) Represents the value of incomplete research and development projects acquired by Asterias from Geron under the Asset Contribution Agreement which Asterias intends to continue. See Notes 2 and 15 to the Consolidated Financial Statements.

	December 31, 2013	2012	2011	2010	2009
Consolidated Balance Sheet Data:					
Cash and cash equivalents	$5,495,478	$4,349,967	$22,211,897	$33,324,924	$12,189,081
Total assets	57,729,750	29,748,593	45,829,695	53,272,659	13,433,071
Total liabilities	15,467,429	5,454,220	4,371,514	3,847,002	2,386,082
Accumulated deficit	(145,778,547)	(101,895,712)	(80,470,009)	(63,954,509)	(52,769,891)
Total equity/(deficit)	$42,262,321	$24,294,373	$41,458,181	$49,425,657	$11,046,989)

Table of Contents

We entered the regenerative medicine and stem cell research fields during the fourth quarter of 2007. Prior to that time, our research and product development efforts focused exclusively on our blood plasma volume expander products, particularly Hextend®.

Our consolidated statement of operations data and balance sheet data for the year ended December 31, 2013 reflects the commencement of Asterias' business operations and its acquisition of stem cell assets from Geron. See Note15 and 21 to Consolidated Financial Statements.

Our consolidated statement of operations data and balance sheet data for the year ended December 31, 2012 reflect our merger with XenneX during the year. See Notes 13 and 21 to Consolidated Financial Statements.

Our consolidated statement of operations data and balance sheet data for the year ended December 31, 2011 reflect asset acquired from CTI and merger with Glycosan during the year. See Notes 11, 12 and 21 to Consolidated Financial Statements.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following Management's Discussion and Analysis of Financial Condition and Results of Operations is intended to provide information necessary to understand our audited consolidated financial statements for the two-year period ended December 31, 2013, and highlight certain other information which, in the opinion of management, will enhance a reader's understanding of our financial condition, changes in financial condition and results of operations. In particular, the discussion is intended to provide an analysis of significant trends and material changes in our financial position and the operating results of our business during the year ended December 31, 2013 as compared to the year ended December 31, 2012, and during the year ended December 31, 2012 as compared to the year ended December 31, 2011. This discussion should be read in conjunction with our consolidated financial statements for the two-year period ended December 31, 2013 and related notes included elsewhere in this Annual Report on Form 10-K. These historical financial statements may not be indicative of our future performance. This Management's Discussion and Analysis of Financial Condition and Results of Operations contains a number of forward-looking statements, all of which are based on our current expectations and could be affected by the uncertainties and risks described throughout this filing, particularly in "Item 1A. Risk Factors."

Plasma Volume Expander Products

Royalties and licensing fees related to our plasma volume expander products, primarily Hextend®, comprise a significant part of our operating revenues. Under our license agreements, Hospira and CJ will report sales of Hextend® and pay us the royalties and license fees due on account of such sales after the end of each calendar quarter. We recognize revenues in the quarter in which the sales report is received, rather than the quarter in which the sales took place. Royalties on sales of Hextend® that occurred during the fourth quarter of 2011 through the third quarter of 2012 are reflected in our financial statements for the year ended December 31, 2012 and royalties on sales of Hextend® during the fourth quarter of 2012 through the third quarter of 2013 are reflected in our financial statements for the year ended December 31, 2013.

Table of Contents

Research and Development Programs in Regenerative Medicine and Stem Cell Research

The following table summarizes the most significant achievements in our primary research and development programs in stem cell research and regenerative medicine during the last fiscal year.

Company	Program	Status
Asterias	Cell therapies for neurology, oncology, orthopedic and cardiovascular indications	Completed acquisition of Geron stem cell assets. Established operations.
BioTime[(1)] and ES Cell International Pte. Ltd. (“ESI”)	ESI BIO BioTime’s new research products operations and marketing program.	BioTime is consolidating its existing portfolio of stem cell research products (including various brands) and its research products operations under one brand and operating division, ESI BIO. An important element of the new ESI BIO branding program is to provide focused branding and messaging to the market, and to leverage the strengths of existing BioTime research products as excellent research tools that can be manufactured as potential therapeutic products. providing customers with an easier “translation” of their research products into the clinic, and providing BioTime with future therapeutic out-licensing opportunities.
	Existing product consolidation: ESI cGMP cell lines; the HyStem® hydrogels; and the PureStem® cell lines/growth media/reagent kits for stem cell research	Existing product sub-brands that are being consolidated under ESI BIO include: ESI’s cGMP, NIH-approved, hES cell lines; the cGMP HyStem® hydrogel cell culture matrix products (formally provided under the Glycosan brand); the PureStem® brand of human progenitor cells; and cell growth media, and reagent cell differentiation kits.
	New product development and new infrastructure development.	ESI BIO has hired a team of consultants proficient in developing, manufacturing and marketing stem cell research products utilizing the latest technologies in cellular reprogramming that are well-matched and complementary to ESI BIO’s current product portfolio. This group has already created the new ESI BIO branding program and a web site, and has created and launched over 15 new products. As the research products business grows, we expect that this team will participate in upgrading ESI BIO’s manufacturing and logistics infrastructure needed to meet the needs of its research products business
BioTime	Biocompatible hydrogels that mimic the human extracellular matrix	Published a set of scientific reviews featuring pre-clinical data produced by prominent scientists studying the potential clinical use of our HyStem® hydrogel extracellular matrix products in combination with progenitor cells to treat stroke, cancer, vocal fold damage, cardiovascular disease and kidney disease. The review articles were published in the international, online, open access, peer-reviewed journal Biomatter (Biomatter 3:1, January/February/March 2013). Conducted pre-clinical development and first clinical safety study of

	Renevia™ as an implantable cell delivery device.
Hextend® – Blood plasma volume expanders	Conducted toxicology studies of Renevia™ in the brains of laboratory mice. Results show no difference in reactive astrocytes, macrophages/microglia, neuronal number or blood vessel structure between saline controls and Renevia.™ There was no evidence of granulomata or foreign body reaction around either saline or Renevia™ injection sites.
	Hextend® is currently marketed to hospitals and physicians in the U.S. and Korea. Activities include complying with all regulatory requirements and promotional activities.

Table of Contents

Company	Program	Status
OncoCyte	PanC-Dx™ Diagnostic Tests	Entered into Sponsored Research and Material Transfer Agreements with the Wistar Institute to collaboratively develop lung cancer diagnostics; Formalized additional relationships with key opinion leaders at major medical institutions to advance breast and bladder cancer programs; Received IRB approval and initiated a large, prospective multicenter patient study at Scottsdale Medical Imaging Laboratories to assess performance of PanC-Dx™ markers in women undergoing mammography; Continued manufacturing and characterization of monoclonal antibodies for potential use in diagnostic kits; and Publication of results relating to FSIP1, a marker unique to breast cancer.
OrthoCyte	Cartilage/Intervertebral disc repair using embryonic-derived progenitor cells (Osteoarthritis and chronic back pain)	Identified several cell lines that displayed molecular markers consistent with the production of definitive human cartilage; Confirmed chondrogenic potential in joint defects in rat models of osteoarthritis; Demonstrated ex vivo utility of progenitor lines in degenerating rabbit intervertebral disc tissue; Initiated in vivo proof of concept study to assess the ability of progenitor cells to repair and regenerate degenerated intervertebral discs in rabbits; and Completed proof of concept study demonstrating ability of progenitor cells to modulate pain (allodynia) in a rat model.
	Bone repair using embryonic-derived progenitor cells (Spinal fusion, trauma and cranial maxillo-facial (“CMF”)) cGMP cell production	Initiated in vitro optimization of bone differentiation and induction using progenitor cells, and Submitted SBIR grant application for cranio-maxillofacial bone defect repair using progenitor cells. Initiated large-scale progenitor cell expansion testing in cGMP compliant bioreactor systems.

ReCyte Therapeutics	Therapeutic products for age related vascular disease, including cardiovascular disorders utilizing its proprietary ReCyte™ technology and human pluripotent stem cell derived cells.	Evaluating progenitor stem cell-based and cell-derived therapeutics. Through BioTime, ReCyte Therapeutics has an ongoing collaboration with researchers at Cornell Weill Medical College for derivation and preclinical testing of endothelial progenitor cells for the treatment of age-related vascular disease.
Cell Cure Neurosciences	OpRegen® and OpRegen®-Plus for treatment of age related macular degeneration.	Conducted IND enabling preclinical studies to demonstrate safety and efficacy of OpRegen®, as well as pre-IND discussions with the FDA. Developed assays to characterize OpRegen® RPE cells and their engraftment.
LifeMap Sciences	Online, searchable databases	Marketing searchable, integrated, database products, including: · GeneCards®, a database of human genes that provides concise genomic, transcriptomic, genetic, proteomic, functional and disease related information, on all known and predicted human genes; · MalaCards, a database of human diseases that is based on the GeneCards® platform and contains computerized “cards” classifying information relating to a wide array of human diseases; and · LifeMap Discovery®, a database of embryonic development, stem cell research and regenerative medicine.

Table of Contents

The inherent uncertainties of developing new products for stem cell research and for medical use make it impossible to predict the amount of time and expense that will be required to complete the development and commence commercialization of new products. There is no assurance that we or any of our subsidiaries will be successful in developing new technologies or stem cell products, or that any technology or products that may be developed will be proven safe and effective for treating diseases in humans, or will be successfully commercialized. Most of our potential therapeutic products are at a very early stage of preclinical development. Before any clinical trials can be conducted by us or any of our subsidiaries, the company seeking to conduct the trials would have to compile sufficient laboratory test data substantiating the characteristics and purity of the stem cells, conduct animal studies, and then obtain all necessary regulatory and clinical trial site approvals, after which a team of physicians and statisticians would need to be assembled to perform the trials. Clinical trials will be costly to undertake and will take years to complete. See our discussion of the risks inherent in our business and the impact of government regulation on our business in the “Risk Factors” section and “Business” section of this report.

We believe each of our operating subsidiaries has sufficient capital to carry out its current research and development plan during 2014. We may provide additional financing for our subsidiaries, or obtain financing from third parties, based on the following: our evaluation of progress made in their respective research and development programs, any changes to or the expansion of the scope and focus of their research, and our projection of future costs. See “Liquidity and Capital Resources” for a discussion of our available capital resources, our potential need for future financing, and possible sources of capital.

Research and Development Expenses

The following table shows the approximate percentages of our total research and development expenses of $26,609,423 and $18,116,688 allocated to our primary research and development projects during the years ended December 31, 2013 and 2012, respectively.

		Amount[1]		Percent	
Company	Program	2013	2012	2013	2012
BioTime and ESI	PureStem® hEPCs, cGMP hES cell lines, and related research products	$2,763,879	$2,826,558	10.4%	15.6%
BioTime	PureStem® technology	$227,429	$794,632	0.9 %	4.4 %
BioTime and OrthoCyte[2]	Hydrogel products and HyStem® research	$5,229,278	$3,681,893	19.6%	20.3%
OncoCyte	Cancer therapy and diagnostics and therapy	$2,760,810	$3,129,885	10.4%	17.3%
OrthoCyte	Orthopedic therapy	$1,029,989	$950,956	3.9 %	5.2 %
ReCyte Therapeutics	Cardiovascular therapy	$1,042,102	$1,367,294	3.9 %	7.6 %
BioTime	Hextend®	$90,379	$291,580	0.3 %	1.6 %
BioTime Asia	Stem cell products for research	$31,288	$153,031	0.1 %	0.8 %
Cell Cure Neurosciences	OpRegen®, OpRegen®-Plus, and neurological disease therapies	$6,401,884	$3,185,490	24.1%	17.6%
LifeMap Sciences	Database development and sales	$2,663,066	$1,735,369	10.0%	9.6 %
Asterias Biotherapeutics[3]	hESC-based cell therapy programs	$4,319,494	$-	16.2%	- %
BioTime	3D Culture	$49,825	$-	0.2 %	- %

(1) Amount also includes research and development expenses incurred directly by the subsidiary and certain general research and development expenses, such as lab supplies, lab expenses, rent allocated, and insurance allocated to research and development expenses, incurred directly by BioTime on behalf of the subsidiary and allocated to the subsidiary.

(2) OrthoCyte transferred its HyStem® product line and related research to BioTime during January 2012.

(3) Excludes IPR&D expenses related to intangible assets acquired from Geron. IPR&D represents the value of incomplete research and development projects which Asterias intends to continue. See Notes 2 and 15 to the Consolidated Financial Statements.

Table of Contents

General and Administrative Expenses

The following table shows the amount and approximate percentages of our total general and administrative expenses of $15,558,674 and $10,365,045 allocated to BioTime and our subsidiaries during the years ended December 31, 2013 and 2012, respectively.

	Amount[1]		Percent	
Company	2013	2012	2013	2012
BioTime	$7,366,234	$4,757,477	47.3%	45.9%
Asterias Biotherapeutics	$3,883,185	$758,563	25.0%	7.3 %
BioTime Asia	$164,432	$869,730	1.1 %	8.4 %
Cell Cure Neurosciences	$675,970	$722,575	4.3 %	7.0 %
ESI	$305,931	$546,485	2.0 %	5.3 %
LifeMap Sciences	$1,995,215	$1,292,898	12.8%	12.5%
OncoCyte	$408,470	$606,987	2.6 %	5.8 %
OrthoCyte	$380,903	$403,694	2.5 %	3.9 %
ReCyte Therapeutics	$378,334	$406,636	2.4 %	3.9 %

(1) Amount includes general and administrative expenses incurred directly by the subsidiary and allocations from BioTime for certain general overhead expenses.

Critical Accounting Policies

Revenue recognition – We comply with SEC Staff Accounting Bulletin guidance on revenue recognition. Royalty revenues consist of product royalty payments. License fee revenues consist of fees under license agreements and are recognized when earned and reasonably estimable and also include subscription and advertising revenue from our online databases based upon respective subscription or advertising periods. We recognize revenue in the quarter in which the royalty reports are received rather than the quarter in which the sales took place. When we are entitled to receive up-front nonrefundable licensing or similar fees pursuant to agreements under which we have no continuing performance obligations, the fees are recognized as revenues when collection is reasonably assured. When we receive up-front nonrefundable licensing or similar fees pursuant to agreements under which we do have continuing performance obligations, the fees are deferred and amortized ratably over the performance period. If the performance period cannot be reasonably estimated, we amortize nonrefundable fees over the life of the contract until such time that the performance period can be more reasonably estimated. Milestone payments, if any, related to scientific or technical achievements are recognized in income when the milestone is accomplished if (a) substantive effort was required to achieve the milestone, (b) the amount of the milestone payment appears reasonably commensurate with the effort expended, and (c) collection of the payment is reasonably assured. Grant income and the sale of research products are recognized as revenue when earned. Revenues from the sale of research products are primarily derived from the sale of hydrogels and stem cell products.

Patent costs – Costs associated with obtaining patents on products or technology developed are expensed as general and administrative expenses when incurred. This accounting is in compliance with guidance promulgated by the Financial Accounting Standards Board (“FASB”) regarding goodwill and other intangible assets.

Intangible assets – Intangible assets with finite useful lives are amortized over estimated useful lives and intangible assets with indefinite lives are not amortized but rather are tested at least annually for impairment. Acquired in-process research and development intangible assets are accounted depending on whether they were acquired as part of an acquisition of a business, or assets that do not constitute a business. When acquired in conjunction with acquisition of a business, these assets are considered to be indefinite-lived until the completion or abandonment of the associated research and development efforts and are capitalized as an asset. If and when development is complete, the

associated assets would be deemed finite-lived and would then be amortized based on their respective estimated useful lives at that point in time. However, when acquired in conjunction with an acquisition of assets that do not constitute a business (such as Asterias' acquisition of assets from Geron), in accordance with the accounting rules in ASC 805-50, such intangible assets related to IPR&D are expensed upon acquisition.

Research and development – We comply with FASB requirements governing accounting for research and development costs. Research and development costs are expensed when incurred, and consist principally of salaries, payroll taxes, consulting fees, research and laboratory fees, and license fees paid to acquire patents or licenses to use patents and other technology from third parties.

Table of Contents

Stock-based compensation – We have adopted accounting standards governing share-based payments, which require the measurement and recognition of compensation expense for all share-based payment awards made to directors and employees, including employee stock options, based on estimated fair values. We utilize the Black-Scholes Merton option pricing model. Our determination of fair value of share-based payment awards on the date of grant using an option-pricing model is affected by our stock price as well as assumptions regarding a number of highly complex and subjective variables. These variables include, but are not limited to, expected stock price volatility over the term of the awards, and actual and projected employee stock option exercise behaviors. The expected term of options granted is derived from historical data on employee exercises and post-vesting employment termination behavior. The risk-free rate is based on the U.S. Treasury rates in effect during the corresponding period of grant. Although the fair value of employee stock options is determined in accordance with recent FASB guidance, changes in the subjective assumptions can materially affect the estimated value. In management's opinion, the existing valuation models may not provide an accurate measure of the fair value of employee stock options because the option-pricing model value may not be indicative of the fair value that would be established in a willing buyer/willing seller market transaction.

Treasury stock – We account for BioTime common shares issued to subsidiaries for future potential working capital needs as treasury stock on the consolidated balance sheet. We have the intent and ability to register any unregistered shares to support the marketability of the shares.

Impairment of long-lived assets – Our long-lived assets, including intangible assets, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be fully recoverable. If an impairment indicator is present, we evaluate recoverability by a comparison of the carrying amount of the assets to future undiscounted net cash flows expected to be generated by the assets. If the assets are impaired, the impairment recognized is measured by the amount by which the carrying amount exceeds the estimated fair value of the assets.

Deferred license and consulting fees – Deferred license and consulting fees consist of the value of warrants issued to third parties for services, and deferred license fees paid to acquire rights to use the proprietary technologies of third parties. The value of the warrants is being amortized over the lives of the warrants, and deferred license fees over the estimated useful lives of the licensed technologies or licensed research products. The estimation of the useful life any technology or product involves a significant degree of inherent uncertainty, since the outcome of research and development or the commercial life of a new product cannot be known with certainty at the time that the right to use the technology or product is acquired. We will review its amortization schedules for impairments that might occur earlier than the original expected useful lives. See also Note 6 to the Condensed Consolidated Interim Financial Statements.

Principles of consolidation – Our consolidated financial statements include the accounts of our wholly-owned subsidiaries, OrthoCyte, and ESI, the accounts of ReCyte Therapeutics, a subsidiary of which we owned approximately 94.8% of the outstanding shares of common stock as of December 31, 2013; the accounts of OncoCyte, a subsidiary of which we owned approximately 75.3% of the outstanding shares of common stock as of December 31, 2013; the accounts of BioTime Asia, a subsidiary of which we owned approximately 81.0% of the outstanding shares as of December 31, 2013, the accounts of Cell Cure Neurosciences, a subsidiary of which we owned approximately 62.5% of the outstanding shares as of December 31, 2013, the accounts of LifeMap Sciences, a subsidiary of which we owned approximately 73.2% of the outstanding shares as of December 31, 2013, and the accounts of Asterias, a subsidiary of which we owned 71.6% of the outstanding shares as of December 31, 2013. All material intercompany accounts and transactions have been eliminated in consolidation. The consolidated financial statements are presented in accordance with accounting principles generally accepted in the U.S. and with the accounting and reporting requirements of Regulation S-X of the SEC.

Table of Contents
Results of Operations

Comparison of Years Ended December 31, 2013 and 2012

	Year Ended December 31,		$ Increase/ Decrease	% Increase/ Decrease
	2013	2012		
License fees	$2,218,174	$899,998	$+1,318,176	+146.5%
Royalty from product sales	366,775	541,681	-174,906	-32.3 %
Grant income	1,573,329	2,222,458	-649,129	-29.2 %
Sales of research products and services	276,058	251,190	+24,868	+9.9 %
Total revenues	4,434,336	3,915,327	+519,009	+13.3 %
Cost of sales	(792,659)	(434,271)	+(358,388)	+82.5 %
Total revenues, net	3,641,677	3,481,056	+160,621	+4.6 %

	Three Months Ended December 31,		$ Increase/ Decrease	% Increase/ Decrease
	2013	2012		
License fees	$1,123,331	$350,477	$+772,854	+220.5%
Royalty from product sales	75,270	133,878	-58,608	-43.8 %
Grant income	632,103	704,372	-72,269	-10.3 %
Sales of research products and services	61,781	33,810	+27,971	+82.7 %
Total revenues	1,892,485	1,222,537	+669,948	+54.8 %
Cost of sales	(222,422)	(160,355)	+(62,067)	+38.7 %
Total revenues, net	1,670,063	1,062,182	+607,881	+57.2 %

Our license fee revenues amounted to $2,218,174 and $899,998 for the years ended December 31, 2013 and 2012, respectively. The 146.5% increase in license fee revenue in 2013 is partially attributed $1,317,008 and $752,896 in subscription and advertising revenues as of December 31, 2013 and 2012, respectively from LifeMap Science's online database business primarily related to its GeneCards® database which LifeMap Sciences began marketing after its acquisition of XenneX during 2012. License fee revenues also include $899,551 and $145,873 from Summit, for the years ended December 31, 2013 and 2012, respectively. We received the license fees from Summit during the years 2005 -2008. Full recognition of the revenues derived from those license fees was deferred and revenues have been recognized over the lives of the respective contracts, which had been estimated to last until approximately 2019 based on the current expected life of the governing patent covering our products in Korea and Japan. However, we recognized all of the unamortized balance of the Summit license fees during the fourth quarter of 2013 upon termination of our license agreements with Summit. See Note 1 to the Consolidated Financial Statements.

Under our license agreements with Hospira and CJ, our licensees report sales of Hextend® and pay us the royalties and license fees due on account of such sales within 90 days after the end of each calendar quarter. We recognize such revenues in the quarter in which the sales report is received, rather than the quarter in which the sales took place. For example, royalties on sales made during the fourth quarter of 2012 were not recognized until the first quarter of fiscal year 2013.

Our royalty revenues from product sales for the year ended December 31, 2013 primarily consist of royalties on sales of Hextend® made by Hospira and CJ during the period beginning October 1, 2012 and ending September 30, 2013. Royalty revenues recognized from Hospira and CJ for that period were $366,492 compared with $541,293 recognized for the year ended December 31, 2012. This 32% decrease in royalties is attributable to a decrease in Hextend® sales in the U.S. and in the Republic of Korea. The decrease in royalties received from Hospira is primarily due to the decline in the price of hetastarch-based products in the market. The blood volume expander marketing continues to

contract and hospitals continue to shift their purchases to albumin products. Hospira has reported that they have seen a rapid decline in the price of hetastarch-based plasma expanders in the market which could continue to have a negative impact on revenues from the sale of Hextend®. Hospira implemented further price reductions for Hextend® during 2012 in an attempt to maintain market share. We expect royalty revenues from product sales to continue to decline as a percentage of total revenue.

Table of Contents

Total grant revenue in 2013 decreased by approximately 29% as a result of the completion of the CIRM grant in August 31, 2012. Grant revenue in 2013 includes $150,239 of a $335,900 grant awarded to us by the NIH, $71,355 under a $285,423 grant awarded by the NIH, $1,333,901 recognized through Cell Cure Neurosciences, $13,838 recognized through LifeMap Sciences, Ltd., and $3,996 recognized through ES Cell International. Grant revenue in 2012 included $1,047,106 from CIRM, $1,109,699 recognized through Cell Cure Neurosciences, $18,145 recognized through Life Map Sciences, Ltd., and $47,507 of a $335,900 grant awarded to us by the NIH. The grant period for the $335,900 grant expires on September 29, 2014. The grant period for the $285,423 NIH grant expires on June 13, 2014.

	Year Ended December 31, 2013	2012	$ Increase/ Decrease	% Increase/ Decrease
Research and development expenses	$(26,609,423)	$(18,116,688)	$+8,492,735	+46.9 %
Acquired in-process research and development expenses	(17,458,766)	-	$+17,458,766	- %
General and administrative expenses	(15,558,674)	(10,365,045)	+5,193,629	+50.1 %
Interest income/(expense)	(578)	19,383	-19,961	-103.0%
Other income/(expense)	(209,177)	(317,710)	-(108,533)	-34.2 %

	Three Months Ended December 31, 2013	2012	$ Increase/ Decrease	% Increase/ Decrease
Research and development expenses	$(9,220,014)	$(4,793,278)	$+4,426,736	+92.4 %
Acquired in-process research and development expenses	(17,458,766)	-	$+17,458,766	- %
General and administrative expenses	(4,284,726)	(3,327,238)	+957,488	+28.8 %
Interest income/(expense)	(2,611)	2,062	-4,673	-226.6%
Other income/(expense)	(39,665)	(93,811)	-(54,146)	-57.7 %

Research and development expenses – Research and development expenses increased by $8,492,735 or approximately 46.9% to $26,609,423 for the year ended December 31, 2013, from $18,116,688 for the year ended December 31, 2012. In addition, during 2013 Asterias recognized $17,458,766 of IPR&D in connection with the consummation of its acquisition of assets from Geron. IPR&D represents the value allocated by management to incomplete research and development projects which Asterias acquired from Geron and intends to continue. That value was expensed under applicable accounting rules rather than capitalized for future amortization because the acquisition was accounted for as an acquisition of assets rather than an acquisition of a business. See Notes 2 and 15 to the Consolidated Financial Statements. The increase in research and development expenses other than IPR&D during 2013 is attributable to an increase of $2,304,195 in employee compensation and related costs allocated to research and development expenses, including costs of new employees added by Asterias, an increase of $584,423 in HyStem® program expenses including those related to the clinical safety trial of Renevia,™ an increase of $428,490 in rent and facilities maintenance related expenses allocated to research and development expenses primarily attributed to Asterias' office and research facility, an increase of $354,644 in laboratory expenses and supplies, an increase of $269,385 in stock based compensation allocated to research and development expenses, an increase of $211,819 in depreciation expenses allocated to research and development expenses, an increase of $112,234 in travel, lodging, and meals allocated to research and development expenses, an increase of $87,827 in patent related litigation fees related primarily to the ViaCyte proceedings that Asterias assumed from Geron, and an increase of $3,328,812 in Cell Cure Neurosciences research and development expenses related to its development of OpRegen®. These increases were offset in part by a decrease $149,932 in ESI research and development expenses. Research and development expenses for 2013 and 2012 also include $3,295,716 and $2,446,975, respectively, of amortization of our cost of acquiring patents and technology. The increase of $848,741 in amortization expense reflects, in part, a full year of amortization related to the acquisition of XenneX, Inc. by LifeMap Sciences during May 2012, and Asterias' acquisition of Geron's stem cell assets during October 2013.

89

Table of Contents

Research and development expenses include IPR&D expense related to acquired assets, laboratory study expenses, patent and technology license fees, employee compensation, rent, insurance, and science-related consultants' fees and amortization allocated to research and development expense.

General and administrative expenses – General and administrative expenses increased by approximately 50.1% to $15,558,674 for the year ended December 31, 2013 from $10,365,045 for the year ended December 31, 2012. The increase in general and administrative expenses was $5,193,629 in 2013 of which $3,124,622 is a attributable to Asterias. The principal components of the $5,193,629 increase in total general and administrative costs on a consolidated basis were: $1,344,324 in employee compensation and related costs allocated to general and administrative expenses; an increase of $532,425 in legal fees; an increase of $825,679 in stock-based compensation to employees, consultants and independent directors; an increase of $488,890 in investor and public relations expenses, transfer agent, stock listing and registration fees; an increase of $470,856 in accounting and tax services; an increase of $338,741 in rent and facilities maintenance related expenses allocated to general and administrative expenses; an increase of $266,359 in general office supplies and expenses; an increase of $234,250 in cash compensation paid to our independent directors; an increase of $285,270 in marketing and advertisement related expenses; an increase of $131,727 in recruiting service expenses; an increase of $184,900 in travel, lodging and meals allocated to general and administrative expenses; an increase of $126,106 in general consulting expenses; and an increase of $63,366 in telephone and on-line fees allocated to general and administrative expenses. These increases are in part offset by a decrease of $112,675 in ESI general and administrative expenses due to a reduction in ESI staffing.

The increase in legal and accounting expenses are primarily due to start-up and transaction expenses related to Asterias and its acquisition of Geron's stem cell assets, and the fees incurred in connection with the preparation and filing of certain registration statements under the Securities Act of 1933, as amended, with the Securities and Exchange Commission related to the issuance of Asterias and BioTime securities under the Asset Contribution Agreement, and costs associated with the special meeting of our shareholders held during May 2013 to approve certain matters related that asset contribution transaction.

General and administrative expenses include employee and director compensation allocated to general and administrative expenses, consulting fees other than those paid for science-related consulting, insurance costs allocated to general and administrative expenses, stock exchange-related costs, depreciation expense, shipping expenses, marketing costs, legal and accounting costs, and other miscellaneous expenses which are allocated to general and administrative expense.

Interest income/(expense) – During 2013, we earned $2,512 of interest income, net of $3,090 of interest expense. During 2012, we earned $19,698 of interest income, net of $315 of interest expense. Interest income is primarily attributed to interest earned on cash balances held in interest bearing accounts during their respective years.

Other income/(expense) – Other expenses in 2013 consists primarily of charitable donations of $42,500, $45,461 in income tax provision for LifeMap Sciences, Ltd, one of our majority owned subsidiaries, and $133,479 of foreign currency transaction loss. Other expenses in 2012 include reversal of $207,425 in revenues recognized by ESI.

Table of Contents

Comparison of Years Ended December 31, 2012 and 2011

	Year Ended December 31, 2012	2011	$ Increase/ Decrease	% Increase/ Decrease
License fees	$899,998	$263,757	$+636,241	+241.2%
Royalty from product sales	541,681	756,950	-215,269	-28.4 %
Grant income	2,222,458	2,767,181	-544,723	-19.7 %
Sale of research products and services	251,190	646,271	-395,081	-61.1 %
Total revenues	3,915,327	4,434,159	-518,832	-11.7 %
Cost of sales	(434,271)	(79,397)	+(354,874)	+447.0%
Total revenues, net	3,481,056	4,354,762	-873,706	-20.1 %

Our license fee revenue of $899,998 in 2012 and $263,757 in 2011 were primarily comprised of and license fees from CJ and Summit. The license fees were received from CJ during April 2003 and July 2004, and from Summit during December 2004 and April and October of 2005, but full recognition of the license fees has been deferred, and is being recognized over the life of the contract, which has been estimated to last until approximately 2019 based on the current expected life of the governing patent covering our products in Korea and Japan. See Note 1 to the Consolidated Financial Statements.

Our royalty revenue from product sales for the year ended December 31, 2012 consist of royalties on sales of Hextend® made by Hospira and CJ during the period beginning October 1, 2011 and ending September 30, 2012. Royalty revenues recognized for that period were $541,681 compared with $756,950 recognized for the year ended December 31, 2011. This 28% decrease in royalties is attributable to a decrease in Hextend® sales in the U.S. and in the Republic of Korea. The decrease in royalties received from Hospira is primarily due to the decline in the price of hetastarch-based products in the market. The blood volume expander marketing continues to contract and hospitals continue to shift their purchases to albumin products. Hospira has reported that they have seen a rapid decline in the price of hetastarch-based plasma expanders in the market which could continue to have a negative impact on revenues from the sale of Hextend®. Hospira implemented further price reductions for Hextend® during 2012 in an attempt to maintain market share. We expect royalty revenues from product sales to continue to decline as a percentage of total revenue.

Total grant revenue in 2012 decreased by approximately 20% as a result of the completion of the CIRM grant in August 31, 2012 compared to a full year of CIRM grant revenue in 2011. Grant revenue in 2012 included $1,047,106 from CIRM, $1,109,699 recognized through Cell Cure Neurosciences and $18,145 through Life Map Sciences, Ltd., and $47,507 of a $335,900 grant awarded to us by the NIH. The original NIH grant period ran from September 30, 2011 through September 29, 2012. However, this grant was extended for another year through September 29, 2013.

The decline in sales of research products and services in 2012 is primarily attributed to a one time sale of approximately $200,000 in revenues recognized through ESI in 2011.

	Year Ended December 31, 2012	2011	$ Increase/ Decrease	% Increase/ Decrease
Research and development expenses	$(18,116,688)	$(13,699,691)	$+(4,416,997)	+32.2 %
General and administrative expenses	(10,365,045)	(9,341,502)	+(1,023,543)	+11.0 %
Interest income/(expense)	19,383	29,727	-10,344	-34.8 %
Other income/(expense)	(317,710)	219,067	-536,777	-245.0%

Table of Contents

Research and development expenses – Research and development expenses increased approximately 32% to $18,116,688 for the year ended December 31, 2012, from $13,699,691 for the year ended December 31, 2011. Research and development expenses include laboratory study expenses, patent and technology license fees, employee compensation, rent, insurance, and science-related consultants' fees which are allocated to research and development expense.

Research and development expenses for the years ended December 31, 2012 and 2011, include $1,582,647 and $1,499,726, respectively, derived from the amortization of patent technology related to our acquisition of ESI and Cell Cure Neurosciences in May and October 2010, respectively. Aside from these expenses, the increase in research and development expenses during 2012 is primarily attributable to an increase of $2,116,195 in employee compensation and related costs allocated to research and development expenses, an increase of $1,019,031 in our HyStem® program related research expenses, an increase of $456,068 in the amortization of patent technology reflecting a full year of amortization related to our acquisition of assets from CTI and merger with Glycosan in 2011, and amortization related to the merger with XenneX in 2012, an increase of $409,546 in expenditures made to cover laboratory expenses and supplies, an increase of $181,194 in stock-based compensation to employees and consultants, an increase of $148,501 in licenses, patent and trademark related fees and legal fees, an increase of $144,082 in scientific consulting fees, an increase of $142,744 in outside research and research related outside services, an increase of $160,218 in rent and building maintenance, an increase of $108,116 in travel, lodging and meals, and an increase of $96,888 in depreciation expense. These increases in 2012 over 2011 were offset in part by a decrease of $335,567 and $272,225 in ESI and Cell Cure Neurosciences research and development expenses, respectively.

General and administrative expenses – General and administrative expenses increased to $10,365,045 for the year ended December 31, 2012 from $9,341,502 for the year ended December 31, 2011. General and administrative expenses include employee and director compensation allocated to general and administrative expenses, consulting fees other than those paid for science-related consulting, insurance costs allocated to general and administrative expenses, stock exchange-related costs, depreciation expense, shipping expenses, marketing costs, and other miscellaneous expenses which are allocated to general and administrative expense.

The increase is attributable to an increase of $563,257 in employee compensation, bonuses and related costs allocated to general and administrative expenses, an increase of $180,639 in stock-based compensation to employees and consultants, an increase of $667,731 in legal fees, an increase of $107,818 in accounting and tax services, an increase of $76,745 in rent and building maintenance and an increase of $87,392 in Cell Cure Neurosciences general and administrative expenses. These increases are in part offset by a decrease of $185,456 in consulting fees, a decrease of $165,030 in recruiting service expenses, a decrease of $83,966 in travel, lodging and meals, a decrease of $83,414 in bad debt expenses, decrease of $75,573 in transfer agent, stock listing and registration fees and a decrease of $62,461 in ESI general and administrative expenses.

Interest income – During 2012, we earned $19,698 of interest income, net of $315 of interest expense. During 2011, we earned $30,053 of interest income, net of $326 of interest expense. Interest income is primarily attributed to interest earned on cash balances held in interest bearing accounts during their respective years.

Other income/(expense) – Other expenses in 2012 include reversal of $207,425 in revenues recognized by ESI. The $207,425 represents US $200,000 that was recognized as revenues in 2011 upon the shipment of cell lines in accordance with an agreement between ESI and a customer. The difference of $7,425 is attributed to foreign currency rates. The revenue for the cell lines shipped to the customer was reversed during the first quarter of 2012 pending the final completion of audits and acceptance of vials by the customer which was incorrectly assumed to have occurred in December 2011. Other income in 2011 consists primarily of approximately $198,000 of reimbursement of tenant improvement expenses incurred by us.

Taxes

At December 31, 2013 we had a cumulative net operating loss carryforward of approximately $99,100,000 for federal income tax purposes and $70,200,000 for state income tax purposes. Our effective tax rate differs from the statutory rate because we have recorded a valuation allowance against our deferred tax assets, as we do not consider realization to be more likely than not.

Table of Contents
Liquidity and Capital Resources

At December 31, 2013, we had $5,495,478 of cash and cash equivalents on hand. Subsequent to December 31, 2013 we raised $11,974,005 of additional equity capital, including $3,500,000 through the sale of shares of a newly authorized Series A Convertible Preferred Stock, and $8,474,005 through the sales of BioTime common shares by us and certain of our subsidiaries, in “at-the-market” transactions through Cantor Fitzgerald & Co. (“Cantor”), as the sales agent. The offer and sale of our common shares for our account through Cantor under our $25 million Controlled Equity Offering has been registered under the Securities Act of 1933, as amended (the "Securities Act"). Under the sales agreement, Cantor may sell our common shares by any method permitted by law deemed to be an "at-the-market" offering as defined in Rule 415 under the Securities Act, including, but not limited to, sales made directly on NYSE MKT, on any other existing trading market for our common shares or to or through a market maker. Cantor may also sell our shares under the sales agreement by any other method permitted by law, including in privately negotiated transactions. Cantor has agreed in the sales agreement to use its commercially reasonable efforts to sell shares in accordance with our instructions (including any price, time or size limit or other customary parameters or conditions we may impose). The offering pursuant to the sales agreement will terminate upon the sale of all shares subject to the sales agreement or the earlier termination of the sales agreement as permitted by its terms. Cantor has also acted as a sales agent for certain of our subsidiaries that have sold BioTime common shares to raise capital for their operations. The offer and sale of those shares has also been registered under the Securities Act. We contributed the BioTime common shares to the subsidiaries in exchange for subsidiary capital stock. The proceeds of the sale of BioTime shares by our subsidiaries belong to those subsidiaries. There is no assurance that we or our subsidiaries will be able to sell additional common shares through Cantor at prices acceptable to us, but we believe that our existing cash and cash equivalents, should be sufficient to fund our operations for at least twelve months. See "Cash generated by financing activities" for additional information about sales of our equity securities through the Controlled Equity Offering and other transactions during the year ended December 31, 2013.

Asterias is seeking funding for its operations from third parties in the form of research and development grants or cooperative arrangements for the development of certain of Asterias’ product candidates.

Asterias has applied for a Strategic Partnership 3 Track “A” Award from the California Institute for Regenerative Medicine (CIRM) which is intended to support a Phase 1/2a clinical trial of our OPC1 product candidate in subjects with neurologically complete cervical spinal cord injury. The grant would also help support Asterias’ efforts to develop a commercial process to manufacture OPC1. The purpose of the Strategic Partnership Award Initiative is to create incentives for industry to advance the development of stem cell-based therapeutics. As part of a Strategic Partnership 3 Track “A” Award, CIRM will provide up to $10,000,000 ($15,000,000 in extraordinary cases) to support an approved project. We expect that CIRM will notify applicants of the decision on their applications during the first half of 2014. Geron was granted a non-recourse loan for its thoracic spinal cord injury study of OPC1 in 2011 from CIRM, but returned the loan funds after announcing the termination of its human embryonic stem cell programs.

Asterias is in the process of applying for a grant from a large United Kingdom based charitable organization to fund Phase 1/2a clinical development of our VAC2 product candidate. The proposed grant would fund both the Phase 1/2a clinical trial of VAC2 in cancer patients and the cGMP manufacturing costs of VAC2. The terms under which funding may be provided by the charitable organization are currently under discussion. Asterias anticipates that it will receive notification of whether the grant has been approved during the first half of 2014. This same charitable organization had awarded a similar grant for VAC2 to Geron but that grant was withdrawn after Geron terminated the program in November 2011.

Table of Contents

Asterias is in early-stage discussions with a United Kingdom based technology innovation center seeking their support for the development of advanced manufacturing processes for CHND1. Methods developed at the technology innovation center would be incorporated in future commercial manufacturing processes for the product. An alliance with the technology innovation center would be on a specific project basis and would require multiple approvals from different committees and boards at the center.

Asterias is also in early stage discussions with an academic institution to form a collaboration to develop hES cell derived cardiomyocytes for the treatment of heart failure and acute myocardial infarction. The academic institution has received funding to develop the project through the IND filing stage. Asterias would either fund the Phase I study itself, to the extent that it has sufficient capital resources for that purpose or would seek funding for the study from a third party. In a collaboration, Asterias might contribute assistance in preparing and filing the IND, materials for use in the project such as cGMP hES cell banks, and a license of relevant patents and know-how relating to the development of hES cell-derived cardiomyocytes and hES cell-derived therapeutics generally, in exchange for which it would acquire an ownership interest in the resulting therapeutic products or in a joint venture company to be formed and co-owned with the academic institution for the purpose of developing the product.

There can be no assurance that Asterias will receive any of grants that it is seeking or that Asterias will reach an agreement for support in the manufacture of CHNDI or the development of hES cell derived cardiomyocytes.

Because our revenues are not presently sufficient to cover our operating expenses, we will continue to need to obtain additional equity capital or debt in order to finance our operations. The future availability and terms of equity or debt financing are uncertain

The unavailability or inadequacy of financing or revenues to meet future capital needs could force us to modify, curtail, delay, or suspend some or all aspects of our planned operations. Sales of additional equity securities could result in the dilution of the interests of present shareholders.

Cash generated by operations

During 2013, we received $3,857,181 of cash in our operations. Our sources of that cash primarily consisted of $289,655 of royalty revenues from Hospira, $76,838 of royalty revenues from CJ, our final quarterly research grant payment of $392,664 from CIRM, $183,046 research grant payments under two separate grants from the NIH, $1,521,722 in foreign research grants, and $1,393,256 from the sale of research products and subscription and advertisement revenues.

Cash used in operations

During 2013, our total research and development expenditures were $26,609,423 and our general and administrative expenditures were $15,558,674. Net loss attributable to BioTime for the year ended December 31, 2013 amounted to $43,882,835, which included $17,458,766 of IPR&D resulting from the accounting treatment of Asterias' acquisition of assets from Geron through the Asset Contribution Agreement. Net cash used in operating activities during this period amounted to $29,508,613. The difference between the net loss and net cash used in operating activities during 2013 was primarily attributable to the $17,458,766 of IPR&D, amortization of $3,295,716 in intangible assets, $3,217,875 in stock-based compensation paid to employees and consultants, $2,133,442 in accounts payable and accrued liabilities, $656,759 in depreciation expense, $560,286 in grants receivable, $428,453 in prepaid expenses and other current assets, $109,500 amortization of deferred license fees, and $84,586 amortization of stock-based prepaid rent. This overall difference was offset to some extent by $3,280,695 in deferred income tax benefit, $180,933 in accounts receivables, $915,028 in amortization of deferred license, royalty, and subscription revenues, and net loss of $9,026,291 allocable to the noncontrolling interest in our subsidiaries.

Cash flows from investing activities

During the year ended December 31, 2013, $3,665,587 was used for investing activities. The primary components of this cash were approximately $2,277,168 used in the purchase of equipment, $1,354,354 in connection with the Asset Contribution Agreement, and a lease security deposit of $64,965, which were offset to some extent by $30,900 proceeds from the sale of equipment.

Table of Contents

Cash generated by financing activities

During the year ended December 31, 2013, we raised gross proceeds of $15,722,340 from the sale of 3,665,646 BioTime common shares at a weighted average price of $4.29 per share in the open market through our Controlled Equity Offering facility with Cantor and through the sale of BioTime common shares held by our majority owned subsidiaries, LifeMap Sciences and Cell Cure Neurosciences. The proceeds of the sale of BioTime shares by our subsidiaries belong to those subsidiaries.

On January 4, 2013, we and a private investor entered into a Stock and Warrant Purchase Agreement under which the investor agreed to invest $5,000,000 in BioTime 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. The first tranche of $2,000,000 was funded on January 14, 2013, and we issued to the investor 540,000 common shares and 259,999 warrants. We received the second tranche of $3,000,000 on April 10, 2013 at which time we issued to the investor 810,000 common shares, and warrants to purchase an additional 389,999 common shares at an exercise price of $5 per share.

On March 14, 2013, ReCyte Therapeutics and one of its shareholders entered into a Stock Purchase Agreement under which the shareholder agreed to purchase 81,169 additional ReCyte Therapeutics common shares for approximately $250,000, reflecting a purchase price of $3.08 per share. In March 2013, ReCyte Therapeutics received $125,000 for which 40,584 ReCyte Therapeutics common shares were issued. ReCyte Therapeutics received the remaining $125,000 in May 2013 at which time it issued the remaining 40,585 common shares.

On June 6, 2013, we sold an aggregate of 2,180,016 common shares and 545,004 warrants to purchase common shares, in "units" with each unit consisting of one common share and one-quarter of a warrant, at an offering price of $4.155 per unit, to certain investors through an offering registered under the Securities Act. We received gross proceeds of $9,057,967 from the sale of the common shares and warrants. The warrants have an initial exercise price of $5.00 per share and are exercisable during the five year period beginning on the date of issuance, June 6, 2013. We paid certain participating broker-dealers fees of $121,209 representing 5% of the aggregate purchase price of the units purchased by investors introduced to us by them.

Contractual obligations

As of December 31, 2013, our contractual obligations for the next five years and thereafter were as follows:

	Principal Payments Due by Period				
		Less Than			After
Contractual Obligations [1]	Total	1 Year	1-3 Years	4-5 Years	5 Years
Operating leases [2]	$12,271,106	$1,188,316	$3,240,670	$2,579,280	$5,262,840

(1) This table does not include payments to key employees that could arise if they were involuntary terminated or if their employment terminated following a change in control.

(2) Includes the lease of our principal office and laboratory facilities in Alameda, California, and leases of the offices and laboratory facilities of our subsidiaries Asterias, ESI, LifeMap Sciences, and Cell Cure Neurosciences.

Future capital needs

The completion of the acquisition of Geron’s stem cell related assets by our subsidiary Asterias will result in an increase in our operating expenses and losses on a consolidated basis, and will increase our need for additional capital. Asterias will use the acquired stem cell assets for the research and development of products for regenerative medicine. Asterias’ research and development efforts will involve substantial expense, including but not limited to

hiring additional research and management personnel, and the lease of additional research or manufacturing space that will add to our losses on a consolidated basis for the near future.

Table of Contents

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

We will need to continue to sell common shares from time to time through our Controlled Equity Offering sales agreement with Cantor, and our other subsidiaries may also seek to raise capital through the sale of their capital stock. We and our subsidiaries will also seek funding for our research and development programs from other sources such as research grants and other arrangements with third parties.

We are consolidating the sales and marketing of our research products in a new ESI BIO division. As part of this plan, we expect to shift our sales and marketing efforts from a website based effort to one that utilizes more sales personnel who may be employees or independent sales representatives. We also plan to expand our product offerings. This effort will require additional expenditures for the development of new research products and the addition of assets and personnel for sales and marketing purposes.

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 the clinical trials that are required in order for us to obtain FDA and foreign regulatory approval of products, depend upon the amount of money we and our subsidiaries have. Future research and clinical study costs are not presently determinable due to many factors, including the inherent uncertainty of these costs and the uncertainty as to timing, source, and amount of capital that will become available for our projects.

The market value and the volatility of our stock price, as well as general market conditions, could impact our ability to raise capital on favorable terms, or at all. Any equity financing that we or our subsidiaries obtain may further dilute or otherwise impair the ownership interests of our current shareholders. If we and our subsidiaries fail to generate positive cash flows or fail to obtain additional capital when required, we and our subsidiaries could modify, delay or abandon some or all of our respective research and development programs.

Off-Balance Sheet Arrangements

As of December 31, 2013, we did not have any off-balance sheet arrangements, as defined in Item 303(a)(4)(ii) of SEC Regulation S-K.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

Foreign Currency Exchange Risk

We are exposed to some foreign exchange currency risks because we have subsidiaries that are located in foreign countries. We do not engage in foreign currency hedging activities. Because we translate foreign currencies into United States dollars for reporting purposes, currency fluctuations have an impact on our financial results. We believe that our exposure to currency exchange fluctuation risk is mitigated by the fact that our foreign subsidiaries pay their financial obligations almost exclusively in their local currency. As of December 31, 2013, currency exchange rates did not have a material impact on our intercompany transactions with our foreign subsidiaries. However, a weakening of the dollar against the foreign exchange used in the home countries of our foreign subsidiaries could increase our cost of providing additional financing to our foreign subsidiaries in the future. Conversely, a strengthening of the dollar would decrease our cost of making additional investments in those subsidiaries.

Table of Contents

Credit Risk

We place some of our cash in U.S. banks and invest most of our cash in money market funds. Deposits with banks may temporarily exceed the amount of insurance provided on such deposits. We will monitor the cash balances in the accounts and adjust the cash balances as appropriate, but if the amount of a deposit at any time exceeds the federally insured amount at a bank, the uninsured portion of the deposit could be lost, in whole or in part, if the bank were to fail. Our investments in money market funds are not insured or guaranteed by the United States government or any of its agencies.

Our foreign subsidiaries deposit their cash in local banks, but if the amount of a deposit at any time exceeds the amount at a bank under the national banking insurance laws, the uninsured portion of the deposit could be lost, in whole or in part, if the bank were to fail.

Interest Rate Risk

We invest most of our cash in money market funds. The primary objective of our investments will be to preserve principal and liquidity while earning a return on our invested capital, without incurring significant risks. Our future investment income is not guaranteed and may fall short of expectations due to changes in prevailing interest rates, or we may suffer losses in principal if the net asset value of a money market fund falls below $1 per share.

Table of Contents

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of
BioTime, Inc.

We have audited the accompanying consolidated balance sheets of BioTime, Inc. and subsidiaries (collectively, the "Company") as of December 31, 2013 and 2012, and the related consolidated statements of operations, changes in equity, and cash flows for each of the years in the three-year period ended December 31, 2013. We also have audited the Company's internal control over financial reporting as of December 31, 2013, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on these consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the consolidated financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the consolidated financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall consolidated financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of BioTime, Inc. and subsidiaries as of December 31, 2013 and 2012, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 2013, in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2013, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

/s/ Rothstein Kass

New York, New York
March 17, 2014
98

Table of Contents
Item 8. Financial Statements and Supplementary Data

BIOTIME, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

	December 31, 2013	December 31, 2012
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	$5,495,478	$4,349,967
Inventory	178,694	55,316
Prepaid expenses and other current assets	2,275,798	2,774,196
Total current assets	7,949,970	7,179,479
Equipment, net	2,997,733	1,348,554
Deferred license and consulting fees	444,833	669,326
Deposits	129,129	64,442
Intangible assets, net	46,208,085	20,486,792
TOTAL ASSETS	$57,729,750	$29,748,593
LIABILITIES AND EQUITY		
CURRENT LIABILITIES		
Accounts payable and accrued liabilities	$6,722,624	$3,989,962
Deferred license and subscription revenue, current portion	235,276	400,870
Total current liabilities	6,957,900	4,390,832
LONG-TERM LIABILITIES		
Deferred license revenue, net of current portion	-	768,678
Deferred rent, net of current portion	35,997	57,214
Deferred tax liability, net	8,277,548	-
Other long term liabilities	195,984	237,496
Total long-term liabilities	8,509,529	1,063,388
Commitments and contingencies		
EQUITY		
Preferred Shares, no par value, authorized 2,000,000 and 1,000,000 shares respectively, as of December 31, 2013 and 2012; none issued	-	-
Common shares, no par value, authorized 125,000,000 and 75,000,000 shares respectively as of December 31, 2013 and 2012; 67,412,139 issued and 56,714,424 outstanding as of December 31, 2013 and 51,183,318 issued and 49,383,209 outstanding at December 31, 2012	203,456,401	119,821,243
Contributed capital	93,972	93,972
Accumulated other comprehensive income	62,899	(59,570)
Accumulated deficit	(145,778,547)	(101,895,712)
Treasury stock at cost: 10,697,715 and 1,800,109 shares at December 31, 2013 and 2012, respectively	(43,033,957)	(8,375,397)
Total shareholders' equity	14,800,768	9,584,536

Noncontrolling interest	27,461,553	14,709,837
Total equity	42,262,321	24,294,373
TOTAL LIABILITIES AND EQUITY	$57,729,750	$29,748,593

See Notes to the Consolidated Financial Statements.

Table of Contents

BIOTIME, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS

	Year Ended December 31,		
	2013	2012	2011
REVENUES:			
License fees	$2,218,174	$899,998	$263,757
Royalties from product sales	366,775	541,681	756,950
Grant income	1,573,329	2,222,458	2,767,181
Sale of research products	276,058	251,190	646,271
Total revenues	4,434,336	3,915,327	4,434,159
Cost of sales	(792,659)	(434,271)	(79,397)
Total revenues, net	3,641,677	3,481,056	4,354,762
EXPENSES:			
Research and development	(26,609,423)	(18,116,688)	(13,699,691)
Acquired in-process research and development	(17,458,766)	-	-
General and administrative	(15,558,674)	(10,365,045)	(9,341,502)
Total expenses	(59,626,863)	(28,481,733)	(23,041,193)
Loss from operations	(55,985,186)	(25,000,677)	(18,686,431)
OTHER INCOME (EXPENSES):			
Interest income/(expense), net	(578)	19,383	29,727
Gain/(loss) on sale of fixed assets	5,120	(6,856)	(6,246)
Other income/(expense), net	(209,177)	(317,710)	219,067
Total other income/(expenses), net	(204,635)	(305,183)	242,548
LOSS BEFORE INCOME TAX BENEFITS	(56,189,821)	(25,305,860)	(18,443,883)
Deferred income tax benefit	3,280,695	-	-
NET LOSS	(52,909,126)	(25,305,860)	(18,443,883)
Net loss attributable to the noncontrolling interest	9,026,291	3,880,157	1,928,383
NET LOSS ATTRIBUTABLE TO BIOTIME, INC.	(43,882,835)	(21,425,703)	(16,515,500)
Foreign currency translation gain/(loss)	119,469	63,179	(1,020,087)
Unrealized gain on available-for-sale securities, net	3,000	-	-
COMPREHENSIVE LOSS	$(43,760,366)	$(21,362,524)	$(17,535,587)
BASIC AND DILUTED LOSS PER COMMON SHARE	$(0.81)	$(0.44)	$(0.35)
WEIGHTED AVERAGE NUMBER OF COMMON SHARES OUTSTANDING: BASIC AND DILUTED	54,226,219	49,213,687	47,053,518

See Notes to the Consolidated Financial Statements.

100

Table of Contents

BIOTIME, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

	Common Shares		Treasury Shares					Accu Othe
	Number of Shares	Amount	Number of Shares	Amount	Contributed Capital	Accumulated Deficit	Noncontrolling Interest	Com Inco
BALANCE AT JANUARY 1, 2011	47,777,701	$101,135,428	-	$-	$93,972	$(63,954,509)	$11,253,428	$897
Common shares issued as part of acquisition of CTI assets	261,959	2,300,000						
Common shares issued as part of merger with Glycosan	332,903	2,600,000						
Treasury shares issued as part of investment in subsidiary	1,286,174	6,000,000	(1,286,174)	(6,000,000)				
Common shares retired as payment for exercise of options	(6,435)	(28,067)						
Exercise of options	450,660	251,981						
Warrants exercised	219,000	425,000						
Warrants issued as part of merger with Glycosan		954,879						
Outside investment in subsidiaries							3,213,500	
Stock options granted for compensation		1,505,566						
Stock options granted for compensation in subsidiary							273,635	
Foreign currency translation loss								(1,(
NET LOSS						(16,515,500)	(1,928,383)	
BALANCE AT DECEMBER 31,	50,321,962	$115,144,787	(1,286,174)	$(6,000,000)	$93,972	$(80,470,009)	$12,812,180	$(12

2011								
Common shares issued as part of merger with XenneX	448,429	1,802,684						
Sales of common shares, net of fees paid and amortized	314,386	1,002,220						
Exercise of options	98,541	286,552						
Subsidiary shares issued as part of merger with XenneX							2,501,415	
Stock options granted for compensation		1,560,469						
Stock options granted for compensation in subsidiary		24,531					274,656	
Outside investment in subsidiary with BioTime common shares			(592,533)	(2,750,003)			2,750,003	
Sales of treasury shares			78,598	374,606				
Outside investment in subsidiaries in cash							250,000	
Outside investment in subsidiaries with stock							1,740	
Foreign currency translation gain								63,
NET LOSS						(21,425,703)	(3,880,157)	
BALANCE AT DECEMBER 31, 2012	51,183,318	$119,821,243	(1,800,109)	$(8,375,397)	$93,972	$(101,895,712)	$14,709,837	$(59
Common shares issued as part of investment in subsidiary	9,808,812	38,485,162	(9,808,812)	(38,485,162)				
8,000,000		18,276,406						
Warrants issued as part of investment in								

subsidiary								
Sale of common shares, net of fees paid and amortized and syndication costs	6,284,456	22,297,209						
Warrants issued to outside investors		1,848,730						
Common shares issued for rent	73,553	253,758						
Common shares issued for consulting services	42,000	173,100						
Exercise of options	20,000	46,000						
Stock options granted for compensation		2,143,596						
Stock options granted for compensation in subsidiary		111,197					789,981	
Sale of treasury stock			911,206	3,826,602				
Outside investment in subsidiary with cash							5,255,502	
Outside investment in subsidiary with assets							15,732,524	
Foreign currency translation gain								119
Unrealized gain on available-for-sale securities								3,0
NET LOSS						(43,882,835)	(9,026,291)	
BALANCE AT DECEMBER 31, 2013	67,412,139	$203,456,401	(10,697,715)	$(43,033,957)	$93,972	$(145,778,547)	$27,461,553	$62,

See Notes to the Consolidated Financial Statements.

Table of Contents

BIOTIME, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31, 2013	2012	2011
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net loss attributable to BioTime, Inc.	$(43,882,835)	$(21,425,703)	$(16,515,500)
Net loss allocable to noncontrolling interest	(9,026,291)	(3,880,157)	(1,928,383)
Adjustments to reconcile net loss attributable to BioTime, Inc. to net cash used in operating activities:			
Acquired in-process research and development	17,458,766	-	-
Depreciation expense	656,759	386,457	373,349
Amortization of intangible assets	3,295,716	2,446,975	1,991,200
Amortization of deferred consulting fees	65,118	598,465	598,465
Amortization of deferred license fees	109,500	109,500	109,500
Amortization of deferred rent	(12,766)	1,890	71,118
Amortization of deferred license, royalty and subscription revenues	(915,028)	(211,065)	(234,781)
Amortization of deferred grant revenues	-	(261,777)	-
Amortization of stock-based prepaid rent	84,586	-	-
Stock-based compensation	3,217,875	1,843,962	1,802,413
Reduction in receivables from the reversal of revenues	-	207,425	-
Write-off of security deposit	-	-	2,443
Write-off of expired inventory	-	-	1,510
(Gain)/loss on sale or write-off of equipment	(5,120)	19,681	6,416
Bad debt expense	-	16,816	100,230
Deferred income tax benefit	(3,280,695)	-	-
Changes in operating assets and liabilities:			
Accounts receivable, net	(180,933)	36,322	(120,678)
Grant receivable	560,286	(416,787)	261,777
Inventory	(123,378)	(4,141)	31,094
Prepaid expenses and other current assets	428,453	(228,370)	(704,854)
Other long term assets	(15,000)	-	-
Accounts payable and accrued liabilities	2,133,442	894,975	600,398
Other long term liabilities	(57,824)	(26,088)	(39,633)
Deferred revenues	(19,244)	212,102	-
Net cash used in operating activities	(29,508,613)	(19,679,518)	(13,593,916)
CASH FLOWS FROM INVESTING ACTIVITIES:			
Payments of license fees	-	-	(1,500)
Purchase of equipment	(2,277,168)	(400,810)	(960,281)
Cash acquired in connection with merger with XenneX	-	292,387	-
Cash paid, net of cash acquired for CTI assets	-	-	(246,850)
Cash acquired in connection with merger with Glycosan	-	-	5,908
Payment of transaction fees to Geron	(978,104)	-	-
Payment of syndication fees incurred	(376,250)	-	-
Cash proceeds from sale of equipment	30,900	4,500	-
Security deposit received/(paid)	(64,965)	(764)	10
Net cash used in investing activities	(3,665,587)	(104,687)	(1,202,713)

102

Table of Contents

	Year Ended December 31, 2013	2012	2011
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from exercises of stock options	46,000	286,552	223,914
Proceeds from exercises of warrants	-	-	425,000
Proceeds from issuance of common shares	25,938,558	1,131,279	-
Fees paid on sale of common shares	(818,201)	(37,279)	-
Proceeds from sale of treasury shares	3,841,749	282,826	-
Proceeds from sale of common shares of subsidiary	5,255,502	250,000	3,213,500
Net cash provided by financing activities	34,263,608	1,913,378	3,862,414
Effect of exchange rate changes on cash and cash equivalents	56,103	8,897	(178,812)
NET CHANGE IN CASH AND CASH EQUIVALENTS	1,145,511	(17,861,930)	(11,113,027)
CASH AND CASH EQUIVALENTS:			
At beginning of year	4,349,967	22,211,897	33,324,924
At end of year	$5,495,478	$4,349,967	$22,211,897
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:			
Cash paid during year for interest	$3,090	$315	$326
SUPPLEMENTAL SCHEDULE OF NONCASH FINANCING AND INVESTING ACTIVITIES :			
Common shares issued to Cell Cure in exchange for Cell Cure shares	$3,499,999	$-	$-
Common shares issued for consulting services	$173,100	$-	$-
Common shares issued for rent	$253,758	$-	$-
Intangible assets acquired from Geron	$29,017,009	$-	$-
Common shares issued to Asterias upon consummation of Asset Contribution Agreement (Treasury shares)	$34,985,163	$-	$-
Common shares acquired in connection with investment in LifeMap as part of Share Exchange and Contribution Agreement	$-	$2,750,003	$-
Common shares issued as part of merger with XenneX	$-	$1,802,684	$-
Common shares issued in connection with investment in OncoCyte (Treasury shares)	$-	$-	$6,000,000
Common shares issued in connection with the purchase of assets from CTI	$-	$-	$2,300,000
Common shares issued as part of merger with Glycosan	$-	$-	$2,600,000
Warrants issued to Asterias upon consummation of Asset Contribution Agreement	$18,276,406	$-	$-
Warrants issued as part of merger with Glycosan	$-	$-	$954,879

See Notes to the Consolidated Financial Statements.

Table of Contents
BIOTIME, INC.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

1. Organization and Basis of Presentation

General – BioTime is a biotechnology company engaged in two areas of biomedical research and product development. BioTime's primary focus is in the field of regenerative medicine; specifically human embryonic stem ("hES") cell and induced pluripotent stem ("iPS") cell technology. Regenerative medicine refers to therapies based on stem cell technology that are designed to rebuild cell and tissue function lost due to degenerative disease or injury. hES and iPS cells provide a means of manufacturing every cell type in the human body and therefore show considerable promise for the development of a number of new therapeutic products. BioTime and its subsidiaries plan to develop stem cell products for research and therapeutic use. Asterias Biotherapeutics, Inc. ("Asterias," formerly known as BioTime Acquisition Corporation) entered into an Asset Contribution Agreement with BioTime and Geron Corporation ("Geron") to acquire certain assets from Geron Corporation that had been used in Geron's hES cell research and development programs, and Asterias is now using the acquired assets for the development of products for human therapeutic use in one or more of the following fields: neurology, oncology, orthopedics, and heart failure and myocardial infarction. OncoCyte Corporation ("OncoCyte") is developing products and technologies to diagnose cancer. ES Cell International Pte Ltd. ("ESI"), a Singapore private limited company, developed hES cell lines and may market those cell lines and other BioTime research products in over-seas markets as part of BioTime's ESI BIO division. OrthoCyte Corporation ("OrthoCyte") is developing therapies to treat orthopedic disorders, diseases and injuries. ReCyte Therapeutics, Inc., formerly known as Embryome Sciences, Inc. ("ReCyte Therapeutics"), is developing therapies to treat a variety of cardiovascular and related ischemic disorders, as well as products for research using cell reprogramming technology. Cell Cure Neurosciences Ltd. ("Cell Cure Neurosciences"), is an Israel-based biotechnology company focused on developing stem cell-based therapies for retinal and neurological disorders, including the development of retinal pigment epithelial cells for the treatment of macular degeneration, and treatments for multiple sclerosis. LifeMap Sciences, Inc. ("LifeMap Sciences") markets, sells and distributes GeneCards®, the leading human gene database, and is developing an integrated database suite to complement GeneCards® that will also include the LifeMap Discovery® database of embryonic development, stem cell research and regenerative medicine, and MalaCards, the human disease database.

BioTime is focusing a portion of its efforts in the field of regenerative medicine 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. Products for the research market generally can be sold without regulatory (FDA) approval, and are therefore relatively near-term business opportunities when compared to therapeutic products.

BioTime previously developed blood plasma volume expanders and related technology for use in surgery, emergency trauma treatment and other applications. BioTime's operating revenues are now derived primarily from licensing fees and advertising from the marketing of the LifeMap Sciences database products, from royalties and licensing fees related to the sale of its plasma volume expander product, Hextend®, and from the sale of products for research.

The consolidated balance sheets as of December 31, 2013 and 2012, the consolidated statements of operations for the years ended December 31, 2013, 2012, and 2011, the consolidated statements of changes in equity for the years ended December 31, 2013, 2012, and 2011, and the consolidated statements of cash flows for the years ended December 31, 2013, 2012, and 2011 have been prepared by BioTime's management in accordance with instructions from Form 10-K.

Table of Contents

Principles of consolidation – BioTime's consolidated financial statements include the accounts of its subsidiaries. The following table reflects BioTime's ownership, directly or through one or more subsidiaries, of the outstanding shares of its subsidiaries.

Subsidiary	BioTime Ownership	Country
Asterias Biotherapeutics, Inc.	71.6%(1)	USA
ReCyte Therapeutics, Inc.	94.8%	USA
OncoCyte Corporation	75.3%	USA
OrthoCyte Corporation	100%	USA
ES Cell International Pte Ltd.	100%	Singapore
BioTime Asia, Limited	81%	Hong Kong
Cell Cure Neurosciences Ltd.	62.5%	Israel
LifeMap Sciences, Inc.	73.2%	USA
LifeMap Sciences, Ltd.	(2)	Israel

(1) BioTime's percentage ownership was reduced from approximately 96.7% to approximately 71.6% on October 1, 2013 when Asterias issued common stock to BioTime and Geron Corporation pursuant to an Asset Contribution Agreement and sold common stock and warrants to a private investor for cash in a related transaction. See Note 15.

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

All material intercompany accounts and transactions have been eliminated in consolidation. The consolidated financial statements are presented in accordance with accounting principles generally accepted in the U.S. ("GAAP") and with the accounting and reporting requirements of Regulation S-X of the Securities and Exchange Commission ("SEC"). As of December 31, 2013, BioTime consolidated Asterias, ReCyte Therapeutics, OncoCyte, OrthoCyte, ESI, Cell Cure Neurosciences, BioTime Asia, Limited ("BioTime Asia"), LifeMap Sciences, and LifeMap Sciences, Ltd. as BioTime has the ability to control their operating and financial decisions and policies through its ownership, and the noncontrolling interest is reflected as a separate element of equity on BioTime's consolidated balance sheets.

Certain significant risks and uncertainties -The operations of BioTime and its subsidiaries are subject to a number of factors that can affect their operating results and financial condition. Such factors include but are not limited to, the following: the results of clinical trials of their respective therapeutic product and medical device candidates; their ability to obtain FDA and foreign regulatory approval to market their respective therapeutic and medical device product candidates; their ability to develop new stem cell research products and technologies; competition from products manufactured and sold or being developed by other companies; the price and demand for their products; their ability to obtain additional financing and the terms of any such financing that may be obtained; their ability to negotiate favorable licensing or other manufacturing and marketing agreements for its products; the availability of ingredients used in their products; and the availability of reimbursement for the cost of their therapeutic products and medical devices (and related treatment) from government health administration authorities, private health coverage insurers, and other organizations.

2. Summary of Significant Accounting Policies

Use of estimates – The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported

amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Revenue recognition – BioTime complies with SEC Staff Accounting Bulletin guidance on revenue recognition. Royalty revenues consist of product royalty payments. License fee revenues consist of fees under license agreements and are recognized when earned and reasonably estimable and also include subscription and advertising revenue from our online databases based upon respective subscription or advertising periods. BioTime recognizes revenue in the quarter in which the royalty reports are received, rather than the quarter in which the sales took place. When BioTime is entitled to receive up-front nonrefundable licensing or similar fees pursuant to agreements under which BioTime has no continuing performance obligations, the fees are recognized as revenues when collection is reasonably assured. When BioTime receives up-front nonrefundable licensing or similar fees pursuant to agreements under which BioTime does have continuing performance obligations, the fees are deferred and amortized ratably over the performance period. If the performance period cannot be reasonably estimated, BioTime amortizes nonrefundable fees over the life of the contract until such time that the performance period can be more reasonably estimated. Milestone payments, if any, related to scientific or technical achievements are recognized in income when the milestone is accomplished if (a) substantive effort was required to achieve the milestone, (b) the amount of the milestone payment appears reasonably commensurate with the effort expended, and (c) collection of the payment is reasonably assured. Grant income and the sale of research products are recognized as revenue when earned. Revenues from the sale of research products are primarily derived from the sale of hydrogels and stem cell products.

Table of Contents

Cash and cash equivalents – BioTime considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents.

Accounts receivable and allowance for doubtful accounts - Trade accounts receivable and grants receivable are presented in the prepaid expenses and other current assets line item of the consolidated balance sheet. Total trade receivables amounted to approximately $575,900 and $395,000 and grants receivable amounted to approximately $539,300 and $1,059,000 as of December 31, 2013 and 2012, respectively. Some of these amounts are deemed uncollectible; as such BioTime recognized allowance for doubtful accounts in the amount of $116,816 as of December 31, 2013 and 2012. BioTime evaluates the collectability of its receivables based on a variety of factors, including the length of time receivables are past due and significant one-time events and historical experience. An additional reserve for individual accounts will be recorded if BioTime becomes aware of a customer's inability to meet its financial obligations, such as in the case of bankruptcy filings or deterioration in the customer's operating results or financial position. If circumstances related to customers change, estimates of the recoverability of receivables would be further adjusted.

Concentrations of credit risk – Financial instruments that potentially subject BioTime to significant concentrations of credit risk consist primarily of cash and cash equivalents. BioTime limits the amount of credit exposure of cash balances by maintaining its accounts in high credit quality financial institutions. Cash equivalent deposits with financial institutions may occasionally exceed the limits of insurance on bank deposits; however, BioTime has not experienced any losses on such accounts.

Inventory – Inventories are stated at the lower of cost or market. Cost, which includes amounts related to materials, labor, and overhead, is determined in a manner which approximates the first-in, first-out ("FIFO") method.

Equipment – Equipment is stated at cost. Equipment is being depreciated using the straight-line method over a period of 36 to 120 months. See Note 4.

Intangible assets – Intangible assets with finite useful lives are amortized over estimated useful lives and intangible assets with indefinite lives are not amortized but rather are tested at least annually for impairment. Acquired in-process research and development intangible assets are accounted for depending on whether they were acquired as part of an acquisition of a business, or assets that do not constitute a business. When acquired in conjunction with acquisition of a business, these assets are considered to be indefinite-lived until the completion or abandonment of the associated research and development efforts and are capitalized as an asset. If and when development is complete, the associated assets would be deemed finite-lived and would then be amortized based on their respective estimated useful lives at that point in time. However, when acquired in conjunction with an acquisition of assets that do not constitute a business (such as the acquisition of assets from Geron), in accordance with the accounting rules in ASC 805-50, such intangible assets related to in-process research and development ("IPR&D") are expensed upon acquisition.

Treasury stock – BioTime accounts for BioTime common shares issued to subsidiaries for future potential working capital needs as treasury stock on the consolidated balance sheet. BioTime has the intent and ability to register any unregistered shares to support the marketability of the shares.

Warrants to purchase common stock – BioTime generally accounts for warrants issued in connection with equity financings as a component of equity. None of the warrants issued by BioTime as of December 31, 2013 include a conditional obligation to issue a variable number of shares; nor was there a deemed possibility that BioTime may need to settle the warrants in cash. If BioTime were to issue warrants with a conditional obligation to issue a variable number of shares or with the deemed possibility of a cash settlement, BioTime would record the fair value of the warrants as a liability at each balance sheet date and record changes in fair value in other income and expense in the consolidated statements of operations.

Table of Contents

Cost of sales – BioTime accounts for the cost of research products acquired for sale and any royalties paid as a result of any revenues in accordance with the terms of the respective licensing agreements as cost of sales on the consolidated statement of operations.

Patent costs – Costs associated with obtaining patents on products or technology developed are expensed as general and administrative expenses when incurred. This accounting is in compliance with guidance promulgated by the Financial Accounting Standards Board (the "FASB") regarding goodwill and other intangible assets.

Reclassification – Certain prior year amounts have been reclassified to conform to the current year presentation.

Research and development – BioTime complies with FASB requirements governing accounting for research and development costs. Research and development costs are expensed when incurred, and consist principally of salaries, payroll taxes, consulting fees, research and laboratory fees, and license fees paid to acquire patents or licenses to use patents and other technology from third parties.

Foreign currency translation gain/(loss) and comprehensive loss – In countries in which BioTime operates, and the functional currency is other than the U.S. dollar, assets and liabilities are translated using published exchange rates in effect at the consolidated balance sheet date. Revenues and expenses and cash flows are translated using an approximate weighted average exchange rate for the period. Resulting translation adjustments are recorded as a component of accumulated other comprehensive income on the consolidated balance sheet. For the fiscal years ended December 31, 2013 and 2012, comprehensive loss includes gain of $122,469 and $63,179, respectively which is largely from foreign currency translation. For the fiscal year ended December 31, 2013 and 2012, foreign currency transaction loss amounted to $133,479 and $34,233, respectively.

Income taxes – BioTime accounts for income taxes in accordance with GAAP requirements, which prescribe the use of the asset and liability method, whereby deferred tax asset or liability account balances are calculated at the balance sheet date using current tax laws and rates in effect. Valuation allowances are established when necessary to reduce deferred tax assets when it is more likely than not that a portion or all of the deferred tax assets will not be realized. The FASB guidance also prescribes a recognition threshold and a measurement attribute for the financial statement recognition and measurement of tax positions taken or expected to be taken in a tax return. For those benefits to be recognized, a tax position must be more-likely-than-not sustainable upon examination by taxing authorities. For 2013, Asterias will file a separate U.S. federal and state income tax returns but effectively BioTime will combine Asterias' tax provision with BioTime's. BioTime recognizes accrued interest and penalties related to unrecognized tax benefits as income tax expense. No amounts were accrued for the payment of interest and penalties as of December 31, 2013 and 2012. BioTime files its income tax returns in the U.S. federal and various state and local and foreign jurisdictions. Generally, BioTime is no longer subject to income tax examinations by major taxing authorities for years before 2010. Any potential examinations may include questioning the timing and amount of deductions, the nexus of income among various tax jurisdictions and compliance with U.S. federal, state and local and foreign tax laws. Management does not expect that the total amount of unrecognized tax benefits will materially change over the next twelve months

Stock-based compensation – BioTime adopted accounting standards governing share-based payments, which require the measurement and recognition of compensation expense for all share-based payment awards made to directors and employees, including employee stock options, based on estimated fair values. In March 2005, the SEC issued additional guidelines which provide supplemental implementation guidance for valuation of share-based payments. BioTime has applied the provisions of this guidance in such valuations as well. Consistent with those guidelines, BioTime utilizes the Black-Scholes Merton option pricing model. BioTime's determination of fair value of share-based payment awards on the date of grant using that option-pricing model is affected by BioTime's stock price as well as by assumptions regarding a number of highly complex and subjective variables. These variables include, but are not limited to, BioTime's expected stock price volatility over the term of the awards, and actual and projected

employee stock option exercise behaviors. The expected term of options granted is derived from historical data on employee exercises and post-vesting employment termination behavior. The risk-free rate is based on the U.S. Treasury rates in effect during the corresponding period of grant. Although the fair value of employee stock options is determined in accordance with recent FASB guidance, changes in the subjective assumptions can materially affect the estimated value

Table of Contents

Impairment of long-lived assets – BioTime's long-lived assets, including intangible assets, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be fully recoverable. If an impairment indicator is present, BioTime will evaluate recoverability by a comparison of the carrying amount of the assets to future undiscounted net cash flows expected to be generated by the assets. If the assets are impaired, the impairment will be recognized and is measured by the amount by which the carrying amount exceeds the estimated fair value of the assets.

Deferred license and consulting fees – Deferred license and consulting fees consist of the value of warrants issued to third parties for services, and deferred license fees paid to acquire rights to use the proprietary technologies of third parties. The value of the warrants is being amortized over the period the services are being provided, and the license fees are being amortized over the estimated useful lives of the licensed technologies or licensed research products. See Note 6.

Loss per share – Basic net loss per share is computed by dividing net loss attributable to BioTime by the weighted-average number of common shares outstanding for the period. Diluted net loss per share reflects the weighted-average number of common shares outstanding plus the potential effect of dilutive securities or contracts which are convertible to common shares, such as options and warrants (using the treasury stock method) and shares issuable in future periods, except in cases where the effect would be anti-dilutive. Diluted loss per share for years ended December 31, 2013, 2012, and 2011 excludes any effect from 10,697,715 treasury shares, 4,567,135 options and 9,751,615 warrants, 1,800,109 treasury shares, 3,681,301 options and 556,613 warrants, and 1,286,174 treasury shares, 3,408,905 options and 636,613 warrants, respectively.

Fair value of financial instruments – The fair value of BioTime's assets and liabilities, which qualify as financial instruments under FASB guidance regarding disclosures about fair value of financial instruments, approximate the carrying amounts presented in the accompanying consolidated balance sheets.

Effect of recently issued and recently adopted accounting pronouncements – There are no recently issued accounting standards which are not yet effective which BioTime believes would materially impact the consolidated financial statements.

3. Inventory

At December 31, 2013, BioTime, held $165,771 of inventory of finished products on-site at its corporate headquarters in Alameda, California. At that same date $12,923 of inventory of finished products was held by a third party on consignment. At December 31, 2012, BioTime, held $41,494 of inventory of finished products on-site at its corporate headquarters in Alameda, California. At that same date $13,822 of inventory of finished products was held by a third party on consignment.

Table of Contents

4. Equipment

At December 31, 2013 and December 31, 2012, equipment, furniture and fixtures were comprised of the following:

	2013	2012
Equipment, furniture and fixtures	$4,431,586	$2,098,812
Accumulated depreciation	(1,433,853)	(750,258)
Equipment net of accumulated depreciation	$2,997,733	$1,348,554

Depreciation expense amounted to $656,759 and $386,457 for the years ended December 31, 2013 and 2012, respectively. The difference between the depreciation expense recognized in the consolidated statement of operations and the increase in accumulated depreciation of $683,595 per the consolidated balance sheet is partially attributed to a write off of $1,500 of fully depreciated assets offset by foreign currency rates.

5. Intangible assets

At December 31, 2013 and December 31, 2012, intangible assets and accumulated intangible assets were comprised of the following:

	2013	2012
Intangible assets	$54,719,918	$25,702,909
Accumulated amortization	(8,511,833)	(5,216,117)
Intangible assets, net	$46,208,085	$20,486,792

BioTime amortizes its intangible assets over an estimated period of 10 years on a straight line basis. BioTime recognized $3,295,716 in amortization expense of intangible assets during the year ended December 31, 2013. Amortization expense for the year ended December 31, 2012 amounted to $2,446,975. See Notes 11, 12, 13, 14, and 15.

Amortization of intangible assets for periods subsequent to December 31, 2013 is as follows:

Year Ended December 31,	Amortization Expense
2014	$5,472,123
2015	5,472,123
2016	5,472,123
2017	5,472,123
Thereafter	24,319,593
Total	$46,208,085

Table of Contents

6. Royalty Obligation and Deferred License Fees

BioTime amortizes deferred license fees over the estimated useful lives of the licensed technologies or licensed research products. BioTime is applying a 10 year estimated useful life to the technologies and products that it is currently licensing. The estimation of the useful life any technology or product involves a significant degree of inherent uncertainty, since the outcome of research and development or the commercial life a new product cannot be known with certainty at the time that the right to use the technology or product is acquired. BioTime will review its amortization schedules for impairments that might occur earlier than the original expected useful lives.

WARF License—Research Products

On January 3, 2008, BioTime entered into a Commercial License and Option Agreement with Wisconsin Alumni Research Foundation ("WARF"). The WARF license permits BioTime 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 products used as research tools, including in drug discovery and development. BioTime or ReCyte Therapeutics will pay WARF royalties on the sale of products and services using the technology or stem cells licensed from WARF. The royalty will range from 2% to 4%, depending on the kind of products sold. The royalty rate is subject to certain reductions if BioTime also becomes obligated to pay royalties to a third party in order to sell a product. In March 2009, BioTime amended its license agreement with WARF. The amendment increased the license fee from the original $225,000 to $295,000, of which $225,000 was paid in cash and $70,000 was paid by delivering BioTime common shares having a market value of $70,000 as of March 2, 2009. The amendment extended until March 2, 2010 the dates for payment of the $215,000 balance of the cash license fee and $20,000 in remaining reimbursement of costs associated with preparing, filing, and maintaining the licensed patents. The commencement date for payment of an annual $25,000 license maintenance fee was also extended to March 2, 2010. The licensing fees less the amortized portion were included in deferred license fees in BioTime's consolidated balance sheet as of December 31, 2013 and 2012.

ReCyte Therapeutics Licenses from ACT

On July 10, 2008, ReCyte Therapeutics entered into a License Agreement with Advanced Cell Technology, Inc. ("ACT"), under which ReCyte Therapeutics acquired exclusive worldwide rights to use ACT's technology for methods to accelerate the isolation of novel cell strains from pluripotent stem cells. ReCyte subsequently assigned the license to BioTime. ReCyte Therapeutics 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. The license will expire in twenty years or upon the expiration of the last to expire of the licensed patents, whichever is later. The $250,000 license fee less the amortized portion is included in deferred license fees in BioTime's consolidated balance sheet as of December 31, 2013 and 2012.

On August 15, 2008, ReCyte Therapeutics entered into a License Agreement and a Sublicense Agreement with ACT under which ReCyte Therapeutics acquired world-wide rights to use an array of ACT technology (the "ACT License") and technology licensed by ACT from affiliates of Kirin Pharma Company, Limited (the "Kirin Sublicense"). The ACT License and Kirin Sublicense permit the commercialization of products in human therapeutic and diagnostic product markets.

The technology licensed by ReCyte Therapeutics covers methods to transform cells of the human body, such as skin cells, into an embryonic state in which the cells will be pluripotent. Under the ACT License, ReCyte Therapeutics paid ACT a $200,000 license fee and will pay a 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, loans and royalties) received by ReCyte Therapeutics 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. The license will

expire in twenty years or upon the expiration of the last-to-expire of the licensed patents, whichever is later. The $200,000 license fee payment less the amortized portion is included in deferred license fees in BioTime's consolidated balance sheet as of December 31, 2013 and 2012.

Table of Contents

Under the Kirin Sublicense, ReCyte Therapeutics has paid ACT a $50,000 license fee and 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, loans and royalties) received by ReCyte Therapeutics from sublicensing the Kirin Technology to third parties. ReCyte Therapeutics will also pay to ACT or to an affiliate of Kirin Pharma Company, Limited ("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 by ReCyte Therapeutics will be credited against other royalties payable to ACT under the Kirin Sublicense. The license will expire upon the expiration of the last to expire of the licensed patents, or May 9, 2016 if no patents are issued. The $50,000 license fee payment less the amortized portion is included in deferred license fees in BioTime's consolidated balance sheet as of December 31, 2013 and 2012.

ReCyte Therapeutics License from RGI

On February 29, 2009, ReCyte Therapeutics entered into a Stem Cell Agreement with Reproductive Genetics Institute ("RGI"). In partial consideration of the rights and licenses granted to ReCyte Therapeutics by RGI, BioTime issued to RGI 32,259 common shares, having a market value of $50,000 on the effective date of the Stem Cell Agreement. This $50,000 payment less the amortized portion is included in deferred license fees in BioTime's consolidated balance sheet as of December 31, 2013 and 2012.

OncoCyte License from SBMRI

Through BioTime's acquisition of the assets of Cell Targeting, Inc. during March 2011, BioTime acquired a royalty-bearing, exclusive, worldwide license from the Sanford-Burnham Medical Research Institute ("SBMRI") 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 BioTime's own proprietary technology or that of a third party. BioTime assigned the SBMRI license to OncoCyte during July 2011. 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 OncoCyte develops using or incorporating the licensed technology; and 20% of any payments OncoCyte receives 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 OncoCyte's royalty payment obligations for the applicable year. OncoCyte will reimburse SBMRI for 25% of the costs incurred in filing, prosecuting, and maintaining patent protection, subject to OncoCyte's approval of the costs. OncoCyte incurred no royalty expenses to date as of December 31, 2013. See Note 11.

Cell Cure Neurosciences License from Hadasit

Cell Cure Neurosciences has entered into an Amended and Restated Research and License Agreement with Hadasit Medical Research Services and Development, Ltd. ("Hadasit") under which Cell Cure Neurosciences 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 Pharmaceutical Industries Ltd. ("Teva") exercises its option to license OpRegen® or OpRegen®-Plus under the terms of a Research and Exclusive License Option Agreement (the "Teva License Option Agreement"), Cell Cure Neurosciences will pay Hadasit 30% of all payments made by Teva to Cell Cure Neurosciences, 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.

Table of Contents

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.

BioTime License for the University of Utah

Through the merger of Glycosan into OrthoCyte during March 2011, BioTime acquired a license from the University of Utah to use certain patents in the production and sale of certain hydrogel products. Under the License Agreement, the scope of which was expanded by an amendment during August 2012, BioTime will pay a 3% royalty on sales of products and services performed that utilize the licensed patents. Commencing in 2014, BioTime 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 $2,500 in 2014 and $30,000 each year thereafter during the term of the License Agreement. BioTime shall also pay the University of Utah 30% of any sublicense fees or royalties received under any sublicense of the licensed patents. See Note 12.

BioTime 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. BioTime 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.

BioTime License from Cornell University

On August 23, 2011, BioTime entered into a License Agreement with Cornell University for the worldwide development and commercialization of technology for the differentiation of hES cells into vascular endothelial cells.

Cornell will be entitled to receive a nominal initial license fee and nominal annual license maintenance fees. The obligation to pay annual license maintenance fees will end when the first human therapeutic products developed under the license is sold. BioTime will pay Cornell a milestone payment upon the achievement of a research product sale milestone amount, and will make milestone payments upon the attainment of certain FDA approval milestones for therapeutic products developed under the license, including (i) the first Phase II clinical trial dosing of a human therapeutic product, (ii) the first Phase III clinical trial dosing of a human therapeutic product; (iii) FDA approval of the first human therapeutic product for age-related vascular disease; and (iv) FDA approval of the first human therapeutic product for cancer.

BioTime will pay Cornell royalties on the sale of products and services using the license, and will share with Cornell a portion of any cash payments, other than royalties, that BioTime receives for the grant of sublicenses to non-affiliates. The potential royalty percentage rates to be paid to Cornell will be in the low to mid-single digit range depending on the product. BioTime will also reimburse Cornell for costs related to the patent applications and any patents that may issue that are covered by the license.

In conjunction with the License Agreement, BioTime also entered into a Sponsored Research Agreement under which scientists at Weill Cornell Medical College will engage in certain research for BioTime over a three year period beginning August 2011.

Table of Contents

Asterias License from WARF

Asterias has entered into a Non-Exclusive License Agreement with WARF under which Asterias was granted a worldwide non-exclusive license under certain WARF patents and WARF-owned embryonic stem cell lines to develop and commercialize therapeutic, diagnostic and research products. The licensed patents include patents covering primate embryonic stem cells as compositions of matter, as well as methods for growth and differentiation of primate embryonic stem cells. The licensed stem cell lines include the H1, H7, H9, H13 and H14 hES cell lines.

In consideration of the rights licensed, Asterias has agreed to pay WARF an upfront license fee, payments upon the attainment of specified clinical development milestones, royalties on sales of commercialized products, and, subject to certain exclusions, a percentage of any payments that Asterias may receive from any sublicenses that it may grant to use the licensed patents or stem cell lines.

The license agreement will terminate with respect to licensed patents upon the expiration of the last licensed patent to expire. Asterias may terminate the license agreement at any time by giving WARF prior written notice. WARF may terminate the license agreement if payments of earned royalties, once begun, cease for a specified period of time or if Asterias and any third parties collaborating or cooperating with Asterias in the development of products using the licensed patents or stem cell lines fail to spend a specified minimum amount on research and development of products relating to the licensed patents or stem cell lines for a specified period of time. WARF also has the right to terminate the license agreement if Asterias breaches the license agreement or becomes bankrupt or insolvent or if any of the licensed patents or stem cell lines are offered to creditors

Asterias License from the University of California

Geron assigned to Asterias its Exclusive License Agreement with The Regents of the University of California for patents covering a method for directing the differentiation of multipotential hES cells to glial-restricted progenitor cells that generate pure populations of oligodendrocytes for remyelination and treatment of spinal cord injury. Pursuant to this agreement, Asterias has an exclusive worldwide license under such patents, including the right to grant sublicenses, to create products for biological research, drug screening, and human therapy using the licensed patents. Under the license agreement, Asterias will be obligated to pay the university a royalty of 1% from sales of products that are covered by the licensed patent rights, and a minimum annual royalty of $5,000 starting in the year in which the first sale of a product covered by any licensed patent rights occurs, and continuing for the life of the applicable patent right under the agreement. The royalty payments due are subject to reduction, but not by more than 50%, to the extent of any payments that Asterias may be obligated to pay to a third party for the use of patents or other intellectual property licensed from the third party in order to make, have made, use, sell, or import products or otherwise exercise its rights under the Exclusive License Agreement. Asterias will be obligated to pay the university 7.5% of any proceeds, excluding debt financing and equity investments, and certain reimbursements, that its receives from sublicensees, other than Asterias' affiliates and joint ventures relating to the development, manufacture, purchase, and sale of products, processes, and services covered by the licensed patent. The license agreement will terminate on the expiration of the last-to-expire of the university's issued licensed patents. If no further patents covered by the license agreement are issued, the license agreement would terminate in 2024. The university may terminate the agreement in the event of Asterias' breach of the agreement. Asterias can terminate the agreement upon 60 days' notice.

Asterias Sublicenes from Geron

Asterias has received from Geron an exclusive sublicense under certain patents owned by the University of Colorado's University License Equity Holdings, Inc. relating to telomerase (the "Telomerase Sublicense"). The Telomerase Sublicense entitles Asterias to use the technology covered by the patents in the development of VAC1 and VAC2 as immunological treatments for cancer. Under the Telomerase Sublicense, Asterias paid Geron a one-time upfront

license fee of $65,000, and will pay Geron an annual license maintenance fee of $10,000 due on each anniversary of the effective date of the Telomerase Sublicense, and a 1% royalty on sales of any products that Asterias may develop and commercialize that are covered by the sublicensed patents. The Telomerase Sublicense will expire concurrently with the expiration of Geron's license. That license will terminate during April 2017 when the licensed patents expire. The Telomerase Sublicense may also be terminated by Asterias by giving Geron 90 days written notice, by Asterias or by Geron if the other party breaches its obligations under the sublicense agreement and fails to cure their breach within the prescribed time period, or by Asterias or by Geron upon the filing or institution of bankruptcy, reorganization, liquidation or receivership proceedings, or upon an assignment of a substantial portion of the assets for the benefit of creditors by the other party.

Table of Contents

As of December 31, 2013, amortization of deferred license fees was as follows:

Year Ended December 31,	Deferred License Fees
2014	$111,000
2015	111,000
2016	111,000
2017	111,000
Thereafter	111,833
Total	$555,833

The current portion in the amount of $111,000 is included in prepaid expenses and other current assets. Noncurrent portion is included in $444,833, deferred license and consulting fees.

7. Accounts Payable and Accrued Liabilities

At December 31, 2013 and 2012, accounts payable and accrued liabilities consist of the following:

	December 31,	
	2013	2012
Accounts payable	$3,887,950	$1,168,077
Accrued bonuses	600,000	497,843
Other accrued liabilities	2,234,674	2,324,042
	$6,722,624	$3,989,962

8. Related Party Transactions

BioTime currently pays $5,050 per month for the use of approximately 900 square feet of office space in New York City, which is made available to BioTime on a month-by-month basis by one of its directors at his cost for use in conducting meetings and other business affairs.

On January 29, 2013, in accordance with a November 1, 2012 Share Purchase Agreement between BioTime and Cell Cure Neurosciences, BioTime purchased 87,456 Cell Cure Neurosciences ordinary shares in exchange for 906,735 of BioTime common shares.

On October 1, 2013, BioTime issued 8,902,077 common shares and warrants to purchase 8,000,000 common shares to Asterias pursuant to the Asset Contribution Agreement discussed in Note 15.

Table of Contents

9. Equity

BioTime has issued warrants to purchase its common shares. Activity related to warrants in 2013, 2012, and 2011 is presented in the table below:

	Number of Warrants	Per share exercise price	Weighted Average Exercise Price
Outstanding, January 1, 2011	649,000	$0.68 - 10.00	$ 6.42
Granted in 2011	206,613	10.00	10.00
Exercised in 2011	(219,000)	0.68 - 3.00	1.94
Outstanding, December 31, 2011	636,613	$3.00 – 10.00	$ 9.13
Expired in 2012	(80,000)	3.00	3.00
Outstanding, December 31, 2012	556,613	$10.00	$ 10.00
Granted in 2013	9,195,002	5.00	5.00
Outstanding, December 31, 2013	9,751,615	$5.00 – 10.00	$ 5.29

At December 31, 2013, 9,751,615 warrants to purchase common shares with a weighted average exercise price of $5.29 and a weighted average remaining contractual life of 0.32 years were outstanding.

At December 31, 2012, 556,613 warrants to purchase common shares with a weighted average exercise price of $10.00 and a weighted average remaining contractual life of 1.32 years were outstanding.

At December 31, 2011, 636,613 warrants to purchase common shares with a weighted average exercise price of $9.13 and a weighted average remaining contractual life of 1.68 years were outstanding.

A summary of all option activity under the subsidiary option plans (see Note 10) for the years ended December 31, 2013, 2012, and 2011 is as follows:

	Options Available for Grant	Number of Options Outstanding	Weighted Average Exercise Price
January 1, 2011	7,703,060	4,312,640	$ 0.74
Added upon adoption of option plan in 2011	8,000,000	-	-
Granted in 2011	(4,685,000)	4,685,000	0.36
Forfeited/Exercised in 2011	200,000	(200,000)	0.05
December 31, 2011	11,218,060	8,797,640	$ 0.56
Reverse stock split and change in plan in 2012	(3,697,014)	(2,460,717)	-
Granted in 2012	(1,479,490)	1,479,490	1.39
Forfeited/Exercised in 2012	-	-	-
December 31, 2012	6,041,556	7,816,413	$ 0.93
Increase option pool	500,000	-	-
Granted in 2013	(4,434,995)	4,434,995	2.11
Expired/Forfeited/Exercised in 2013	785,000	(785,000)	1.95
December 31, 2013	2,891,561	11,466,408	$ 1.32

Preferred Shares

BioTime is authorized to issue 2,000,000 preferred shares. BioTime's shareholders approved an increase in the number of authorized preferred shares from 1,000,000 to 2,000,000 in May 2013. The preferred shares may be issued in one or more series as the board of directors may by resolution determine. The board of directors is authorized to fix the number of shares of any series of preferred shares and to determine or alter the rights, references, privileges, and restrictions granted to or imposed on the preferred shares as a class, or upon any wholly unissued series of any preferred shares. The board of directors may, by resolution, increase or decrease (but not below the number of shares of such series then outstanding) the number of shares of any series of preferred shares subsequent to the issue of shares of that series.

Table of Contents

As of December 31, 2013 and 2012, BioTime has no issued and outstanding preferred shares.

Common shares

BioTime is authorized to issue 125,000,000 common shares with no par value. BioTime's shareholders approved an increase in the number of authorized common shares from 75,000,000 to 125,000,000 in May 2013. As of December 31, 2013, BioTime has 67,412,139 issued and 56,714,424 outstanding common shares. As of December 31, 2012, BioTime had 51,183,318 issued and 49,383,209 outstanding common shares. The difference of 10,697,715 and 1,800,109 common shares as of December 31, 2013 and 2012, respectively is attributed to treasury shares held by BioTime subsidiaries which are accounted for as treasury stock on the consolidated balance sheet.

Significant common share transactions during the year ended December 31, 2013 are as follows:

- In January 2013, as additional consideration for the lease for an office and research facility located in Menlo Park, California, BioTime issued to the landlord 73,553 BioTime common shares having a market value of $242,726, determined based upon the average closing price of BioTime common shares on the NYSE MKT for a designated period of time prior to the signing of the lease. For accounting purposes, these shares were revalued at $253,758 which was based on the closing price of BioTime common shares on the NYSE MKT on the date the lease was fully executed at which time the shares were issued.

- In January 2013, BioTime and a private investor entered into a Stock and Warrant Purchase Agreement under which BioTime received $5,000,000 for the sale of 1,350,000 BioTime common shares and warrants to purchase 649,999 additional BioTime common shares at an exercise price of $5.00 per share.

- In January 2013, in accordance with a November 1, 2012 Share Purchase Agreement between BioTime and Cell Cure Neurosciences, BioTime purchased 87,456 Cell Cure Neurosciences ordinary shares in exchange for 906,735 of BioTime common shares.

- In June 2013, BioTime sold an aggregate of 2,180,016 common shares and 545,004 warrants to purchase common shares, in "units" with each unit consisting of one common share and one-quarter of a warrant, at an offering price of $4.155 per unit, to certain investors through an offering registered under the Securities Act. BioTime received gross proceeds of $9,057,967 from the sale of the common shares and warrants. The warrants have an initial exercise price of $5.00 per share and are exercisable during the five year period beginning on the date of issuance, June 6, 2013.

- In October 2013, BioTime issued 8,902,077 common shares and warrants to purchase 8,000,000 common shares to Asterias under the Asset Contribution Agreement.

- During 2013 BioTime sold 3,665,646 BioTime common shares for gross proceeds of $15,722,339 at prevailing market prices through BioTime's $25 million Controlled Equity Offering facility which was established with Cantor Fitzgerald & Co.

Significant common share transactions during the year ended December 31, 2012 are as follows:

- BioTime received total cash of $286,552 for the exercise of 98,541 options at a weighted average exercise price of $2.91.

Table of Contents

- BioTime issued 448,429 common shares as consideration for the merger of XenneX, Inc. with LifeMap Sciences.

- In July and in December 2012, LifeMap Sciences received $250,000 cash and 592,533 BioTime common shares having a market value of $2,750,003 from certain private investors in exchange for 1,714,287 LifeMap Sciences shares of common stock. LifeMap Sciences sold 78,598 BioTime common shares for gross proceeds of $282,826 during 2012 and the remaining 513,935 BioTime common shares held by LifeMap Sciences are accounted for as treasury stock as of December 31, 2012. See Note 8.

- During 2012 BioTime sold 314,386 BioTime common shares for gross proceeds of $1,131,279 at prevailing market prices through BioTime's Controlled Equity Offering facility with Cantor Fitzgerald & Co.

10. Stock Option Plans

During 2002, BioTime adopted the 2002 Employee Stock Option Plan (the "2002 Plan"), which was amended in 2004, 2007, and 2009 to reserve additional common shares for issuance under options or restricted stock awards granted to eligible persons. The 2002 Plan expired during September 2012 and no additional grants of options or awards of restricted stock may be made under the 2002 Plan.

During December 2012, BioTime's Board of Directors approved the 2012 Equity Incentive Plan (the "2012 Plan") under which BioTime has reserved 4,000,000 common shares for the grant of stock options or the sale of restricted stock. No options may be granted under the 2012 Plan more than ten years after the date upon which the 2012 Plan was adopted by the Board of Directors, and no options granted under the 2012 Plan may be exercised after the expiration of ten years from the date of grant. Under the 2012 Plan, options to purchase common shares may be granted to employees, directors and certain consultants at prices not less than the fair market value at date of grant, subject to certain limited exceptions for options granted in substitution of other options. Options may be fully exercisable immediately, or may be exercisable according to a schedule or conditions specified by the Board of Directors or the Compensation Committee. The 2012 Plan also permits BioTime to award restricted stock for services rendered or to sell common shares to employees subject to vesting provisions under restricted stock agreements that provide for forfeiture of unvested shares upon the occurrence of specified events under a restricted stock award agreement. BioTime may permit employees or consultants, but not officers or directors, who purchase stock under restricted stock purchase agreements, to pay for their shares by delivering a promissory note that is secured by a pledge of their shares.

BioTime may also grant stock appreciation rights ("SARs") and hypothetical units issued with reference to BioTime common shares ("Restricted Stock Units") under the Plan. An SAR is the right to receive, upon exercise, an amount payable in cash or shares or a combination of shares and cash, as determined by the Board of Directors or the Compensation Committee, equal to the number of shares subject to the SAR that is being exercised multiplied by the excess of (a) the fair market value of a BioTime common share on the date the SAR is exercised, over (b) the exercise price specified in the SAR Award agreement.

The terms and conditions of a grant of Restricted Stock Units will be determined by the Board of Directors or Compensation Committee. No shares of stock will be issued at the time a Restricted Stock Unit is granted, and BioTime will not be required to set aside a fund for the payment of any such award. A recipient of Restricted Stock Units will have no voting rights with respect to the Restricted Stock Units. Upon the expiration of the restrictions applicable to a Restricted Stock Unit, BioTime will either issue to the recipient, without charge, one common share per Restricted Stock Unit or cash in an amount equal to the fair market value of one common share.

On January 1, 2006, BioTime adopted a new accounting pronouncement, which requires the measurement and recognition for all share-based payment awards made to BioTime's employees and directors, including employee stock options. The following table summarizes stock-based compensation expense related to employee and director stock options awards for the years ended December 31, 2013, 2012, and 2011, which was allocated as follows:

117

Table of Contents

	Year Ended December 31,		
All stock-based compensation expense:	2013	2012	2011
Research and Development	$829,938	$815,052	$885,581
General and Administrative	2,214,836	1,028,910	916,832
All stock-based compensation expense included in expenses	$3,044,774	$1,843,962	$1,802,413

As of December 31, 2013, total unrecognized compensation costs related to unvested stock options was $5,609,851, which is expected to be recognized as expense over a weighted average period of approximately 5.48 years.

For all applicable periods, the value of each employee or director stock option was estimated on the date of grant using the Black-Scholes Merton model for the purpose of the pro forma financial disclosures in accordance with a new accounting pronouncement.

The weighted-average estimated fair value of stock options granted during the years ended December 31, 2013 and 2012 was $4.13 per share in both years, using the Black-Scholes Merton model with the following weighted-average assumptions:

	Year Ended December 31,	
	2013	2012
Expected life (in years)	6.68	6.35
Risk-free interest rates	1.51 %	1.06 %
Volatility	95.22%	98.88%
Dividend yield	0 %	0 %

General Option Information

A summary of all option activity under the 2002 Plan and the 2012 Plan for the years ended December 31, 2013, 2012, and 2011, is as follows:

	Options Available for Grant	Number of Options Outstanding	Weighted Average Exercise Price
January 31, 2011	1,842,168	3,320,590	$ 1.13
Granted under 2002 Plan	(560,443)	560,443	4.89
Exercised	-	(450,660)	0.50
Forfeited/expired	21,468	(21,468)	5.60
December 31, 2011	1,303,193	3,408,905	$ 2.18
Granted under 2002 Plan	(280,000)	280,000	4.75
Granted under 2012 Plan	(255,000)	255,000	3.45
Exercised	-	(98,541)	2.91
Forfeited/expired under 2002 Plan	-	(164,063)	5.60
Added by 2012 Plan [1]	4,000,000	-	-
Reduce options ungranted under 2002 Plan [2]	(1,023,193)	-	-
December 31, 2012	3,745,000	3,681,301	$ 1.96
Granted under 2012 Plan	(1,585,000)	1,585,000	4.13
Exercised	-	(20,000)	2.30
Forfeited/expired under 2002 Plan	-	(524,166)	4.01

Forfeited/expired under 2012 Plan	155,000	(155,000)	4.18
December 31, 2013	2,315,000	4,567,135	$ 2.71

Table of Contents

During December 2012, the 2012 Equity Incentive Plan was approved by the BioTime Board of Directors making
1) 4,000,000 common shares available for the grant of options. This plan was approved by the shareholders during October 2013.
2) During September 2012, the 2002 Plan expired.

Additional information regarding options outstanding as of December 31, 2013 is as follows:

	Options Outstanding			Options Exercisable	
Range of Exercise Prices	Number Outstanding	Weighted Avg. Remaining Contractual Life (years)	Weighted Avg. Exercise Price	Number Exercisable	Weighted Avg. Exercise Price
$0.50	1,970,400	0.77	$ 0.50	1,970,400	$ 0.50
2.30-8.58	2,596,735	4.86	4.39	1,277,262	4.54
$0.50-$8.58	4,567,135	3.10	$ 2.71	3,247,662	$ 2.09

Subsidiary Stock Option Plans

During 2013 Asterias adopted an Equity Incentive Plan that has substantially the same operative provisions as BioTime's 2012 Plan except that it permits the sale or grant of up to 4,500,000 shares of Asterias common stock.

During 2011, BioTime's subsidiary, LifeMap Sciences adopted a stock option plan that has substantially the same operative provisions as the BioTime 2002 Stock Option Plan. The LifeMap Sciences stock option plan authorized the sale of up to 8,000,000 shares of its common stock through the exercise of stock options or under restricted stock purchase agreements. During 2012, the LifeMap Sciences stock option plan was amended to reflect a 1 for 4 reverse stock split and a change in plan. As a result, the total number of shares that may be issued under the plan was adjusted to 1,842,168.

During 2010, BioTime's subsidiaries OncoCyte, OrthoCyte, ReCyte Therapeutics, and BioTime Asia adopted stock option plans that have substantially the same operative provisions as the BioTime 2002 Stock Option Plan. The OncoCyte, OrthoCyte and ReCyte Therapeutics stock option plans each authorize the sale of up to 4,000,000 shares of the applicable subsidiary's common stock through the exercise of stock options or under restricted stock purchase agreements. The BioTime Asia stock option plan authorizes the sale of up to 1,600 ordinary shares through the exercise of stock options or under restricted stock purchase agreements. Cell Cure Neurosciences' option plan authorizes the sale of 14,100 ordinary shares through the exercise of stock options.

	Options Outstanding			Options Exercisable	
Range of Exercise Prices	Number Outstanding	Weighted Avg. Remaining Contractual Life (years)	Weighted Avg. Exercise Price	Number Exercisable	Weighted Avg. Exercise Price

$0.003-$0.75	5,256,226	5.96	$ 0.36	4,089,035	$ 0.35
1.00-1.75	2,072,342	5.86	1.57	571,073	1.43
2.05-2.34	4,080,000	6.39	2.25	1,294,062	2.16
27.00-42.02	7,840	6.80	37.35	7,840	37.35
$0.003-$42.02	11,416,408	6.10	$ 1.28	5,962,010	$ 0.89

The table above does not include the 50,000 options granted during 2013 under the Asterias Equity Incentive Plan for which the exercise prices had not been determined as of December 31, 2013. There were no other options granted under the other subsidiary stock option plans during the year ended December 31, 2013.

Table of Contents

11. Cell Targeting, Inc. Asset Purchase

On January 28, 2011, BioTime acquired substantially all of the assets of Cell Targeting, Inc. ("CTI"), a company that was engaged in research in regenerative medicine. The assets acquired consist primarily of patents, patent applications, and licenses to use certain patents. BioTime issued 261,959 of common shares and paid CTI $250,000 in cash to acquire the assets. The assets will be used by OncoCyte, which is developing cellular therapeutics for the treatment of cancer using vascular progenitor cells engineered to destroy malignant tumors.

The asset purchase is being accounted for as a business combination under the acquisition method of accounting. This means that even though BioTime did not directly assume and will not directly pay CTI's debts or other liabilities, for financial accounting purposes CTI's financial statements as of January 28, 2011, the date of the acquisition, are being consolidated with those of BioTime. In accordance with ASC 805, the total purchase consideration is allocated to the net tangible and identifiable intangible assets acquired and the CTI liabilities outstanding based on the estimated fair value of the assets and the amount of the liabilities as of January 28, 2011. BioTime amortizes intangible assets over their useful lives, which BioTime estimates to be 10 years.

The total purchase price of $2,550,000 is being allocated as indicated as follows:

Components of the purchase price:	
BioTime common shares	$2,300,000
Cash	250,000
Total purchase price	$2,550,000
Preliminary allocation of purchase price:	
Assets acquired and liabilities assumed:	
Cash	$3,150
Other current assets	2,443
Due from sellers	593,353
Intangible assets	2,419,287
Current liabilities	(468,233)
Net assets acquired	$2,550,000

The fair value of the shares issued was $8.78, the average closing price per share of BioTime common shares as reported on the NYSE MKT for the twenty (20) trading days immediately preceding the third trading day prior to the closing date, January 28, 2011.

Table of Contents

12. Merger with Glycosan BioSystems, Inc.

On March 21, 2011, BioTime completed the acquisition of Glycosan BioSystems, Inc. (“Glycosan”) through a merger of Glycosan into OrthoCyte. Through the merger, OrthoCyte acquired all of Glycosan's assets, including manufacturing equipment, inventory, and technology licenses, and assumed Glycosan's obligations, which at March 18, 2011 totaled approximately $252,000 and primarily consisted of trade payables, accrued salaries, legal fees, and repayment of amounts advanced to Glycosan. BioTime issued 332,903 common shares and 206,613 warrants to purchase BioTime common shares in connection with the merger.

The merger is being accounted for under the acquisition method of accounting. In accordance with ASC 805, the total purchase consideration is allocated to the net tangible and identifiable intangible assets acquired and liabilities assumed based on their estimated fair values as of March 21, 2011. BioTime amortizes intangibles over their useful lives, which BioTime estimates to be 10 years. In accordance with ASC 805, BioTime does not amortize goodwill. The purchase price was allocated using the information currently available, and may be adjusted after obtaining more information regarding, among other things, asset valuations, liabilities assumed, and revisions of preliminary estimates.

The total purchase price for the merger of $3,554,879 is being allocated as indicated:

Components of the purchase price:	
BioTime common shares	$2,600,000
BioTime warrants	954,879
Total purchase price	$3,554,879
Allocation of purchase price:	
Assets acquired and liabilities assumed:	
Cash	$5,908
Other current assets	64,520
Property, plant and equipment, net	81,183
Intangible assets	3,592,039
Current liabilities	(188,771)
Net assets acquired	$3,554,879

The fair value of the shares issued was $7.81, the average closing price of BioTime common shares as reported on the NYSE MKT for the 10 trading days immediately preceding February 11, 2011, the date of the Merger Agreement. The fair value of the warrants issued was computed using a Black Scholes Merton option pricing model, which utilized the following assumptions: expected term of three years, which is equal to the contractual life of the warrants; risk-free rate of 1.12%; no expected dividend yield; 109.01% expected volatility; a stock price of $7.56; and an exercise price of $10.

Table of Contents

13. Merger with XenneX, Inc.

On May 18, 2012, BioTime completed the acquisition of XenneX, Inc. (“XenneX”) through a merger of XenneX into LifeMap Sciences. Through the merger, XenneX stockholders received, in the aggregate, 1,429,380 shares of LifeMap Sciences common stock, which represented approximately 13.70% of the LifeMap Sciences common stock outstanding upon the closing of the transaction. XenneX shareholders also received approximately 448,429 BioTime common shares as part of the transaction. Through the merger, LifeMap Sciences acquired all of XenneX's assets, including cash, accounts receivables, prepaid assets, licenses, and assumed XenneX’s obligations, which at May 18, 2012 totaled approximately $572,826 and primarily consisted of trade payables, deferred subscription revenues, and distributions due to former XenneX shareholders.

The merger is being accounted for under the acquisition method of accounting. In accordance with ASC 805, the total purchase consideration is allocated to the net tangible and identifiable intangible assets acquired and liabilities assumed based on their estimated fair values as of May 18, 2012. BioTime amortizes intangibles over their useful lives, which BioTime estimates to be 10 years. In accordance with ASC 805, BioTime does not amortize goodwill. The purchase price was allocated using the information currently available, and may be adjusted after obtaining more information regarding, among other things, asset valuations, liabilities assumed, and revisions of preliminary estimates.

The total purchase price of $4,304,099 is being allocated as indicated:

Components of the purchase price:	
BioTime common shares	$1,802,684
LifeMap Sciences common shares	2,501,415
Total purchase price	$4,304,099
Preliminary allocation of purchase price:	
Assets acquired and liabilities assumed:	
Cash	$292,387
Other current assets	311,118
Intangible assets	4,273,420
Current liabilities	(294,572)
Cash distributable to sellers	(278,254)
Net assets acquired	$4,304,099

The fair value of the BioTime shares issued was $4.02, the closing price as reported on the NYSE MKT on May 18, 2012, the date the merger was finalized. The fair value of the LifeMap Sciences shares issued was $1.75 as determined by negotiation between BioTime, LifeMap Sciences and XenneX and its stockholders and is consistent with an internal valuation analysis completed by BioTime.

Table of Contents

14. Share Exchange and Contribution Agreement

On July 24, 2012, LifeMap Sciences entered into a Share Exchange and Contribution Agreement (the "LifeMap Agreement") with Alfred D. Kingsley, the chairman of BioTime's board of directors and a company that he controls, Greenway Partners, L.P. ("Greenway"), pursuant to which Mr. Kingsley and Greenway agreed to contribute to LifeMap Sciences, in the aggregate, BioTime common shares having an aggregate value of not less than $2,000,000 and not more than $3,000,000, determined as provided in the LifeMap Agreement, in exchange for shares of LifeMap Sciences common stock at an initial price of $1.75 per LifeMap Sciences share.

Under the LifeMap Agreement, during July 2012 Mr. Kingsley and Greenway contributed 420,000 BioTime shares to LifeMap Sciences and received in exchange 1,143,864 shares of LifeMap Sciences common stock. During December 2012, Mr. Kingsley and Greenway contributed an additional 172,533 BioTime Shares to LifeMap Sciences and received in exchange 427,566 shares of LifeMap Sciences common stock. The number of shares of LifeMap Sciences common stock issued in exchange for the BioTime shares was determined by multiplying the number of BioTime shares contributed by the highest weighted average closing price per share on the NYSE MKT for any ten trading days during the period from July 1, 2012 through July 31, 2012, in the case of the shares exchanged during July, and during the period August 1, 2012 through December 15, 2012 in the case of the shares exchanged during December, and dividing that amount by $1.75, which was the Exchange Price per share of LifeMap Sciences common stock. See Note 8.

As a result of this investment, and a sale of 142,857 additional shares of LifeMap Sciences for cash, our ownership dropped from 86.30% to 73.20% as of December 31, 2012. As of December 31, 2012, the 513,935 BioTime shares held by LifeMap Sciences are presented as treasury stock at a cost of $2,375,397. There has been no change in ownership during 2013.

BioTime registered the BioTime Shares received by LifeMap Sciences during July 2012, and has agreed to register the additional shares received during December 2012, for sale under the Securities Act.

In accordance with the License and Research Assignment Agreement dated May 14, 2012 between Yeda Research and Development Company, Ltd ("Yeda") and BioTime in connection with the merger of XenneX, Inc. and LifeMap Sciences Yeda was entitled to receive additional shares of LifeMap Sciences common stock as a result of the issuance of additional shares of common stock by LifeMap Sciences during 2012 to permit Yeda to maintain their 3.75% ownership in the issued and outstanding LifeMap Sciences shares on a fully diluted basis. LifeMap Sciences issued Yeda 66,791 shares of LifeMap Sciences common stock with an estimated fair value of $117,000 under that provision of the License and Research Assignment Agreement.

Table of Contents

15. Asset Contribution Agreement

On January 4, 2013, BioTime and Asterias entered into an Asset Contribution Agreement with Geron Corporation ("Geron") pursuant to which BioTime and Geron agreed to concurrently contribute certain assets to Asterias in exchange for shares of Asterias common stock. The transaction closed on October 1, 2013.

Transfer of BioTime Assets

Under the Asset Contribution Agreement, BioTime contributed to Asterias 8,902,077 BioTime common shares registered for re-sale with the SEC; warrants to subscribe for and purchase 8,000,000 additional BioTime common shares (the "BioTime Warrants") exercisable for a period of five years at a price of $5.00 per share, subject to pro rata adjustment for certain stock splits, reverse stock splits, stock dividends, recapitalizations and other transactions; a 10% common stock interest in BioTime's subsidiary OrthoCyte; a 6% ordinary stock interest in BioTime's subsidiary Cell Cure Neurosciences; and a quantity of certain hES cell lines produced under "good manufacturing practices" sufficient to generate master cell banks, and non-exclusive, world-wide, royalty-free licenses to use those cell lines and certain patents pertaining to stem cell differentiation technology for any and all purposes.

In return, Asterias issued to BioTime 21,773,340 shares of its Series B common stock, par value $0.0001 per share ("Series B Shares"), and warrants to purchase 3,150,000 Series B Shares, exercisable for a period of three years from the date of issue at an exercise price of $5.00 per share. In addition, BioTime cancelled a loan of $5,000,000 outstanding from Asterias, related to cash financing provided by BioTime during 2013 prior to the closing of the asset contribution transaction under the Asset Contribution Agreement.

Because Asterias is a subsidiary of BioTime, transfer of assets from BioTime was accounted for as a transaction under common control. Non-monetary assets received by Asterias were recorded at their historical cost basis amounts with BioTime. Monetary assets were recorded at fair value. The difference between the value of assets contributed by BioTime and the fair value of consideration issued to BioTime was recorded as an additional contribution by BioTime, in additional paid-in capital.

The assets transferred by BioTime and the related consideration paid were recorded as follows:

Consideration transferred to BioTime:	
Asterias Series B shares	$52,164,568
Warrants to purchase Asterias Series B shares	2,012,481
Excess of contributed assets' value over consideration	4,800,063
Total consideration issued	$58,977,112
Assets transferred by BioTime:	
BioTime common shares, at fair value	$34,985,163
BioTime Warrants, at fair value	18,276,406
Cancellation of outstanding obligation to BioTime	5,000,000
Investment in affiliates, at cost	415,543
Geron asset acquisition related transaction costs paid by BioTime	300,000
Total assets transferred	$58,977,112

The fair value of the Asterias Series B shares issued was estimated at $2.40 based on the Asterias enterprise value as determined on January 4, 2013, at the time the Asset Contribution Agreement was negotiated and executed by its parties, and as adjusted for subsequent changes in fair values of assets the parties agreed to contribute. The fair value of the warrants to purchase Asterias Series B shares was computed using a Black Scholes Merton option pricing model, which utilized the following assumptions: expected term equal to the contractual term of three years, which is

equal to the contractual life of the warrants; risk-free rate of 0.63%; 0% expected dividend yield; 69.62% expected volatility based on the average historical common stock volatility of BioTime and Geron, which were used as Asterias' common stock does not have a trading history; a stock price of $2.40; and an exercise price of $5.00.

Table of Contents

BioTime common shares were valued using $3.93 the closing price per BioTime common shares on the NYSE MKT on October 1, 2013. The fair value of the BioTime Warrants was computed using a Black Scholes Merton option pricing model, which utilized the following assumptions: expected term equal to the contractual term of five years, which is equal to the contractual life of the warrants; risk-free rate of 1.42%; 0% expected dividend yield; 77.63% expected volatility based on historical common stock volatility of BioTime; a stock price of $3.93; and an exercise price of $5.00.

The investment in affiliates represents a non-monetary asset and was recorded at BioTime's historical cost because BioTime is a common parent to Asterias and those affiliates.

Geron Assets Acquisition

Under the Asset Contribution Agreement, Geron contributed to Asterias certain patents, patent applications, trade secrets, know-how and other intellectual property rights with respect to the technology of Geron directly related to the research, development and commercialization of certain products and know-how related to hES cells; certain biological materials, reagents, laboratory equipment; as well as clinical trial documentation, files and data, primarily related to GRNOPC1 clinical trials for spinal cord injury and VAC1 clinical trials for acute myelogenous leukemia. Asterias assumed all obligations related to such assets that would be attributable to periods, events or circumstances after the Asset Contribution Agreement closing date, including those related to an appeal filed in the United States District Court in Civil Action No. C12-04813 (the "ViaCyte Appeal") seeking the reversal of two adverse determinations by the United States Patent and Trademark Office's Board of Patent Appeals and Interferences with respect to two patent applications in U.S. Patent Interference 105,734, involving US patent 7,510,876 (ViaCyte) and US patent application 11/960,477 (Geron), and U.S. Patent Interference 105,827 involving US patent 7,510,876 (ViaCyte) and US patent application 12/543,875 (Geron). Asterias also assumed the patent interferences upon which the ViaCyte Appeal is based, as well as certain oppositions filed by Geron against certain ViaCyte, Inc. patent filings in Australia and in the European Patent Office.

As consideration for the acquisition of assets from Geron, Asterias issued to Geron 6,537,779 shares of Series A common stock, par value $0.0001 per share ("Series A Shares"), which Geron had agreed to distribute to its stockholders, on a pro rata basis, subject to applicable legal requirements and certain other limitations (the "Series A Distribution"). Asterias is also obligated to distribute to the holders of its Series A Shares the 8,000,000 shares of BioTime Warrants contributed to Asterias by BioTime. Asterias will distribute the BioTime Warrants as promptly as practicable after notice from Geron that the Series A Distribution has been completed

In addition, Asterias agreed to bear certain transaction costs in connection with the Geron asset acquisition. Such transaction costs were allocated to acquisition of assets in the amount of $1,519,904 and issuance of equity in the amount of $541,800.

The assets contributed to Asterias by Geron did not include workforce or any processes to be applied to the patents, biological materials, and other assets acquired, and therefore did not constitute a business. Accordingly, the acquisition of the Geron assets has been accounted for as an acquisition of assets in accordance with the relevant provisions of Accounting Standards Codification (ASC) 805-50. Total consideration payable by Asterias, including transaction costs, has been allocated to the assets acquired based on relative fair values of those assets as of the date of the transaction, October 1, 2013, in accordance with ASC 820, Fair Value Measurement.

Table of Contents

The assets acquired from Geron and the related consideration were recorded as follows:

Consideration paid to Geron:	
Asterias Series A shares, net of share issuance costs of $541,800	$15,121,222
Obligation to distribute BioTime Warrants	18,276,406
Transaction and other costs	1,519,904
Total consideration paid	$34,917,532
Assets acquired from Geron (preliminary allocation):	
Patents and other intellectual property rights related to hES cells	$29,017,009
Deferred tax liability arising from difference in book versus tax basis on Geron intangible assets acquired	(11,558,243)
IPR&D expensed upon acquisition	17,458,766
Total assets and in-process research and development acquired	$34,917,532

The fair value of the Asterias Series A shares issued was estimated at $2.40 based on the estimated Asterias enterprise value as determined by parties at the time the Asset Contribution Agreement was negotiated and executed by its parties on January 4, 2013, as adjusted for subsequent changes in fair values of assets the parties agreed to contribute.

The fair value of the obligation to distribute BioTime Warrants equals the fair value of such warrants, which was computed as noted above under “Transfer of BioTime Assets.” Because the fair value of the BioTime Warrants is expected to always be equal to the fair value of the obligation to distribute them at any date on which those values are determined, the remeasurement of those values will not result in a charge or credit on the statement of operations.

The difference between the fair value of assets contributed by Geron and the fair value of consideration issued to Geron was recorded as an additional contribution by Geron, in additional paid-in capital, because the fair value of the assets transferred by Geron was more reliably determined.

Assets acquired from Geron consist primarily of patents and other intellectual property rights related to hES cells which Asterias intends to license to various parties interested in research, development and commercialization of hES cells technologies, and IPR&D, which includes biological materials, reagents, clinical trial documentation, files and data related primarily to certain clinical trials previously conducted by Geron, which Geron discontinued in November 2011.

Intangible assets related to IPR&D represent the value of incomplete research and development projects which the company intends to continue. In accordance with the accounting rules in ASC 805, such assets, when acquired in conjunction with acquisition of a business, are considered to be indefinite-lived until the completion or abandonment of the associated research and development efforts and are capitalized as an asset. If and when development is complete, the associated assets would be deemed finite-lived and would then be amortized based on their respective estimated useful lives at that point in time. However, when acquired in conjunction with an acquisition of assets that do not constitute a business (such as the acquisition of assets from Geron), in accordance with the accounting rules in ASC 805-50, such intangible assets related to IPR&D are expensed upon acquisition.

The values of the acquired assets were estimated at October 1, 2013 based upon a preliminary review of those assets which took into account factors such as the condition of the cells, cell lines and other biological materials being contributed, the stage of development of particular technology and product candidates related to patents, patent applications, and know-how, the intended use of these assets and the priority assigned to the development of product candidates to which those assets relate, and the assessment of the estimated useful lives of patents. The amounts allocated to patents and other intellectual property rights that Asterias intends to license were capitalized as intangible assets and are being amortized over an estimated useful life period of 10 years. The amounts allocated to IPR&D were expensed at the time of acquisition of the related assets in accordance with the requirements of ASC 805-50.

The allocation was based on the relative fair value of assets eligible for capitalization and the fair value of assets representing IPR&D before assessing the deferred tax liability arising from the difference in book versus tax basis on Geron intangible assets acquired, which management estimated to be approximately equal. Accordingly, $17,458,766 was capitalized as of December 31, 2013, and $17,458,766 was expensed. These amounts are preliminary as management has not yet completed a detailed assessment and valuation of the acquired assets. Such assessment and valuation is expected to be completed during the quarter ending June 30, 2014. Accordingly, the amounts included in capitalized intangible assets and expensed IPR&D as of December 31, 2013 are subject to adjustments which could be material.

Table of Contents

Asterias is also obligated to pay Geron royalties on the sale of products, if any, that are commercialized in reliance upon patents acquired from Geron, at the rate of 4% of net sales.

Stock and Warrant Purchase Agreement with Romulus

On January 4, 2013, in connection with entering into the Asset Contribution Agreement, Asterias entered into a Stock and Warrant Purchase Agreement with Romulus Films, Ltd ("Romulus") pursuant to which Romulus agreed to purchase 2,136,000 Series B Shares and warrants to purchase 350,000 additional Series B Shares for $5,000,000 in cash upon the consummation of the acquisition of assets under the Asset Contribution Agreement. On October 1, 2013, the shares and warrants were issued in exchange for $5,000,000 in cash.

16. Commitments and Contingencies

BioTime had no fixed, non-cancelable contractual obligations as of December 31, 2013, with the exception of office and laboratory facility operating leases.

BioTime Leases

BioTime leases office and research laboratory space in Alameda, California. Base monthly rent is $30,752 from December 2013 and will increase by three percent each year. In addition to the base rent, BioTime pays 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.

BioTime also leases an office and research facility located in La Jolla, California. The lease is for a term one year plus one half month commencing October 15, 2013. BioTime pays base rent of $4,330 per month, plus operational costs of maintaining the leased premises.

BioTime also currently pays $5,050 per month for the use of office space in New York City, which is made available to BioTime by one of its directors at his cost for use in conducting meetings and other business affairs.

Asterias Leases

BioTime leases an office and research facility located in Menlo Park, California for use by Asterias. The lease is for a term of three years commencing January 7, 2013. Base rent is $31,786 per month, plus real estate taxes and certain costs of maintaining the leased premises.

Asterias has entered into a lease for an office and research facility located in Fremont, California. The lease is for a term of 96 months and the estimated term commencement date is October 1, 2014. Asterias will pay base monthly rent of $99,000 during the first 12 months commencing on the term commencement date, except that during the first 15 months of the lease term, Asterias will pay base rent on only 22,000 square feet rather than 44,000 square feet provided that Asterias is not in default in performing its obligations under the lease beyond any notice and cure periods. Base monthly rent will increase by approximately 3% annually. In addition to monthly base rent Asterias will pay all real estate taxes, insurance, a management fee in the amount of 3% of base rent, and the cost of maintenance, repair and replacement of the leased premises. During the first 15 months of the lease term, Asterias will pay only 50% of the real estate taxes assessed on the premises provided that Asterias is not in default in performing its obligations under the lease beyond any notice and cure periods. However, if any improvements or alterations to the premises that Asterias constructs or adds are assessed for real property tax purposes at a valuation higher than the valuation of the improvements on the Premises on the date signed the lease, Asterias will pay 100% of the taxes levied on the excess assessed valuation.

127

Table of Contents

ESI Lease

ESI had leased approximately 125 square meters of laboratory space in Singapore under a lease that expired on February 28, 2014. Base monthly rent under the Singapore laboratory lease was S$11,000 (approximately US$8,700). In addition to base rent, ESI paid 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 were located. ESI will continue to pursue our ongoing plans to establish new laboratory facilities in Singapore for manufacturing and distribution of ESI BIO research products in Asia.

Cell Cure Lease

Cell Cure Neurosciences leases approximately 290 square meters of office and laboratory space in Hadassah Ein Kerem, in Jerusalem, Israel under a lease that expires on June 1, 2014. Base monthly rent for that facility is approximately ILS 33,000 (approximately US$9,500). 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. Cell Cure Neurosciences will be liable for ILS 820,000 (approximately US$236,000) in improvement costs if the company renews the lease agreement for five additional years.

LifeMap Lease

LifeMap Sciences office space in Tel Aviv, Israel under a lease expiring on May 31, 2015. Base monthly rent under the lease from July 2013 is ILS 25,889 (approximately US$7,400) per month. In addition to base rent, LifeMap Sciences 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 leases several parking spots.

LifeMap Sciences leases approximately office space in Hong Kong under a lease that commenced on December 1, 2013 and expires on November 30, 2015. Base monthly rent under the lease is HK$7,500 (approximately US $970) per month. In addition to base rent, LifeMap pays certain costs related to the operation of the building in which the leased premises are located.

LifeMap also leases office space in Marshfield, Massachusetts under a lease that expires on September 30, 2015. Base monthly rent under the lease is $1,082 per month.

Rent expenses totaled $1,599,725, $1,178,840, and $1,058,170 for the years ended December 31, 2013, 2012, and 2011, respectively. Remaining minimum annual lease payments under the various operating leases for the year ending after December 31, 2013 are as follows:

Year Ending December 31,	Minimum lease payments
2014	1,188,316
2015	1,973,845
2016	1,266,825
2017	1,271,160
2018	1,308,120
Thereafter	5,262,840
Total	12,271,106

Table of Contents

17. Income Taxes

The primary components of the net deferred tax liabilities at December 31, 2013 and 2012 were as follows:

	2013	2012
Deferred tax assets/(liabilities):		
Net operating loss carryforwards	$46,711,000	$36,111,000
Research & development and other credits	2,329,000	1,856,000
Patents and licenses	(11,934,000)	(1,066,000)
Other, net	737,000	-
Total	37,843,000	36,901,000
Valuation allowance	(46,121,000)	(36,901,000)
Net deferred tax liabilities	$(8,278,000)	$-

Income taxes differed from the amounts computed by applying the U.S. federal income tax of 34% to pretax losses from operations as a result of the following:

	Year Ended December 31,		
	2013	2012	2011
Computed tax benefit at federal statutory rate	(34%)	(34%)	(34%)
Permanent differences	15%	3%	(1%)
Losses for which no benefit has been recognized	18%	28%	41%
State tax benefit, net of effect on federal income taxes	(4%)	-	(6%)
Foreign rate differential	(1%)	3%	-
	(6%)	0%	0%

As of December 31, 2013, BioTime has net operating loss carryforwards of approximately $99,100,000 for federal and $70,200,000 for state tax purposes, which expire through 2033. In addition, BioTime has tax credit carryforwards for federal and state tax purposes of $1,076,000 and $1,253,000, respectively, which expire through 2033. As of December 31, 2013, BioTime's subsidiaries have foreign net operating loss carryforwards of approximately $48,400,000 which carry forward indefinitely.

A deferred income tax benefit of approximately $3,280,000 was recorded for the year ended December 31, 2013, of which approximately $2,800,000 was related to federal and $480,000 was related to state taxes. No tax benefit has been recorded through December 31, 2012 because of the net operating losses incurred and a full valuation allowance has been provided. A valuation allowance is provided when it is more likely than not that some portion of the deferred tax assets will not be realized. BioTime established a valuation allowance for all periods presented due to the uncertainty of realizing future tax benefits from its net operating loss carryforwards and other deferred tax assets.

Internal Revenue Code Section 382 places a limitation ("Section 382 Limitation") on the amount of taxable income that can be offset by net operating loss ("NOL") carryforwards after a change in control (generally greater than 50% change in ownership within a three-year period) of a loss corporation. California has similar rules. Generally, after a control change, a loss corporation cannot deduct NOL carryforwards in excess of the Section 382 Limitation. Due to these "change in ownership" provisions, utilization of the NOL and tax credit carryforwards may be subject to an annual limitation regarding their utilization against taxable income in future periods.

BioTime files an income tax return in the U.S. federal jurisdiction, and may file income tax returns in various U.S. states and foreign jurisdictions. Generally, BioTime is no longer subject to income tax examinations by major taxing

authorities for years before 2010.

BioTime may be subject to potential examination by U.S. federal, U.S. states or foreign jurisdiction authorities in the areas of income taxes. These potential examinations may include questioning the timing and amount of deductions, the nexus of income among various tax jurisdictions and compliance with U.S. federal, U.S. state and foreign tax laws. BioTime's management does not expect that the total amount of unrecognized tax benefits will materially change over the next twelve months.

Table of Contents

18. Segment Information

BioTime's executive management team represents its chief decision maker. To date, BioTime's management has viewed BioTime's operations as one segment that includes, the research and development of therapeutic products for oncology, orthopedics, retinal and neurological diseases and disorders, blood and vascular system diseases and disorders, blood plasma volume expansion, diagnostic products for the early detection of cancer, and hydrogel products that may be used in surgery, and products for human embryonic stem cell research. As a result, the financial information disclosed materially represents all of the financial information related to BioTime's sole operating segment.

19. Enterprise-wide Disclosures

Geographic Area Information

Revenues, including license fees, royalties, grant income, and other revenues by geographic area are based on the country of domicile of the licensee or grantor.

	Revenues for the Year ending December 31,		
Geographic Area	2013	2012	2011
Domestic	$2,106,161	$2,529,669	$3,059,810
Asia	2,328,175	1,385,658	1,374,349
Total revenues	$4,434,336	$3,915,327	$4,434,159

Major Sources of Revenues

BioTime has two major customers and two major grants comprising significant amounts of total revenues.

All of BioTime's royalty revenues were generated through sales of Hextend® by Hospira in the U.S. and by CJ in the Republic of Korea. BioTime also earned license fees from CJ and Summit.

BioTime was awarded a $4,721,706 grant for a stem cell research project related to its PureStem® technology by CIRM in April 2009. The CIRM grant covered the period of September 1, 2009 through August 31, 2012. BioTime recognized $0 and $1,047,106 as revenues as of December 31, 2013 and December 31, 2012, respectively. The final quarterly installment of $392,664 was collected in February 2013.

During 2013, BioTime received $111,691 and recognized as revenues $150,239 of a $335,900 grant awarded by the National Institutes of Health ("NIH"). During 2012, BioTime received $45,645 and recognized as revenues $47,507. The grant period commenced on September 30, 2011 and will end on September 29, 2014. As of December 31, 2013, $110,237 remained available for funding under the grant.

During 2013, grant income also included awards from a separate grant awarded by the NIH in 2013 in the amount of $71,355, and grants from other sources in the amount of $1,333,901 recognized through Cell Cure Neurosciences, $13,838 through Life Map Sciences, Ltd., and $3,996 through ES Cell International. During 2012, grant income also included $1,109,699 recognized through Cell Cure Neurosciences and $18,145 through Life Map Sciences, Ltd.

During 2013, BioTime received $1,082,077 and recognized $609,314 (net of $707,695 in royalty and commission fees) in net subscription and advertisement revenues through LifeMap Sciences. During 2012, BioTime received $1,222,516 and recognized $373,798 (net of $379,098 in royalty and commission fees) in net subscription and advertisement revenues through LifeMap Sciences.

130

Table of Contents

The following table shows the relative portions of BioTime's royalty and license fee revenues paid by Hospira, CJ, and Summit that were recognized during the years ended December 31, 2013, 2012, and 2011, subscription and advertisement revenues, and grant income recognized during the same periods with respect to grants provided by the office of the Chief of Scientist of Israel ("OCS"), the NIH (SBIR) and CIRM:

Sources of Revenues	% of Total Revenues for Year ended December 31,		
	2013	2012	2011
Hospira	6.5 %	11.0%	14.2%
CJ	1.7 %	2.9 %	3.5 %
Summit	20.3%	3.7 %	3.3 %
CIRM	0.0 %	26.7%	35.4%
NIH	5.0 %	1.2 %	0.6 %
OCS	27.9%	26.0%	23.0%
Subscription and Advertising (various customers)	38.6%	28.5%	20.0%

20. Selected Quarterly Financial Information (UNAUDITED)

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Year Ended December 31, 2013				
Revenues, net	$431,724	$1,035,514	$507,384	$1,670,063
Acquired in-process research and development[1]	-	-	-	17,458,766
Operating expenses	8,811,633	9,151,965	10,709,337	13,504,740
Loss from operations	(8,379,909)	(8,116,451)	(10,201,953)	(29,293,443)
Net loss attributable to BioTime, Inc.[2]	(7,719,263)	(7,549,765)	(9,003,168)	(19,612,314)
Basic and diluted net loss per share	(0.15)	(0.14)	(0.16)	(0.35)
Year Ended December 31, 2012				
Revenues, net	$631,946	$949,746	$833,817	$1,065,547
Operating expenses	6,547,486	7,029,077	6,780,375	8,124,795
Loss from operations	(5,915,540)	(6,079,331)	(5,946,558)	(7,059,248)
Net loss attributable to BioTime, Inc.	(4,973,342)	(5,457,222)	(4,958,014)	(6,037,125)
Basic and diluted net loss per share	(0.10)	(0.11)	(0.10)	(0.12)

(1) Includes IPR&D expenses related to intangible assets acquired by Asterias from Geron under the Asset Contribution Agreement. IPR&D represents the value of incomplete research and development projects which Asterias intends to continue. See Notes 2 and 15.

(2) Net of $3,280,695 income tax benefits in fourth quarter.

Table of Contents

21. Pro Forma Financial Information for Fiscal Years Ended December 31, 2013 and 2012 (UNAUDITED)

The following unaudited pro forma information gives effect to the merger with XenneX and asset acquisition through the Asset Contribution Agreement as if the transactions took place on January 1, 2012. The pro forma information does not necessarily reflect the results of operations that would have occurred had the entities been a single company during the periods presented.

	Year Ended December 31,	
	2013	2012
Revenues	$4,434,336	$4,206,973
(Loss) available to common shareholders[(1)]	$(26,424,069)	$(38,781,953)
(Loss) per common share – basic	$(0.49)	$(0.78)
(Loss) per common share – diluted	$(0.49)	$(0.78)

(1) For 2012, includes $17,458,766 of IPR&D acquired under the Asset Contribution Agreement which was completed on October 1, 2013. See Note 15.

22. Subsequent Events

Sale of Common Shares

After December 31, 2013, BioTime and three of its subsidiaries, OncoCyte, LifeMap Sciences, and Cell Cure Neurosciences, raised $8,474,005 through sales of 2,240,060 BioTime common shares in “at-the-market” transactions through Cantor Fitzgerald & Co. (“Cantor”), as the sales agent. The BioTime common shares sold by the subsidiaries had been previously contributed to the subsidiaries by BioTime in exchange for subsidiary capital stock. The proceeds from the sale of BioTime common shares by BioTime subsidiaries belong to those subsidiaries.

Research Grant

On February 24, 2014, BioTime was awarded a $270,262 SBIR Phase 1 Small Business Grant from the National Institute of General Medical Sciences (NIGMS) at the National Institutes of Health (NIH) for a research and development project.

Sale of Preferred Stock

On March 4, 2014, BioTime raised $3,500,000 through the sale of 70,000 shares of Series A Convertible Preferred Stock (“Series A Preferred Stock”) pursuant to a series of Series A Convertible Preferred Stock Purchase Agreements of like terms. In connection with the sale of the Series A Preferred Stock, BioTime also entered into an Option Agreement with each purchaser of Series A Preferred Stock entitling them to exchange their shares of Series A Preferred Stock for shares of common stock of BioTime’s subsidiary LifeMap Sciences. held by BioTime, at the rate of 12.5 shares of LifeMap Sciences common stock for each share of BioTime Series A Preferred Stock. The exchange ratio is subject to adjustment in the event of a stock split, stock dividend, stock combination, or similar event with respect to LifeMap Sciences common stock. The option will expire if not exercised by March 4, 2019.

BioTime’s Board of Directors designated 300,000 preferred shares as shares of Series A Convertible Preferred Stock.

The Series A Preferred Stock carries a cumulative annual 3% preferred dividend or $1.50 per share which shall accrue on June 30 and December 31 accrued on June 30, and December 31 of each year regardless of whether declared by the Board of Directors and shall be paid, from funds legally available for such purpose, in two semi-annual installments

on January 31 and July 31 of each year, or if such day is not a business day, on the next business day.

Any dividends or distributions declared and paid or distributed with respect to common shares and any other stock ranking as “junior stock” to the Series A Preferred Stock (other than dividends and distributions of shares of junior stock resulting in an adjustment of the conversion price) shall likewise be declared and paid or distributed to holders of Series A Preferred Stock such that all holders of common shares, other junior stock if any, and Series A Preferred Stock shall receive such dividends or distributions in proportion to the number of common shares and shares of any other junior stock that would be held by each such holder if all shares of Series A Preferred Stock were converted to common shares (or such other series of junior stock, if applicable) at the conversion price in effect as of the record date for the determination of holders of common shares (or such other series of junior stock, if applicable) entitled to receive the dividend or distribution.

Table of Contents

Each share of Series A Preferred Stock is convertible, at the election of the holder, into BioTime common shares at a conversion price of $4.00 per share, a current conversion ratio of 12.5 common shares for each share of Series A Preferred Stock. All outstanding Series A Preferred Stock will automatically be converted into common shares on March 4, 2019, or if holders of a majority of the outstanding shares of Series A Preferred Stock, voting as a class, approve or consent to a conversion.

The conversion price is subject to prorata adjustment in the event of a subdivision or reclassification of the common shares into a greater number of shares, a stock dividend paid in common shares, or a stock combination or reclassification of the common shares into a smaller number of shares.

In the event of a liquidation or dissolution of BioTime, holders of Series A Preferred Stock will be entitled to receive payment of any accrued but unpaid preferred dividends before any assets may be distributed to holders of common shares and any other capital stock ranking junior to the Series A Preferred Stock with respect to the distribution of assets upon liquidation. After payment of the accrued dividends, the Series A Preferred Stock will participate with the common shares and other capital stock ranking as parity stock or junior stock with respect to the Series A Preferred Stock in the distribution of any assets available to shareholders, as if the Series A Preferred Stock was then converted into common shares.

The Series A Preferred Stock will be entitled to vote with common shares on all matters submitted to common shareholders for approval. Each share of Series A Preferred Stock will be entitled to a number of votes equal to the number common shares into which it could then be converted at the record date for the determination of the shareholders entitled to vote on such matters, or, if no such record date is established, at the date such vote is taken or any written consent of shareholders is solicited. The Series A Preferred Stock will be entitled to vote as a separate class only as to the following matters: (i) the creation of any preferred stock ranking as senior to the Series A Preferred Stock with respect to the payment of dividends, liquidation preferences or voting rights; (ii) a repurchase of any common shares or other stock ranking junior to the Series A Preferred Stock, except shares issued pursuant to or in connection with a compensation or incentive plan or agreement approved by BioTime’s Board of Directors for any officers, directors, employees or consultants of the company; (ii) any sale, conveyance, or other disposition of all or substantially all of BioTime's property or business, or any liquidation or dissolution of the company, or a merger into or consolidation with any other corporation (other than a wholly-owned subsidiary corporation), or any one or series of related transactions in which more than 50% of the voting power of BioTime is disposed of, unless upon consummation of such transaction the holders of Series A Preferred Stock would receive a distribution on account of each share of Series A Preferred Stock an amount of cash or other property or both having a value at least equal to the value of any cash, property, or both to which holders of common shares would be entitled to receive, plus the amount of any accrued but unpaid preferred dividends; (iii) any adverse change in the rights, preferences and privileges of the Series A Preferred Stock; or (iv) any amendment of BioTime’s Articles of Incorporation or Bylaws that results in any adverse change in the rights, preferences or privileges of the Series A Preferred Stock; provided, that those voting rights shall not restrict or limit the rights and powers of BioTime’s Board of Directors to fix by resolution the rights, preferences, and privileges of, and restrictions and limitations on, stock ranking as parity stock or junior stock to Series A Preferred Stock.

These consolidated financial statements were approved by management and the Board of Directors, and were issued on March 17, 2014. Subsequent events have been evaluated through that date.

Table of Contents

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Not applicable.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

It is management's responsibility to establish and maintain adequate internal control over all financial reporting pursuant to Rule 13a-15 under the Securities Exchange Act of 1934 ("Exchange Act"). Our management, including our principal executive officer, our principal operations officer, and our principal financial officer, have reviewed and evaluated the effectiveness of our disclosure controls and procedures as of a date within ninety (90) days of the filing date of this Annual Report on Form 10-K. Following this review and evaluation, management collectively determined that our disclosure controls and procedures are effective to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act (i) is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms; and (ii) is accumulated and communicated to management, including our chief executive officer, our chief operations officer, and our chief financial officer, as appropriate to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting that occurred during the period covered by this Annual Report on Form 10-K that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting, as defined in Exchange Act Rule 13a-15(f), is a process designed by, or under the supervision of, our principal executive officer, our principal operations officer, and our principal financial officer, and effected by our Board of Directors, management, and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that:

- Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets;

- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and

- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate. All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. The scope of management's assessment of the effectiveness of internal control over

financial reporting includes our consolidated subsidiaries.

Table of Contents

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2013, based on criteria established in Internal Control - Integrated Framework issued by COSO. Based on this assessment, management believes that, as of that date, our internal control over financial reporting was effective.

This annual report includes an attestation report of our registered public accounting firm regarding internal control over financial reporting for the year ended December 31, 2013. The attestation is included in the accounting firm's report on our audited consolidated financial statements.

Item 9B. Other Information

Not applicable

Table of Contents
PART III

Item 10. Directors , Executive Officers, and Corporate Governance

The name, age, and background of each of our directors are contained under the caption “Election of Directors” in our Proxy Statement for our 2014 Annual Meeting of Shareholders, and are incorporated herein by reference. Information about our executive officers, committees of the Board of Directors, and compensation of directors is reported under the caption “Corporate Governance” in our Proxy Statement for our 2014 Annual Meeting of Shareholders, and is incorporated herein by reference.

We have a written Code of Ethics that applies to our principal executive officer, our principal financial officer and accounting officer, our other executive officers, and our directors. The purpose of the Code of Ethics is to promote (i) honest and ethical conduct, including the ethical handling of actual or apparent conflicts of interest between personal and professional relationships; (ii) full, fair, accurate, timely, and understandable disclosure in reports and documents that we file with or submit to the Securities and Exchange Commission and in our other public communications; (iii) compliance with applicable governmental rules and regulations; (iv) prompt internal reporting of violations of the Code to an appropriate person or persons identified in the Code; and (v) accountability for adherence to the Code. A copy of our Code of Ethics has been posted on our internet website and can be found at www.biotimeinc.com. If we amend or waive a provision of our Code of Ethics that applies to our chief executive officer or chief financial officer, we will post the amended Code of Ethics or information about the waiver on our internet website.

Information about our compliance with Section 16(a) of the Securities Exchange Act of 1934 is reported under the caption “Compliance with Section 16(a) of the Securities Exchange Act of 1934” in our Proxy Statement for our 2014 Annual Meeting of Shareholders, and is incorporated herein by reference.

Item 11. Executive Compensation

Information on compensation of our executive officers is reported under the caption “Executive Compensation” in our Proxy Statement for our 2014 Annual Meeting of Shareholders, and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management, and Related Stockholder Matters

Information on the number of common shares of BioTime beneficially owned by each shareholder known by us to be the beneficial owner of 5% or more of our common shares, and by each director and named executive officer, and by all directors and named executive officers as a group, is contained under the caption “Principal Shareholders” in our Proxy Statement for our 2014 Annual Meeting of Shareholders, and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

Information about transactions with related persons; review, and approval or ratification of transactions with related persons; and director independence is reported under the caption “Election of Directors” in our Proxy Statement for our 2014 Annual Meeting of Shareholders, and is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services

Information about our Audit Committee’s pre-approval policy for audit services, and information on our principal accounting fees and services is reported under the caption “Ratification of the Selection of Our Independent Auditors” in our Proxy Statement for our 2014 Annual Meeting of Shareholders, and is incorporated herein by reference.

Table of Contents

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a-1) Financial Statements.

The following financial statements of BioTime, Inc. are filed in the Form 10-K:

Consolidated balance sheets
Consolidated statements of operations
Consolidated statements of shareholders' deficit
Consolidated statements of cash flows

Notes to Financial Statements

(a-2) Financial Statement Schedules

All schedules are omitted because the required information is inapplicable or the information is presented in the financial statements or the notes thereto.

(a-3) Exhibits.

Exhibit Numbers	Description
2.1	Agreement and Plan of Merger, dated February 11, 2010, between Glycosan BioSystems, Inc., OrthoCyte Corporation, and BioTime, Inc. (1)
2.2	Agreement and Plan of Merger, dated April 19, 2012, by and among XenneX, Inc., LifeMap Sciences, Inc., BioTime, Inc. and the stockholders of XenneX, Inc. named therein. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment). (2)
2.3	Asset Contribution Agreement, dated January 4, 2013, by and among BioTime, Inc., BioTime Acquisition Corporation, and Geron Corporation. Schedules to the Asset Contribution Agreement have been omitted. BioTime agrees to furnish supplementally a copy of the omitted schedules to the Commission upon request. (3)
3.1	Articles of Incorporation with all amendments (25)
3.2	By-Laws, As Amended. (4)
4.1	Specimen of Common Share Certificate. (5)
4.2	Specimen of Series A Convertible Preferred Stock Certificate (6)
4.3	Certificate of Determination of Series A Convertible Preferred Stock (6)
4.4	Warrant Agreement between BioTime, Inc., Broadwood Partners, L.P., and George Karfunkel. (7)
4.5	Form of Warrant. (7)

4.6	Warrant Agreement between BioTime, Inc. and Biomedical Sciences Investment Fund Pte. Ltd. (8)
4.7	Warrant Agreement between BioTime, Inc. and Romulus Films, Ltd. (9)

Table of Contents

4.8 Form of Warrant. (included in Exhibit 4.7) (9)

4.9 Form of Warrant Issued June 2013 (10)

4.10 Warrant Agreement, dated as of October 1, 2013, between BioTime, Inc. and American Stock Transfer & Trust Company, LLC as Warrant Agent for the benefit of Asterias Biotherapeutics, Inc. (11)

4.11 Warrant Issued October 1, 2013 to Asterias Biotherapeutics, Inc. (included in Exhibit 4.6) (11)

10.1 Intellectual Property Agreement between BioTime, Inc. and Hal Sternberg. (6)

10.2 Intellectual Property Agreement between BioTime, Inc. and Judith Segall. (6)

10.3 2002 Stock Option Plan, as amended. (12)

10.4 Exclusive License Agreement between Abbott Laboratories and BioTime, Inc. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (13)

10.5 Modification of Exclusive License Agreement between Abbott Laboratories and BioTime, Inc. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment). (14)

10.6 Exclusive License Agreement between BioTime, Inc. and CJ Corp. (15)

10.7 Hextend® and PentaLyte® Collaboration Agreement between BioTime, Inc. and Summit Pharmaceuticals International Corporation (16)

10.8 Addendum to Hextend® and PentaLyte® Collaboration Agreement Between BioTime Inc. and Summit Pharmaceuticals International Corporation (17)

10.9 Amendment to Exclusive License Agreement Between BioTime, Inc. and Hospira, Inc. (18)

10.10 Hextend® and PentaLyte® China License Agreement Between BioTime, Inc. and Summit Pharmaceuticals International Corporation (19)

10.11 Employment Agreement, dated October 10, 2007, between BioTime, Inc. and Michael D. West. (20)

10.12 Commercial License and Option Agreement between BioTime and Wisconsin Alumni Research Foundation (21)

10.13 License Agreement, dated July 10, 2008, between Embryome Sciences, Inc. and Advanced Cell Technology, Inc. (22)

10.14 License Agreement, dated August 15, 2008 between Embryome Sciences, Inc. and Advanced Cell Technology, Inc. (23)

10.15 Sublicense Agreement, dated August 15, 2008 between Embryome Sciences, Inc. and Advanced Cell Technology, Inc. (23)

10.16 Stem Cell Agreement, dated February 23, 2009, between Embryome Sciences, Inc. and Reproductive Genetics Institute (24)

10.17	First Amendment of Commercial License and Option Agreement, dated March 11, 2009, between BioTime and Wisconsin Alumni Research Foundation (24)

Table of Contents

10.18	Employment Agreement, dated October 10, 2007, between BioTime, Inc. and Robert Peabody (24)
10.19	Registration Rights Agreement between OncoCyte Corporation and George Karfunkel (25)
10.20	Share Purchase Agreement, dated October 7, 2010, by and among Cell Cure Neurosciences, Limited, Teva Pharmaceutical Industries, Ltd, HBL-Hadasit Bio-Holdings, Ltd., and BioTime, Inc. (26)
10.21	Amended and Restated Shareholders Agreement, dated October 7, 2010, by and among ES Cell International Pte. Ltd, BioTime, Inc., Teva Pharmaceutical Industries, Limited, HBL-Hadasit Bio-Holdings, Ltd., and Cell Cure Neurosciences Ltd. (1)
10.22	Research and Exclusive License Option Agreement, dated October 7, 2010, between Teva Pharmaceutical Industries, Ltd. and Cell Cure Neurosciences Ltd. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (1)
10.23	Amended and Restated Research and License Agreement, dated October 7, 2010, between Hadasit Medical Research Services and Development Ltd. and Cell Cure Neurosciences Ltd. (1)
10.24	Additional Research Agreement, dated October 7, 2010, between Hadasit Medical Research Services and Development Ltd. and Cell Cure Neurosciences Ltd. (1)
10.25	Exclusive License Agreement, dated November 20, 2007, between Cell Targeting, Inc. and Burnham Institute for Medical Research. (1)
10.26	OncoCyte Corporation 2010 Stock Option Plan; Form of OncoCyte Corporation Stock Option Agreement (1)
10.27	OrthoCyte Corporation 2010 Stock Option Plan; Form of OrthoCyte Corporation Stock Option Agreement (1)
10.28	BioTime Asia, Limited 2010 Stock Option Plan; Form of BioTime Asia Limited Stock Option Agreement (1)
10.29	Lease, dated October 28, 2010, between SKS Harbor Bay Associates, LLC and BioTime, Inc. (1)
10.30	Employment Agreement, dated June 28, 2011, between BioTime, Inc., OrthoCyte Corporation, and William P. Tew (27)
10.31	License Agreement between BioTime, Inc. and Cornell University (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (28)
10.32	License Option Agreement, dated December 15, 2011 between BioTime, Inc. and USCN Life Sciences, Inc. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (29)
10.33	LifeMap, Inc. 2011 Stock Option Plan; and Form of LifeMap, Inc. Stock Option Agreement (29)
10.34	Share Exchange and Contribution Agreement, dated July 24, 2012, among LifeMap Sciences, Inc., Alfred D. Kingsley, and Greenway Partners, L.P. (30)

139

Table of Contents

10.35 Exclusive License Agreement, dated February 15, 2006, between Glycosan BioSystems, Inc. and the University of Utah Research Foundation, as amended (31)

10.36 Amendment to Share Exchange and Contribution Agreement, dated September 28, 2012, by and among LifeMap Sciences, Inc., Alfred D. Kingsley, and Greenway Partners, L.P. (31)

10.37 Share Purchase Agreement, dated November 1, 2012, between Cell Cure Neurosciences, Ltd. and BioTime, Inc. (31)

10.38 Amendment to Share Exchange and Contribution Agreement, dated November 30, 2012, by and among LifeMap Sciences, Inc., Alfred D. Kingsley, and Greenway Partners, L.P. (32)

10.39 Indemnification Agreement, dated January 4, 2013, by and among BioTime, Inc., Broadwood Partners, L.P, and Neal Bradsher (3)

10.40 Indemnification Agreement, dated January 4, 2013, by and among BioTime, Inc., Alfred D. Kingsley, Greenbelt Corp. and Greenway Partners, L.P. (3)

10.41 Stock and Warrant Purchase Agreement, dated January 4, 2013, between BioTime, Inc. and Romulus Films, Ltd. (32)

10.42 Stock and Warrant Purchase Agreement, dated January 4, 2013, between BioTime Acquisition Corporation and Romulus Films, Ltd. (32)

10.43 Business Park Lease, dated January 7, 2013, between David D. Bohannon Organization and BioTime, Inc. (32)

10.44 Stock Purchase Agreement, dated January 7, 2013, between David D. Bohannon Organization and BioTime, Inc. (32)

10.45 Amendment of Stock and Warrant Purchase Agreement, dated March 7, 2013, between BioTime, Inc. and Romulus Films, Ltd. (32)

10.46 Stock and Warrant Purchase Agreement, dated June 3, 2013, between BioTime, Inc. and certain investors (33)

10.47 Option Agreement, dated June 3, 2013, between BioTime, Inc. and certain investors (33)

10.48 Client Referral and Solicitation Agreement, dated April 1, 2013, between BioTime, Inc., LifeMap Sciences, Inc. and OBEX Securities, LLC (10)

10.49 Royalty Agreement, dated October 1, 2013, between Asterias Biotherapeutics, Inc. and Geron Corporation (34)

10.50 Exclusive Sublicense Agreement, dated October 1, 2013, between Geron Corporation and Asterias Biotherapeutics, Inc. (34)

10.51 Exclusive License Agreement, dated February 20, 2003, and First Amendment thereto dated September 7, 2004, between The Regents of the University of California and Geron Corporation (34)

10.52 Non-Exclusive License Agreement, dated as of October 7, 2013, between the Wisconsin Alumni Research Foundation and Asterias Biotherapeutics, Inc. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (34)

140

Table of Contents

10.53 Employment Agreement, dated August 15, 2013, between BioTime, Inc. and Lesley Stoltz (34)

10.54 Equity Incentive Plan (34)

10.55 Form of Employee Incentive Stock Option Agreement (34)

10.56 Form of Non-employee Director Stock Option Agreement (34)

10.57 Lease, dated December 30, 2013, by and between BMR 6300 Dumbarton Circle, LP, and Asterias Biotherapeutics, Inc.*

10.58 Preferred Stock Purchase Agreement, dated March 4, 2013, between BioTime and certain investors*

10.59 Option Agreement, dated March 4, 2014, between BioTime and certain investors*

21.1 List of Subsidiaries*

23.1 Consent of Rothstein Kass*

31 Rule 13a-14(a)/15d-14(a) Certification. *

32 Section 1350 Certification.*

101 Interactive Data File. *

101.INS XBRL Instance Document. *

101.SCH XBRL Taxonomy Extension Schema. *

101.CAL XBRL Taxonomy Extension Calculation Linkbase. *

101.DEF XBRL Taxonomy Extension Definition Linkbase. *

101.LAB XBRL Taxonomy Extension Label Linkbase. *

101.PRE XBRL Taxonomy Extension Presentation Linkbase. *

(1) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2010.

(2) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended March 31, 2012.

(3) Incorporated by reference to BioTime's Current Report on Form 8-K filed with the Securities and Exchange Commission on January 8, 2013

(4) Incorporated by reference to Registration Statement on Form S-1, File Number 33-48717 and Post-Effective Amendment No. 1 thereto filed with the Securities and Exchange Commission on June 22, 1992, and August 27, 1992, respectively

(5) Incorporated by reference to Registration Statement on Form S-1, File Number 33-44549 filed with the Securities and Exchange Commission on December 18, 1991, and Amendment No. 1 and Amendment No. 2 thereto filed

with the Securities and Exchange Commission on February 6, 1992 and March 7, 1992, respectively

(6) Incorporated by reference to BioTime's Current Report on Form 8-K filed with the Securities and Exchange Commission on March 5, 2014

Table of Contents

(7) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended March 31, 2009

(8) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended March 31, 2010

(9) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2012

(10) Incorporated by reference to BioTime's Current Report on Form 8-K filed with the Securities and Exchange Commission on June 3, 2013

(11) Incorporated by reference to BioTime's Current Report on Form 8-K filed with the Securities and Exchange Commission on October 1, 2013

(12) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended June 30, 2009

(13) Incorporated by reference to BioTime's Current Report on Form 8-K, filed April 24, 1997

(14) Incorporated by reference to BioTime's Form Quarterly Report on 10-Q for the quarter ended June 30, 1999

(15) Incorporated by reference to BioTime's Annual Report on Form 10-K/A-1 for the year ended December 31, 2002

(16) Incorporated by reference to BioTime's Current Report on Form 8-K filed December 30, 2004

(17) Incorporated by reference to BioTime's Current Report on Form 8-K, filed December 20, 2005

(18) Incorporated by reference to BioTime's Current Report on Form 8-K, filed January 13, 2006

(19) Incorporated by reference to BioTime's Current Report on Form 8-K, filed March 30, 2006

(20) Incorporated by reference to BioTime's Annual Report on Form 10-KSB for the year ended December 31, 2007

(21) Incorporated by reference to BioTime's Current Report on Form 8-K, filed January 9, 2008

(22) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended June 30, 2008

(23) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended September 30, 2008

(24) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2008

(25) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended September 30, 2009

(26) Incorporated by reference to BioTime's Current Report on Form 8-K filed October 19, 2010

(27) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended June 30, 2011

(28) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended September 30, 2011

(29) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2011

(30) Incorporated by reference to Registration Statement on Form S-3, File Number 333-182964 filed with the Securities and Exchange Commission on July 31, 2012

(31) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended September 30, 2012

(32) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2012

(33) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended June 30, 2013

(34) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended September 30, 2013

* Filed herewith

Table of Contents

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized on the 17th day of March, 2014.

BIOTIME, INC.

By: /s/Michael D. West
Michael D. West, Ph.D.
Chief Executive Officer

Signature	Title	Date
/s/Michael D. West MICHAEL D. WEST, PH.D.	Chief Executive Officer and Director (Principal Executive Officer)	March 17, 2014
/s/Robert W. Peabody ROBERT W. PEABODY	Chief Financial Officer (Principal Financial and Accounting Officer)	March 17, 2014
/s/Franklin M. Berger FRANKLIN M. BERGER	Director	March 17, 2014
/s/Neal C. Bradsher NEAL C. BRADSHER	Director	March 17, 2014
/s/Stephen C. Farrell STEPHEN C. FARRELL	Director	March 17, 2014
/s/Alfred D. Kingsley ALFRED D. KINGSLEY	Director	March 17, 2014
/s/Pedro Lichtinger PEDRO LICHTINGER	Director	March 17, 2014
/s/Henry L. Nordhoff HENRY L. NORDHOFF	Director	March 17, 2014
/s/Judith Segall JUDITH SEGALL	Director	March 17, 2014
/s/Andrew von Eschenbach ANDREW VON ESCHENBACH	Director	March 17, 2014

Table of Contents

Exhibit Numbers	Description
2.1	Agreement and Plan of Merger, dated February 11, 2010, between Glycosan BioSystems, Inc., OrthoCyte Corporation, and BioTime, Inc. (1)
2.2	Agreement and Plan of Merger, dated April 19, 2012, by and among XenneX, Inc., LifeMap Sciences, Inc., BioTime, Inc. and the stockholders of XenneX, Inc. named therein. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment). (2)
2.3	Asset Contribution Agreement, dated January 4, 2013, by and among BioTime, Inc., BioTime Acquisition Corporation, and Geron Corporation. Schedules to the Asset Contribution Agreement have been omitted. BioTime agrees to furnish supplementally a copy of the omitted schedules to the Commission upon request. (3)
3.1	Articles of Incorporation with all amendments (25)
3.2	By-Laws, As Amended. (4)
4.1	Specimen of Common Share Certificate. (5)
4.2	Specimen of Series A Convertible Preferred Stock Certificate (6)
4.3	Certificate of Determination of Series A Convertible Preferred Stock (6)
4.4	Warrant Agreement between BioTime, Inc., Broadwood Partners, L.P., and George Karfunkel. (7)
4.5	Form of Warrant. (7)
4.6	Warrant Agreement between BioTime, Inc. and Biomedical Sciences Investment Fund Pte. Ltd. (8)
4.7	Warrant Agreement between BioTime, Inc. and Romulus Films, Ltd. (9)
4.8	Form of Warrant. (included in Exhibit 4.7) (9)
4.9	Form of Warrant Issued June 2013 (10)
4.10	Warrant Agreement, dated as of October 1, 2013, between BioTime, Inc. and American Stock Transfer & Trust Company, LLC as Warrant Agent for the benefit of Asterias Biotherapeutics, Inc. (11)
4.11	Warrant Issued October 1, 2013 to Asterias Biotherapeutics, Inc. (included in Exhibit 4.6) (11)
10.1	Intellectual Property Agreement between BioTime, Inc. and Hal Sternberg. (6)
10.2	Intellectual Property Agreement between BioTime, Inc. and Judith Segall. (6)
10.3	2002 Stock Option Plan, as amended. (12)
10.4	Exclusive License Agreement between Abbott Laboratories and BioTime, Inc. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (13)

10.5 Modification of Exclusive License Agreement between Abbott Laboratories and BioTime, Inc. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment). (14)

Table of Contents

10.6	Exclusive License Agreement between BioTime, Inc. and CJ Corp. (15)
10.7	Hextend® and PentaLyte® Collaboration Agreement between BioTime, Inc. and Summit Pharmaceuticals International Corporation (16)
10.8	Addendum to Hextend® and PentaLyte® Collaboration Agreement Between BioTime Inc. and Summit Pharmaceuticals International Corporation (17)
10.9	Amendment to Exclusive License Agreement Between BioTime, Inc. and Hospira, Inc. (18)
10.10	Hextend® and PentaLyte® China License Agreement Between BioTime, Inc. and Summit Pharmaceuticals International Corporation (19)
10.11	Employment Agreement, dated October 10, 2007, between BioTime, Inc. and Michael D. West. (20)
10.12	Commercial License and Option Agreement between BioTime and Wisconsin Alumni Research Foundation (21)
10.13	License Agreement, dated July 10, 2008, between Embryome Sciences, Inc. and Advanced Cell Technology, Inc. (22)
10.14	License Agreement, dated August 15, 2008 between Embryome Sciences, Inc. and Advanced Cell Technology, Inc. (23)
10.15	Sublicense Agreement, dated August 15, 2008 between Embryome Sciences, Inc. and Advanced Cell Technology, Inc. (23)
10.16	Stem Cell Agreement, dated February 23, 2009, between Embryome Sciences, Inc. and Reproductive Genetics Institute (24)
10.17	First Amendment of Commercial License and Option Agreement, dated March 11, 2009, between BioTime and Wisconsin Alumni Research Foundation (24)
10.18	Employment Agreement, dated October 10, 2007, between BioTime, Inc. and Robert Peabody (24)
10.19	Registration Rights Agreement between OncoCyte Corporation and George Karfunkel (25)
10.20	Share Purchase Agreement, dated October 7, 2010, by and among Cell Cure Neurosciences, Limited, Teva Pharmaceutical Industries, Ltd, HBL-Hadasit Bio-Holdings, Ltd., and BioTime, Inc. (26)
10.21	Amended and Restated Shareholders Agreement, dated October 7, 2010, by and among ES Cell International Pte. Ltd, BioTime, Inc., Teva Pharmaceutical Industries, Limited, HBL-Hadasit Bio-Holdings, Ltd., and Cell Cure Neurosciences Ltd. (1)
10.22	Research and Exclusive License Option Agreement, dated October 7, 2010, between Teva Pharmaceutical Industries, Ltd. and Cell Cure Neurosciences Ltd. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (1)

10.23	Amended and Restated Research and License Agreement, dated October 7, 2010, between Hadasit Medical Research Services and Development Ltd. and Cell Cure Neurosciences Ltd. (1)

Table of Contents

10.24	Additional Research Agreement, dated October 7, 2010, between Hadasit Medical Research Services and Development Ltd. and Cell Cure Neurosciences Ltd. (1)
10.25	Exclusive License Agreement, dated November 20, 2007, between Cell Targeting, Inc. and Burnham Institute for Medical Research. (1)
10.26	OncoCyte Corporation 2010 Stock Option Plan; Form of OncoCyte Corporation Stock Option Agreement (1)
10.27	OrthoCyte Corporation 2010 Stock Option Plan; Form of OrthoCyte Corporation Stock Option Agreement (1)
10.28	BioTime Asia, Limited 2010 Stock Option Plan; Form of BioTime Asia Limited Stock Option Agreement (1)
10.29	Lease, dated October 28, 2010, between SKS Harbor Bay Associates, LLC and BioTime, Inc. (1)
10.30	Employment Agreement, dated June 28, 2011, between BioTime, Inc., OrthoCyte Corporation, and William P. Tew (27)
10.31	License Agreement between BioTime, Inc. and Cornell University (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (28)
10.32	License Option Agreement, dated December 15, 2011 between BioTime, Inc. and USCN Life Sciences, Inc. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (29)
10.33	LifeMap, Inc. 2011 Stock Option Plan; and Form of LifeMap, Inc. Stock Option Agreement (29)
10.34	Share Exchange and Contribution Agreement, dated July 24, 2012, among LifeMap Sciences, Inc., Alfred D. Kingsley, and Greenway Partners, L.P. (30)
10.35	Exclusive License Agreement, dated February 15, 2006, between Glycosan BioSystems, Inc. and the University of Utah Research Foundation, as amended (31)
10.36	Amendment to Share Exchange and Contribution Agreement, dated September 28, 2012, by and among LifeMap Sciences, Inc., Alfred D. Kingsley, and Greenway Partners, L.P. (31)
10.37	Share Purchase Agreement, dated November 1, 2012, between Cell Cure Neurosciences, Ltd. and BioTime, Inc. (31)
10.38	Amendment to Share Exchange and Contribution Agreement, dated November 30, 2012, by and among LifeMap Sciences, Inc., Alfred D. Kingsley, and Greenway Partners, L.P. (32)
10.39	Indemnification Agreement, dated January 4, 2013, by and among BioTime, Inc., Broadwood Partners, L.P, and Neal Bradsher (3)
10.40	Indemnification Agreement, dated January 4, 2013, by and among BioTime, Inc., Alfred D. Kingsley, Greenbelt Corp. and Greenway Partners, L.P. (3)

10.41	Stock and Warrant Purchase Agreement, dated January 4, 2013, between BioTime, Inc. and Romulus Films, Ltd. (32)

Table of Contents

10.42	Stock and Warrant Purchase Agreement, dated January 4, 2013, between BioTime Acquisition Corporation and Romulus Films, Ltd. (32)
10.43	Business Park Lease, dated January 7, 2013, between David D. Bohannon Organization and BioTime, Inc. (32)
10.44	Stock Purchase Agreement, dated January 7, 2013, between David D. Bohannon Organization and BioTime, Inc. (32)
10.45	Amendment of Stock and Warrant Purchase Agreement, dated March 7, 2013, between BioTime, Inc. and Romulus Films, Ltd. (32)
10.46	Stock and Warrant Purchase Agreement, dated June 3, 2013, between BioTime, Inc. and certain investors (33)
10.47	Option Agreement, dated June 3, 2013, between BioTime, Inc. and certain investors (33)
10.48	Client Referral and Solicitation Agreement, dated April 1, 2013, between BioTime, Inc., LifeMap Sciences, Inc. and OBEX Securities, LLC (10)
10.49	Royalty Agreement, dated October 1, 2013, between Asterias Biotherapeutics, Inc. and Geron Corporation (34)
10.50	Exclusive Sublicense Agreement, dated October 1, 2013, between Geron Corporation and Asterias Biotherapeutics, Inc. (34)
10.51	Exclusive License Agreement, dated February 20, 2003, and First Amendment thereto dated September 7, 2004, between The Regents of the University of California and Geron Corporation (34)
10.52	Non-Exclusive License Agreement, dated as of October 7, 2013, between the Wisconsin Alumni Research Foundation and Asterias Biotherapeutics, Inc. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment) (34)
10.53	Employment Agreement, dated August 15, 2013, between BioTime, Inc. and Lesley Stoltz (34)
10.54	Equity Incentive Plan (34)
10.55	Form of Employee Incentive Stock Option Agreement (34)
10.56	Form of Non-employee Director Stock Option Agreement (34)
10.57	Lease, dated December 30, 2013, by and between BMR 6300 Dumbarton Circle, LP, and Asterias Biotherapeutics, Inc.*
10.58	Preferred Stock Purchase Agreement, dated March 4, 2013, between BioTime and certain investors*
10.59	Option Agreement, dated March 4, 2014, between BioTime and certain investors*
21.1	List of Subsidiaries*
23.1	Consent of Rothstein Kass*
31	Rule 13a-14(a)/15d-14(a) Certification. *

147

Table of Contents

32	Section 1350 Certification.*
101	Interactive Data File. *
101.INS	XBRL Instance Document. *
101.SCH	XBRL Taxonomy Extension Schema. *
101.CAL	XBRL Taxonomy Extension Calculation Linkbase. *
101.DEF	XBRL Taxonomy Extension Definition Linkbase. *
101.LAB	XBRL Taxonomy Extension Label Linkbase. *
101.PRE	XBRL Taxonomy Extension Presentation Linkbase. *

(1) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2010.

(2) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended March 31, 2012.

(3) Incorporated by reference to BioTime's Current Report on Form 8-K filed with the Securities and Exchange Commission on January 8, 2013

(4) Incorporated by reference to Registration Statement on Form S-1, File Number 33-48717 and Post-Effective Amendment No. 1 thereto filed with the Securities and Exchange Commission on June 22, 1992, and August 27, 1992, respectively

(5) Incorporated by reference to Registration Statement on Form S-1, File Number 33-44549 filed with the Securities and Exchange Commission on December 18, 1991, and Amendment No. 1 and Amendment No. 2 thereto filed with the Securities and Exchange Commission on February 6, 1992 and March 7, 1992, respectively

(6) Incorporated by reference to BioTime's Current Report on Form 8-K filed with the Securities and Exchange Commission on March 5, 2014

(7) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended March 31, 2009

(8) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended March 31, 2010

(9) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2012

(10) Incorporated by reference to BioTime's Current Report on Form 8-K filed with the Securities and Exchange Commission on June 3, 2013

(11) Incorporated by reference to BioTime's Current Report on Form 8-K filed with the Securities and Exchange Commission on October 1, 2013

(12) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended June 30, 2009

(13) Incorporated by reference to BioTime's Current Report on Form 8-K, filed April 24, 1997

(14) Incorporated by reference to BioTime's Form Quarterly Report on 10-Q for the quarter ended June 30, 1999

(15) Incorporated by reference to BioTime's Annual Report on Form 10-K/A-1 for the year ended December 31, 2002

(16) Incorporated by reference to BioTime's Current Report on Form 8-K filed December 30, 2004

Table of Contents

(17) Incorporated by reference to BioTime's Current Report on Form 8-K, filed December 20, 2005

(18) Incorporated by reference to BioTime's Current Report on Form 8-K, filed January 13, 2006

(19) Incorporated by reference to BioTime's Current Report on Form 8-K, filed March 30, 2006

(20) Incorporated by reference to BioTime's Annual Report on Form 10-KSB for the year ended December 31, 2007

(21) Incorporated by reference to BioTime's Current Report on Form 8-K, filed January 9, 2008

(22) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended June 30, 2008

(23) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended September 30, 2008

(24) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2008

(25) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended September 30, 2009

(26) Incorporated by reference to BioTime's Current Report on Form 8-K filed October 19, 2010

(27) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended June 30, 2011

(28) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended September 30, 2011

(29) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2011

(30) Incorporated by reference to Registration Statement on Form S-3, File Number 333-182964 filed with the Securities and Exchange Commission on July 31, 2012

(31) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended September 30, 2012

(32) Incorporated by reference to BioTime's Annual Report on Form 10-K for the year ended December 31, 2012

(33) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended June 30, 2013

(34) Incorporated by reference to BioTime's Quarterly Report on Form 10-Q for the quarter ended September 30, 2013

*Filed herewith