

---

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549**

---

**FORM S-3**  
REGISTRATION STATEMENT  
UNDER  
THE SECURITIES ACT OF 1933

---

**BIOTIME, INC.**

(Exact name of registrant as specified in its charter)

---

**California**  
(State or other jurisdiction of incorporation or organization)

**94-3127919**  
(I.R.S. Employer Identification Number)

**1010 Atlantic Avenue, Suite 102  
Alameda, California 94501  
(510) 521-3390**

(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Office)

---

**Russell Skibsted  
Chief Financial Officer  
BioTime, Inc.  
1010 Atlantic Avenue, Suite 102  
Alameda, California 94501  
(510) 521-3390**

(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

---

*Copies to:*  
**Michael A. Hedge  
K&L Gates LLP  
1 Park Plaza, Twelfth Floor  
Irvine, California 92614  
(949) 253-0900**

---

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

---

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

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

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

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

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

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

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

Large accelerated filer   
Non-accelerated filer  (do not check if a smaller reporting company)

Accelerated Filer   
Smaller reporting company

---

---

---

**CALCULATION OF REGISTRATION FEE**

<b>Title of Each Class of Securities to be Registered</b>	<b>Amount to be Registered<sup>(1)</sup></b>	<b>Proposed Maximum Aggregate Offering Price Per Unit<sup>(1)(2)</sup></b>	<b>Proposed Maximum Aggregate Offering Price<sup>(1)(2)</sup></b>	<b>Amount of Registration Fee<sup>(3)</sup></b>
Common Stock, no par value per share				
Preferred Stock, no par value per share				
Debt Securities				
Warrants				
Units				
Rights				
<b>Total:</b>			<b>\$75,000,000</b>	<b>\$8,692.50</b>

- (1) There are being registered hereunder an indeterminate number of shares of common stock and preferred stock, an indeterminate principal amount of debt securities, an indeterminate number of warrants to purchase common stock, preferred stock or debt securities, an indeterminate number of units, and an indeterminate number of rights to purchase an indeterminate number of common stock or preferred stock, from time to time, which together shall have an aggregate initial offering price not to exceed \$75,000,000. If any debt securities are issued at an original issue discount, then the offering price of such debt securities shall be in such greater principal as shall result in an aggregate offering price not to exceed \$75,000,000, less the aggregate dollar amount of all securities previously issued hereunder. Any securities registered hereunder may be sold separately or as units with other securities registered hereunder. The proposed maximum initial offering price per unit will be determined, from time to time, by the Registrant in connection with the issuance by the Registrant of the securities registered hereunder. The securities registered hereunder also include an indeterminate number of shares of common stock and preferred stock and amount of debt securities as may be issued upon conversion of or exchange for preferred stock or debt securities that provide for conversion or exchange, upon exercise of warrants or pursuant to the antidilution provisions of any the securities registered hereunder. In addition, pursuant to Rule 416 under the Securities Act of 1933, as amended, or the Securities Act, the shares being registered hereunder include an indeterminate number of shares of common stock and preferred stock as may be issuable with respect to the shares being registered hereunder as a result of stock splits, stock dividends or similar transactions.
- (2) The proposed maximum aggregate offering price per class of security will be determined from time to time by the Registrant in connection with the issuance by the Registrant of the securities registered hereunder and is not specified as to each class of security pursuant to General Instruction II.D. of Form S-3 under the Securities Act.
- (3) Calculated pursuant to Rule 457(o) under the Securities Act.

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

## EXPLANATORY NOTE

This Registration Statement contains two prospectuses:

- a base prospectus which covers the offering, issuance and sale by us of up to \$75,000,000 in the aggregate of the securities identified above from time to time in one or more offerings; and
- a sales agreement prospectus covering the offering, issuance and sale by us of up to a maximum aggregate offering price of \$25,000,000 of our common stock in an at-the-market offering that may be issued and sold under a sales agreement with Cantor Fitzgerald & Co.

The base prospectus immediately follows this explanatory note. The specific terms of any securities to be offered pursuant to the base prospectus will be specified in a prospectus supplement to the base prospectus. The sales agreement prospectus immediately follows the base prospectus. The \$25,000,000 of common stock that may be offered, issued and sold under the sales agreement prospectus is included in the \$75,000,000 of securities that may be offered, issued and sold by us under the base prospectus. Upon termination of the sales agreement with Cantor Fitzgerald & Co., any portion of the \$25,000,000 included in the sales agreement prospectus that is not sold pursuant to the sales agreement will be available for sale in other offerings pursuant to the base prospectus, and if no shares of our common stock are sold under the sales agreement, the full \$75,000,000 of securities may be sold in other offerings pursuant to the base prospectus and an accompanying prospectus.

---

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

**SUBJECT TO COMPLETION, DATED APRIL 6, 2017**

**PROSPECTUS**



**\$75,000,000**

**Common Stock  
Preferred Stock  
Debt Securities  
Warrants  
Rights  
Units**

From time to time, we may offer and sell up to an aggregate of \$75,000,000 of any combination of the securities described in this prospectus, either individually or in combination. We may also offer common stock or preferred stock upon conversion of debt securities, common stock upon conversion of preferred stock, or common stock, preferred stock or debt securities upon the exercise of warrants.

Our common stock is listed on the NYSE MKT and on the Tel Aviv Stock Exchange under the symbol "BTX." On April 4, 2017, the last reported sale price for our common stock on the NYSE MKT was \$3.38 per share.

**Investing in these securities involves a high degree of risk. See "Risk Factors" on page 6 of this prospectus and in any applicable prospectus supplement and in the documents incorporated by reference herein and therein for a discussion of the factors you should carefully consider before deciding to invest in our securities.**

We will provide the specific terms of any securities we may offer in supplements to this prospectus. You should read this prospectus and any accompany prospectus supplement carefully before you invest. This prospectus may not be used to offer and sell any securities unless accompanied by a prospectus supplement describing the amount of and terms of the offering of those securities.

We may offer and sell the securities described in this prospectus to or through one or more underwriters, dealers or agents, or directly to purchasers on an immediate, continuous or delayed basis. The names of any underwriters, dealers or agents involved in the sale of any securities, the specific manner in which they may be offered and any applicable commissions or discounts will be set forth in an accompanying prospectus supplement covering the sales of those securities.

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

The date of this prospectus is \_\_\_\_\_, 2017

---

## TABLE OF CONTENTS

<a href="#">About This Prospectus</a>	1
<a href="#">About BioTime, Inc.</a>	2
<a href="#">Risk Factors</a>	5
<a href="#">Cautionary Note Regarding Forward-Looking Statements</a>	6
<a href="#">Use of Proceeds</a>	7
<a href="#">Dividend Policy</a>	8
<a href="#">Ratio of Earnings to Fixed Charges and Ratio of Earnings to Combined Fixed Charges and Preferred Stock Dividends</a>	9
<a href="#">Description of Capital Stock</a>	10
<a href="#">Description of Debt Securities</a>	13
<a href="#">Description of Warrants</a>	21
<a href="#">Description of Rights</a>	23
<a href="#">Description of Units</a>	24
<a href="#">Plan of Distribution</a>	25
<a href="#">Legal Matters</a>	28
<a href="#">Experts</a>	28
<a href="#">Where You Can Find More Information</a>	28
<a href="#">Incorporation of Certain Information by Reference</a>	28

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

---

## ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC, utilizing a “shelf” registration process. Under this shelf registration statement, we may from time to time sell any one or more, or a combination of, the securities described in this prospectus in one or more offerings for an aggregate offering price of up to \$75,000,000. This prospectus provides you with a general description of the securities we may offer. Each time we offer and sell our securities, we will provide one or more prospectus supplements that will contain specific information about the terms of the offering.

This prospectus does not contain all of the information included in the registration statement. For a more complete understanding of the offering of the securities, you should refer to the registration statement, including its exhibits. Each prospectus supplement may also add, update or change information contained in this prospectus and may include a discussion of any risk factors or other special considerations that apply to the offered securities.

Before making an investment decision, it is important for you to read and consider the information contained in this prospectus and any accompanying prospectus supplement, together with the additional information described under the heading “Where You Can Find More Information” and “Incorporation of Certain Information by Reference” below.

This prospectus may not be used to offer to sell, solicit an offer to buy or consummate a sale of securities unless it is accompanied by a prospectus supplement. If there is any inconsistency between information in this prospectus and any accompanying prospectus supplement, you should rely on the information in the latest supplement and documents incorporated by reference herein and therein.

*Unless the context otherwise requires, all references in this prospectus to “BioTime, Inc.” “BioTime,” the “Company,” “Registrant,” “we,” “us,” “our” and similar designations refer, collectively, to BioTime, Inc., a California corporation, and its consolidated subsidiaries.*

## ABOUT BIOTIME, INC.

### Business Overview

We are a clinical-stage biotechnology company focused on developing and commercializing products addressing degenerative diseases. Our clinical programs are based on two platform technologies: pluripotent stem cells and cell and drug delivery platform technologies. The foundation of our core therapeutic technology platform is pluripotent cells that are capable of becoming any of the cell types in the human body. The foundation of our cell delivery platform is our *HyStem*<sup>®</sup> cell and drug delivery matrix technology. Our current clinical programs are targeting three primary sectors: aesthetics, ophthalmology and cell and drug delivery.

We also have significant equity holdings in two publicly traded companies, Asterias Biotherapeutics, Inc., or Asterias, and OncoCyte Corporation, or OncoCyte, which we founded and which, until recently, were our majority-owned consolidated subsidiaries. Asterias (NYSE MKT: AST) is presently focused on advancing three clinical-stage programs that have the potential to address areas of very high unmet medical need in the fields of neurology (spinal cord injury) and oncology (Acute Myeloid Leukemia, or AML, and lung cancer). OncoCyte (NYSE MKT: OCX) is developing confirmatory diagnostic tests for lung cancer, breast cancer, and bladder cancer utilizing novel liquid biopsy technology. The combined market value of our holdings in Asterias and OncoCyte was about \$161 million as of March 31, 2017.

We are also enabling early-stage programs in new technologies through our own research programs as well as through our subsidiaries and affiliates. These technologies have the potential to improve the treatment of diseases associated with aging, including diseases such as diabetes, and cardiovascular and metabolic disorders that affect large numbers of people. We are also researching other novel technologies that may help the body regenerate certain types of degenerated cells and tissues.

Together with our subsidiaries and affiliates, we currently have seven product candidates in human clinical trials, one of which is in a late-stage, pivotal study in Europe, one cancer diagnostic that is expected to be commercially launched in the U.S. during the second half of 2017 and several early-stage programs that may help address some of the biggest unmet medical needs faced by our aging population.

In addition, we have obtained a collection of pluripotent stem cell assets and a proprietary therapeutic delivery platform with many potential uses. Pluripotent stem cells are capable of becoming any of the cell types in the human body. Cell types derived from pluripotent stem cells have potential applications in many areas of medicine with large unmet patient needs, including various tissue injuries and age-related degenerative diseases and degenerative conditions for which there presently are no cures. Unlike pharmaceuticals which almost always require a molecular target, cell therapy strategies use cell types derived from pluripotent stem cells to regenerate, replace or augment affected cells and tissues, and therefore may have broader applicability and impact than traditional pharmaceutical products. Our pluripotent stem cell technology is complemented by our *HyStem*<sup>®</sup> technology, which includes a family of unique, biocompatible resorbable hydrogels to deliver bioactive compositions for therapeutic benefit. *HyStem*<sup>®</sup> was designed to enable the effective transfer, engraftment and metabolic support for cells, whether derived from pluripotent stem cells or from a patient's own somatic or adult stem cells. The flexibility of the *HyStem*<sup>®</sup> technology also allows for direct therapeutic use and the sustained delivery of therapeutics.

Our near term therapeutic focus is in three core areas of aesthetics, ophthalmology, and cell and drug delivery. In addition, we, through our subsidiaries and affiliates, also focus on therapeutic products in neurology and oncology and liquid biopsies for diagnosis of cancer.

#### *Facial Aesthetics*

*Renovia*<sup>®</sup>, our lead facial aesthetics product, is a potential treatment for facial lipoatrophy. "Lipoatrophy" is another word for "fat loss or deficiency." It is currently in a pivotal clinical trial in Europe to assess its safety and efficacy in restoring normal skin contours in patients whose subcutaneous fat, or adipose tissue, has been lost due to the use of certain drugs often used to treat patients with HIV. While this pivotal trial, if successful, is expected to enable a filing for marketing authorization in the European Union, we see this trial as supportive of U.S. development of *Renovia*<sup>®</sup>, for a much larger market opportunity, for treating additional forms of facial volume restorations, whether from drugs, trauma or aging. *Renovia*<sup>®</sup> consists of our cell-transplantation delivery matrix (*HyStem*<sup>®</sup>) combined with the patient's own adipose progenitor cells. Developed as an alternative for traditional fat transfer procedures, *Renovia*<sup>®</sup> is designed to mimic the naturally-occurring extracellular matrix and provide a 3-D scaffold that enables effective cell transplant, engraftment and proliferation. *Renovia*<sup>®</sup>, is being developed with the goal of providing a natural, long-lasting improvement to the patient's skin contouring.

## Ophthalmology

*OpRegen*<sup>®</sup> is our lead product for ophthalmological disorders. It is a suspension of retinal pigment epithelial, or RPE, cells that are derived from pluripotent stem cells. RPE cells form the back lining of the retina, and support the function of photoreceptors (rods and cones). RPE cells can be damaged and lost in various forms of retinal degeneration. The *OpRegen*<sup>®</sup> therapeutic approach is to replace damaged or lost RPE cells and possibly slow disease progression and/or preserve or restore visual function. It is currently in a Phase I/IIa clinical trial for the treatment of the dry form of age-related macular degeneration, or AMD. AMD affects approximately 1.6 million newly diagnosed people annually in the U.S. and is the leading cause of blindness in people over the age of 60. Approximately 90 percent of AMD patients suffer from the dry form, for which the U.S. Food and Drug Administration, or FDA, has not approved any therapies.

In February 2017, we expanded our ophthalmology portfolio through the acquisition of exclusive global rights to technology from University of Pittsburgh through the execution of an exclusive license agreement. This technology allows the generation of three-dimensional laminated human retinal tissue derived from human pluripotent stem cells. This tissue contains all the cell types and layers of the human retina and has shown evidence of functional integration in proof of concept animal models for advanced retinal degeneration. The technology is being developed for implantation in patients to potentially treat or prevent a variety of retinal degenerative diseases.

## Cell and Drug Delivery

In addition to *Renovia*<sup>®</sup>, we have two additional primary programs utilizing our proprietary *HyStem*<sup>®</sup> technology. *HyStem*<sup>®</sup>-BDNF is a preclinical development program for the delivery of recombinant human brain-derived neurotrophic factor, or BDNF, directly into the stroke cavity of patients with the goal of aiding in tissue repair and functional recovery. *ReGlyde*<sup>™</sup> is in preclinical development as a device for viscosupplementation and a combination product for drug delivery in osteoarthritis, or OA. The viscosupplementation device program aims to administer *ReGlyde*<sup>™</sup> directly into affected OA joints provide joint lubrication to reduce pain and improve quality of life. The drug delivery programs seek to enable the sustained release of therapeutics in affected OA joints to slow or reverse disease progression, in addition to improving pain and joint function. Also, included in our delivery platform is *Premvia*<sup>™</sup>, which is a *HyStem*<sup>®</sup> hydrogel formulation for the management of wounds including partial and full-thickness wounds, ulcers, tunneled/undermined wounds, surgical wounds, and burns. *Premvia*<sup>™</sup> was cleared by the FDA via a 510(k) device approval pathway.

In addition to these programs, we are developing *HyStem*<sup>®</sup> product enhancements. Current efforts are focused on the development of a frozen liquid product format, which, if successful, will make significant improvements in end-user convenience.

## Therapeutic Products in Neurology and Oncology

Asterias is presently focused on advancing three clinical-stage programs, which have the potential to address areas of very high unmet medical need in the fields of neurology and oncology. Asterias' lead products are:

- AST-OPC1, a therapy derived from pluripotent stem cells that is currently in a Phase I/IIa clinical trial for spinal cord injuries, with positive early efficacy data reported in September 2016;
- AST-VAC1, a patient-specific cancer immunotherapy with promising Phase II clinical trial data in AML; and
- AST-VAC2, a non-patient specific cancer immunotherapy for which the initiation of a Phase I/IIa clinical trial in non-small cell lung cancer is planned for the first half of 2017.

## Liquid Biopsies for Diagnosis of Cancer

OncoCyte is developing confirmatory diagnostic tests for lung cancer, breast cancer, and bladder cancer utilizing novel liquid biopsy technology. While current biopsy tests use invasive surgical procedures to provide tissue samples to determine if a tumor is benign or malignant, OncoCyte is developing a next generation of diagnostic tests that will be based on liquid biopsies using blood or urine samples. OncoCyte recently conducted a 300-patient study of its lung cancer test. On March 6, 2017, OncoCyte announced the successful completion of the study.

## Our Subsidiaries and Our Affiliates

The following table shows our subsidiaries and affiliates, their respective principal fields of business, our percentage ownership, directly and through subsidiaries, as of December 31, 2016, and the country where their principal business is located:

Subsidiaries and Affiliates	Field of Business	BioTime Ownership	Country
Cell Cure Neurosciences Ltd.	Products to treat age-related macular degeneration	62.5%(1)	Israel
ES Cell International Pte. Ltd.	Stem cell products for research, including clinical grade cell lines produced under cGMP	100%	Singapore
LifeMap Sciences, Inc.	Biomedical, gene, disease, and stem cell databases and tools	77.9%	USA
OncoCyte Corporation(2)	Cancer diagnostics	51.1%	USA
OrthoCyte Corporation	Developing bone grafting products for orthopedic diseases and injuries		USA
ReCyte Therapeutics, Inc.	Research and development involved in stem cell-derived endothelial and cardiovascular related progenitor cells for the treatment of vascular disorders, ischemic conditions and brown adipocytes for type-2 diabetes and obesity	94.8%	USA
Asterias Biotherapeutics, Inc.(3)	Therapeutic products derived from pluripotent stem cells, and immunotherapy products. Clinical programs include: AST-OPC1 for spinal cord injury, AST-VAC1 for acute myelogenous leukemia, and AST-VAC2 for non-small cell lung cancer	46%	USA

(1) Includes shares owned by us and ES Cell International Pte. Ltd. Does not include shares that would be owned by us, if we were to convert certain convertible debt into Cell Cure Neurosciences Ltd. ordinary shares.

(2) As of February 17, 2017, we deconsolidated OncoCyte and OncoCyte is no longer a subsidiary of ours as of that date, but remains an affiliate and significant investee of our company.

(3) Since the deconsolidation of Asterias in May 2016, Asterias is an affiliate and significant investee of our company.

We presently own, directly and through our subsidiary ES Cell International Pte. Ltd., approximately 62.5% of the outstanding ordinary shares of Cell Cure Neurosciences Ltd., or Cell Cure. We also hold certain Cell Cure convertible promissory notes that entitle us to acquire additional Cell Cure ordinary shares by converting those notes into ordinary shares. If we were to convert the convertible promissory notes into Cell Cure ordinary shares, and if no other ordinary shares are issued to third parties, our percentage ownership of Cell Cure would increase to 82.3%, based on the number of ordinary shares outstanding on February 28, 2017. In addition, as of March 9, 2017, we owned 77.9% of the common stock outstanding of LifeMap Sciences, Inc.

We will continue to work on simplifying our corporate, financial and organizational structure to allow us to execute our objectives more efficiently, while also making it much easier for investors, and other external stakeholders, to better understand our company. Our purpose is to deliver therapies for significant unmet, or under-met, needs to patients, while creating value for our investors. We believe that we have several valuable assets within our company, our subsidiaries and our affiliates.

## Company Information

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

## **RISK FACTORS**

Investing in our securities involves significant risks. Before deciding whether to invest in our securities, you should consider carefully the risks, uncertainties and assumptions described in this prospectus and any accompanying prospectus supplement, including the risk factors set forth in our filings with the SEC that are incorporated by reference herein and therein, including the risk factors in our most recent Annual Report on Form 10-K, as revised or supplemented by our Quarterly Reports on Form 10-Q, and which may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future. There may be other unknown or unpredictable economic, business, competitive, regulatory or other factors that could have material adverse effects on our future results. If any of these risks actually occurs, our business, business prospects, financial condition or results of operations could be seriously harmed. Please also read carefully the section below entitled “Cautionary Note Regarding Forward-Looking Statements.”

## CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

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

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

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

## USE OF PROCEEDS

Unless otherwise specified in an accompanying prospectus supplement, we intend to use the net proceeds from the sale of our securities offered by this prospectus for general corporate purposes, including, without limitation, working capital, capital expenditures, research and development expenditures, regulatory affairs expenditures, clinical trial expenditures, acquisitions of new technologies and businesses, and investments in our subsidiaries or otherwise. As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds we will have upon completion of this offering. Accordingly, our management will have broad discretion in the application of the net proceeds, if any.

## **DIVIDEND POLICY**

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

We have in the past distributed common stock of a subsidiary to our shareholders, on a pro rata basis, as a dividend in kind. We may distribute shares of subsidiaries or affiliated companies again in the future and any such distribution 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 our Board of Directors deems relevant.

**RATIO OF EARNINGS TO FIXED CHARGES AND RATIO OF EARNINGS TO COMBINED FIXED CHARGES AND PREFERRED STOCK DIVIDENDS**

The following table sets forth the computation of our ratio of earnings to fixed charges and our ratio of earnings to combined fixed charges and preferred stock dividends for the periods presented. The following table is qualified by the more detailed information appearing in the computation table set forth in Exhibit 12.1 to the Registration Statement of which this prospectus is part and our historical consolidated financial statements, including the notes to those consolidated financial statements, incorporated by reference in this prospectus. You should read this table in conjunction with the consolidated financial statements and notes incorporated by reference in this prospectus.

	<b>Years Ended December 31,</b>				
	<b>(in thousands)</b>				
	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>
Deficiency in earnings required to cover fixed charges	\$ (11,069)	\$ (62,615)	\$ (51,155)	\$ (56,190)	\$ (25,306)
Ratio of earnings to fixed charges <sup>(1)</sup>	-	-	-	-	-
Deficiency in earnings required to cover combined fixed charges and preferred stock dividends	\$ (11,069)	\$ (63,030)	\$ (51,242)	\$ (56,190)	\$ (25,306)
Ratio of earnings to fixed charges and preferred dividends <sup>(1)</sup>	-	-	-	-	-

(1) We did not record earnings for the years ended 2012 through 2016. Accordingly, our earnings were insufficient to cover fixed charges and combined fixed charges and preferred stock dividends for those periods.

## DESCRIPTION OF CAPITAL STOCK

The following information describes our common stock and preferred stock, as well as certain provisions of our articles of incorporation and bylaws. This summary does not purport to be complete and is qualified in its entirety by the provisions of our articles of incorporation and bylaws, copies of which have been filed as exhibits to the registration statement of which this prospectus is a part.

### Authorized Capital Stock

We are currently authorized to issue an aggregate of 152,000,000 shares of capital stock consisting of 150,000,000 shares of common stock and 2,000,000 shares of preferred stock. There are no shares of preferred stock issued or outstanding. As of March 31, 2017, we had 110,853,742 shares of our common stock issued and outstanding. As of March 31, 2017, there were 15,210 holders of our common stock.

### Common Stock

Each holder of our common stock is entitled to one vote for each outstanding share of common stock owned by the holder on every matter properly submitted to the shareholders for their vote. Subject to the dividend rights of holders of any shares of preferred stock that may be issued from time to time, holders of common stock are entitled to any dividend declared by our Board of Directors out of funds legally available for that purpose. We have not paid any cash dividends on our common stock, and it is unlikely that any cash dividends will be declared or paid on any common stock in the foreseeable future. Instead, we plan to retain our cash for use in financing our future operations and growth. Subject to the prior payment of the liquidation preference to holders of any preferred stock that may be issued, holders of our common stock are entitled to receive on a pro rata basis all of our remaining assets available for distribution to the holders of our common stock in the event of the liquidation, dissolution, or winding up of our operations. Holders of our common stock do not have any preemptive rights to become subscribers or purchasers of additional shares of any class of our capital stock. There are no redemption or sinking fund provisions applicable to our common stock.

### Preferred Stock

We may issue preferred stock in one or more series, at any time, with such rights, preferences, privileges and restrictions as our Board of Directors may determine, all without further action of our shareholders. Any series of preferred stock which may be authorized by our Board of Directors in the future may be senior to and have greater rights and preferences than our common stock and may have restrictions on the repurchase or redemption of shares by us.

### Anti-takeover Provisions of our Articles of Incorporation and Bylaws and California Law

Our articles of incorporation and bylaws include a number of provisions that may have the effect of deterring hostile takeovers or delaying or preventing changes in control of our company, including the following:

*Authorized Capital.* The issuance of shares of capital stock, or the issuance of rights to purchase shares of capital stock, could be used to discourage an attempt to obtain control of our company. For example, if, in the exercise of its fiduciary obligations, our Board of Directors determined that a takeover proposal was not in the best interest of our shareholders, our Board of Directors could authorize the issuance of preferred stock or common stock without shareholder approval. The shares could be issued in one or more transactions that might prevent or make the completion of the change of control transaction more difficult or costly by:

- diluting the voting or other rights of the proposed acquirer or insurgent shareholder group;
- creating a substantial voting block in institutional or other hands that might undertake to support the position of the incumbent board; or
- effecting an acquisition that might complicate or preclude the takeover.

In this regard, our articles of incorporation grant our Board of Directors broad power to establish the rights and preferences of the authorized and unissued preferred stock. Our Board of Directors could establish one or more series of preferred stock that entitle holders to:

- vote separately as a class on any proposed merger or consolidation;
- cast a proportionately larger vote together with our common stock on any transaction or for all purposes;
- elect directors having terms of office or voting rights greater than those of other directors;
- convert preferred stock into a greater number of shares of our common stock or other securities;
- demand redemption at a specified price under prescribed circumstances related to a change of control of our company; or
- exercise other rights designed to impede a takeover.

Alternatively, a change of control transaction deemed by our Board of Directors to be in the best interest of our shareholders could be facilitated by issuing a series of preferred stock having sufficient voting rights to provide a required percentage vote of the shareholders.

*Advance Notice Requirements for Shareholder Proposals and Director Nominations.* Our bylaws provide advance notice procedures for shareholders seeking to bring business before our annual meeting of shareholders, or to nominate candidates for election as directors at any meeting of shareholders. Our bylaws also specify certain requirements regarding the form and content of a shareholder's notice. These provisions may preclude our shareholders from bringing matters before our annual meeting of shareholders or from making nominations for directors at our meetings of shareholders.

*Meetings of Shareholders.* Our bylaws provide that only our Board of Directors, the Chairman of our Board of Directors, the President of our company and any one or more shareholders holding at least 10% of the voting power of our company may call special meetings of shareholders and only those matters set forth in the notice of the special meeting may be considered or acted upon at a special meeting of shareholders. Our bylaws limit the business that may be conducted at an annual meeting of stockholders to those matters properly brought before the meeting.

*Amendment of Articles of Incorporation and Bylaws.* The affirmative vote of holders of a majority of the voting power of our outstanding shares of stock will generally be able to amend other provisions of our articles of incorporation and the holders of a majority of the voting power present and entitled to vote will generally be able to amend other provisions of our bylaws. Certain provisions of our bylaws, such as the reduction in the fixed amount of the authorized number of directors, may be amended unless if the votes cast against its adoption are equal to more than 16 2/3% of the outstanding shares entitled to vote. This will have the effect of making it more difficult to amend our articles of incorporation or bylaws to remove or modify these provisions.

These provisions of our articles of incorporation and bylaws could make it more difficult to acquire control of us by means of a tender offer, merger, proxy contest or otherwise. Accordingly, these provisions could have the effect of discouraging coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of increased protection give us the potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us, and that the benefits of this increased protection outweigh the disadvantages of discouraging those proposals, because negotiation of those proposals could result in an improvement of their terms.

#### **Limitation of Liability and Indemnification of Directors and Officers**

Our articles of incorporation provide for the elimination of liability for our directors to the fullest extent permissible under California law. Section 204 of the California Corporations Code, or the California Code, provides that a corporation's articles of incorporation may not limit the liability of directors (i) for acts or omissions that involve intentional misconduct or a knowing and culpable violation of law, (ii) for acts or omissions that a director believes to be contrary to the best interests of the corporation or its shareholders or that involve the absence of good faith on the part of the director, (iii) for any transaction from which a director derived an improper personal benefit, (iv) for acts or omissions that show a reckless disregard for the director's duty to the corporation or its shareholders in circumstances in which the director was aware, or should have been aware, in the ordinary course of performing a director's duties, of a risk of a serious injury to the corporation or its shareholders, (v) for acts or omissions that constitute an unexcused pattern of inattention that amounts to an abdication of the director's duty to the corporation or its shareholders, (vi) under Section 310 of the California Code (concerning transactions between corporations and directors or corporations having interrelated directors) or (vii) under Section 316 of the California Code (concerning directors' liability for distributions, loans, and guarantees).

Our bylaws require us to indemnify our directors and officers to the maximum extent not prohibited by the California Code and will authorize us to indemnify other employees and agents to the extent and in the manner permitted by the California Code.

In addition, we enter into indemnification agreements with each of our directors and officers. These agreements, among other things, will require us to indemnify and advance expenses to our directors, executive officers and other key employees for certain losses, including attorneys' fees, judgments, penalties fines and settlement amounts actually and reasonably incurred by a director or executive officer in any action or proceeding arising out of their services as one of our directors or executive officers, or any of our subsidiaries or any other company or enterprise to which the person provides services at our request. We believe that these charter provisions and indemnification agreements are necessary to attract and retain qualified persons such as directors, officers and key employees. We also maintain directors' and officers' liability insurance under which our directors and officers are insured against loss as a result of certain claims brought against them in such capacities.

## **Listing**

Our common stock is listed on the NYSE MKT and on the Tel Aviv Stock Exchange under the symbol "BTX."

## **Transfer Agent and Registrar**

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC. The transfer agent and registrar's address is 620 115th Avenue, Brooklyn, New York 11219.

## DESCRIPTION OF DEBT SECURITIES

We may issue debt securities from time to time, in one or more series, as either senior or subordinated debt or as senior or subordinated convertible debt. While the terms we have summarized below will apply generally to any debt securities that we may offer under this prospectus, we will describe the particular terms of any debt securities that we may offer in more detail in an applicable prospectus supplement. The terms of any debt securities offered under any applicable prospectus supplement may differ from the terms described below. Unless the context requires otherwise, whenever we refer to the indenture, we also are referring to any supplemental indentures that specify the terms of a particular series of debt securities.

We will issue the debt securities under the indenture that we will enter into with the trustee named in the indenture. The indenture will be qualified under the Trust Indenture Act of 1939, as amended, or the Trust Indenture Act. We have filed the form of indenture as an exhibit to the registration statement of which this prospectus is a part, and supplemental indentures and forms of debt securities containing the terms of the debt securities being offered will be filed as exhibits to the registration statement of which this prospectus is a part or will be incorporated by reference from reports that we file with the Securities and Exchange Commission, or the SEC.

The following summary of material provisions of the debt securities and the indenture is subject to, and qualified in its entirety by reference to, all of the provisions of the indenture applicable to a particular series of debt securities. We urge you to read any applicable prospectus supplements and any related free writing prospectuses related to the debt securities that we may offer under this prospectus, as well as the complete indenture that contains the terms of the debt securities.

### General

The indenture does not limit the amount of debt securities that we may issue. It provides that we may issue debt securities up to the principal amount that we may authorize and may be in any currency or currency unit that we may designate. Except for the limitations on consolidation, merger and sale of all or substantially all of our assets contained in the indenture, the terms of the indenture do not contain any covenants or other provisions designed to give holders of any debt securities protection against changes in our operations, financial condition or transactions involving us.

We may issue the debt securities issued under the indenture as “discount securities,” which means they may be sold at a discount below their stated principal amount. These debt securities, as well as other debt securities that are not issued at a discount, may be issued with “original issue discount,” or OID, for U.S. federal income tax purposes because of interest payment and other characteristics or terms of the debt securities. One or more series of debt securities may be variable rate debt securities that may be exchanged for fixed rate debt securities. Material U.S. federal income tax considerations applicable to debt securities issued with OID will be described in more detail in any applicable prospectus supplement.

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

Any applicable prospectus supplement relating to a series of debt securities being offered will contain the following terms, if applicable:

- the title of the series of debt securities and the ranking;
- the aggregate principal amount and any limit on that amount;
- the price at which the debt securities will be issued;
- the date on which the debt securities mature;
- the fixed or variable rate at which the debt securities will bear interest, or the method by which the rate shall be determined;
- the timing, place and manner of making principal, interest and any premium payments on the debt securities, and, if applicable, where the debt securities may be surrendered for registration of transfer or exchange;
- the date or dates, if any, after which the debt securities may be converted or exchanged into or for our common stock or another company’s securities or property or cash, and the terms of any such conversion or exchange;
- any redemption or early repayment provisions;

- any sinking fund or similar provisions;
- the authorized denominations;
- any applicable subordination provisions;
- any guarantees of the securities by our subsidiaries or others;
- the currency in which we will pay the principal, interest and any premium payments on the debt securities;
- whether the amount of payments of principal of (and premium, if any) or interest, if any, on the debt securities may be determined with reference to an index, formula or other method and the manner in which the amounts shall be determined;
- the denominations in which we will issue the series of debt securities, if other than denominations of \$1,000 and any integral multiple thereof;
- the time period within which, the manner in which and the terms and conditions upon which the purchaser of the securities can select the payment currency;
- the provisions, if any, granting special rights to the holders of debt securities upon certain events;
- any additions to or changes in the events of default or covenants with respect to the debt securities, and any change in the right of the trustee or the holders, from those described in this prospectus, to declare principal, premium and interest to be due and payable;
- additions to or changes in or deletions of the provisions relating to covenant defeasance and legal defeasance;
- additions to or changes in the provisions relating to satisfaction and discharge of the indenture;
- additions to or changes in the provisions relating to the modification of the indenture both with and without the consent of holders of debt securities issued under the indenture;
- whether and under what circumstances we will pay any additional amounts on the debt securities for any tax, assessment or governmental charge and, if so, whether we will have the option to redeem the debt securities instead of paying those amounts;
- the form (registered and/or bearer securities), any restrictions applicable to the offer, sale or delivery of bearer securities and the terms, if any, upon which bearer securities may be exchanged for registered securities and vice versa;
- the date of any bearer securities or any global security, if other than the date of original issuance of the first security of the series to be issued;
- the person to whom and manner in which any interest shall be payable;
- whether the securities will be issued in whole or in part in the form of one or more global securities;
- the identity of the depositary for global securities;
- whether a temporary security is to be issued with respect to the series and whether any interest payable prior to the issuance of definitive securities of the series will be credited to the account of the persons entitled thereto;
- the terms upon which beneficial interests in a temporary global security may be exchanged in whole or in part for beneficial interests in a definitive global security or for individual definitive securities and the terms upon which exchanges may be made;
- the securities exchange(s), if any, on which the securities will be listed;
- whether any underwriter(s) will act as market maker(s) for the securities;
- the form (certificated or book-entry);
- the form and/or terms of certificates, documents or conditions which may be necessary, if any, for the debt securities to be issuable in final form; and
- additional terms not inconsistent with the provisions of the indenture.

## Conversion or Exchange Rights

We will set forth in any applicable prospectus supplement the terms on which a series of debt securities may be convertible into or exchangeable for our common stock or our other securities. We will include provisions as to settlement upon conversion or exchange and whether conversion or exchange is mandatory, at the option of the holder or at our option. We may include provisions pursuant to which the number of shares of our common stock or our other securities that the holders of the series of debt securities receive would be subject to adjustment.

## Consolidation, Merger or Sale

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

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

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

## Events of Default

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

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

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

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

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

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

### **Modification of Indenture; Waiver**

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

- cure any ambiguity, defect or inconsistency;
- provide for the assumption of our obligations to holders of the debt securities by a successor corporation;
- provide for uncertificated debt securities in addition to certificated debt securities;
- make any change that does not adversely affect the rights of any holder of the debt securities in any material respect;
- add to, change or eliminate any other provisions of the indenture in respect of one or more series of debt securities if the change would not (i) apply to any security of any series created prior to the execution of a supplemental indenture and entitled to the benefit of the provision, and (ii) modify the rights of the holder of any security or would become effective only when there is no outstanding security of any series created prior to the execution of the supplemental indenture and entitled to the benefits of the provisions proposed to be changed;
- establish any additional series of debt securities; or
- comply with any requirement of the SEC in connection with the qualification of the indenture under the Trust Indenture Act.

However, holders of each series of debt securities affected by a modification must consent to modifications that have the following effect:

- reduce the principal amount of the debt securities;
- reduce the rate or change the time for payment of interest;
- change the fixed maturity date;
- change the date on which any debt security may be subject to redemption or repurchase, or reduce the redemption or repurchase price;
- make any debt security payable in currency other than that stated in the debt security;
- waive any existing default or event of default and the resulting consequences;
- modify the right of any holder to receive payment of principal or interest on any debt security;
- impair the right of any holder to institute suit for the enforcement of any payment due; or
- make any change in the foregoing amendment provisions which require each holder's consent.

Any existing default may be waived with the consent of the holders of at least a majority in principal amount of the then outstanding debt securities of the series affected. The consent of the holders of debt securities is not necessary to approve the particular form of any proposed amendment to any indenture. It is sufficient if any consent approves the substance of the proposed amendment.

### **Covenants**

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

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

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

## Discharge

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

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

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

- we have paid or deposited with the trustee, in trust an amount of cash or United States government obligations sufficient to pay all outstanding principal of and interest on the then outstanding debt securities of the series at maturity or upon their redemption, as the case may be;
- the deposit will not result in a breach of, or constitute a default under, the indenture;
- no default or event of default shall have occurred and continue on the date of deposit and no event of default as a result of a bankruptcy or event which with the giving of notice or the lapse of time would become a bankruptcy event of default shall have occurred and be continuing on the 91st day after that date;
- we deliver to the trustee a legal opinion that we have received from, or there has been published by, the United States Internal Revenue Service a ruling, or there has been a change in tax law, in either case to the effect that the holders of the debt securities of the series will not recognize income, gain or loss for Federal income tax purposes as a result of our exercise of our option and shall be subject to Federal income tax on the same amounts and in the same manner and at the same times as would have been the case if we did not exercise our option; and
- certain other conditions are met.

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

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

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

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

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

### **Form, Exchange and Transfer**

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

A holder of debt securities may transfer or exchange those debt securities in accordance with the indenture. The registrar for the debt securities may require a holder, among other things, to furnish appropriate endorsements and transfer documents, and to pay any taxes and fees required by law or permitted by the indenture. The registrar is not required to transfer or exchange any debt security selected for redemption or any debt security for a period of 15 days before a selection of debt security to be redeemed. The registered holder of a debt security may be treated as the owner of the security for all purposes.

We will name in the applicable prospectus supplement the security registrar, and any transfer agent in addition to the security registrar, that we initially designate for any debt securities. We may at any time designate additional transfer agents or rescind the designation of any transfer agent or approve a change in the office through which any transfer agent acts, except that we will be required to maintain a transfer agent in each place of payment for the debt securities of each series.

### **Replacement Securities**

Any mutilated certificate representing a debt security or a certificate representing a debt security with a mutilated coupon will be replaced by us at the expense of the holder upon surrender of the certificate to the trustee. Certificates representing debt securities or coupons that become destroyed, stolen or lost will be replaced by us at the expense of the holder upon delivery to us and the trustee of evidence of any destruction, loss or theft satisfactory to us and the trustee, provided that neither we nor the trustee has been notified that the certificate or coupon has been acquired by a bona fide purchaser. In the case of any coupon which becomes destroyed, stolen or lost, the coupon will be replaced by issuance of a new certificate representing the debt security in exchange for the certificate representing the debt security to which the coupon appertains. In the case of a destroyed, lost or stolen certificate representing the debt security or coupon, an indemnity bond satisfactory to the trustee and us may be required at the expense of the holder of the debt security before a replacement certificate will be issued.

### **Information Concerning the Trustee**

We will identify in any applicable prospectus supplement relating to any series of debt securities the trustee with respect to the series. The indenture and the Trust Indenture Act contain certain limitations on the rights of the trustee, should it become our creditor, to obtain payment of claims in certain cases, or to realize on certain property received in respect of any the claim, as security or otherwise. The trustee and its affiliates may engage in, and will be permitted to continue to engage in, other transactions with us and our affiliates; but if the trustee acquires any conflicting interest, as defined in the Trust Indenture Act, it must eliminate the conflict or resign.

The holders of a majority in principal amount of the then outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for exercising any remedy available to the trustee. The Trust Indenture Act and the indenture provide that in case an event of default occurs is continuing, the trustee will be required, in the exercise of its rights and powers, to use the degree of care and skill of a prudent man in the conduct of his own affairs. Subject to those provisions, the trustee will be under no obligation to exercise any of its rights or powers under the indenture at the request of any of the holders of the debt securities, unless they have offered to the trustee indemnity satisfactory to it.

## Global Debt Securities

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

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

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

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

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

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

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

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

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

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

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

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

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

### **Payment and Paying Agents**

Unless we otherwise indicate in any applicable prospectus supplement, we will make payment of the interest on any debt securities on any interest payment date to the person in whose name the debt securities, or one or more predecessor securities, are registered at the close of business on the regular record date for the interest.

We will pay principal of and any premium and interest on the debt securities of a particular series at the office of the paying agents designated by us, except that unless we otherwise indicate in the applicable prospectus supplement, we will make interest payments by check that we will mail to the holder or by wire transfer to certain holders. Unless we otherwise indicate in any applicable prospectus supplement, we will designate the corporate trust office of the trustee as our sole paying agent for payments with respect to debt securities of each series. We will name in an applicable prospectus supplement any other paying agents that we initially designate for the debt securities of a particular series. We will maintain a paying agent in each place of payment for the debt securities of a particular series.

All money we pay to a paying agent or the trustee for the payment of the principal of or any premium or interest on any debt securities that remains unclaimed at the end of two years after such principal, premium or interest has become due and payable will be repaid to us, and the holder of the debt security thereafter may look only to us for payment thereof.

### **Governing Law**

The indenture and the debt securities will be governed by and construed in accordance with the internal laws of the State of New York, except to the extent that the Trust Indenture Act is applicable.

## DESCRIPTION OF WARRANTS

We may issue warrants for the purchase of common stock, preferred stock or debt securities in one or more series. We may issue warrants independently or together with common stock, preferred stock or debt securities, and the warrants may be attached to or traded separate and apart from these securities. Each series of warrants will be issued under a warrant agreement all as set forth in an applicable prospectus supplement. A copy of the form of warrant agreement, including any form of warrant certificates representing the warrants, reflecting the provisions to be included in the warrant agreements and/or warrant certificates that will be entered into with respect to particular offerings of warrants, will be filed as an exhibit to a Current Report on Form 8-K to be incorporated into the registration statement of which this prospectus constitutes a part prior to the issuance of any warrants.

### General

We may issue warrants for the purchase of our common stock, preferred stock or debt securities. We may issue warrants independently or together with any of our securities. Warrants also may be attached to other securities that we may issue. We may issue warrants in different series under separate warrant agreements or under a single warrant agreement between us and a specified warrant agent described in an applicable prospectus supplement. The warrant agent will act solely as our agent in connection with the warrants and will not assume any obligation or relationship of agency or trust for or with any holders or beneficial owners of warrants.

As of the date of this prospectus, we have warrants to purchase 9,394,862 shares of common stock at a weighted average exercise price of \$4.55 per share issued and outstanding that are not registered under the registration statement of which this prospectus is a part.

An applicable prospectus supplement will describe the specific terms of any warrants that we issue or offer, including:

- the title of the warrants;
- the aggregate number of warrants;
- the price or prices at which the warrants will be issued;
- the currencies in which the price or prices of the warrants may be payable;
- the designation, amount and terms of our capital stock or debt securities purchasable upon exercise of the warrants;
- the designation and terms of our other securities, if any, that may be issued in connection with the warrants, and the number of warrants issued with each corresponding security;
- if applicable, the date that the warrants and the securities purchasable upon exercise of the warrants will be separately transferable;
- the prices and currencies for which the securities purchasable upon exercise of the warrants may be purchased;
- the date that the warrants may first be exercised;
- the date that the warrants expire;
- the minimum or maximum amount of warrants that may be exercised at any one time;
- the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreements and the warrants;
- the terms of any rights to redeem or call the warrants;
- any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;
- information with respect to book-entry procedures, if any;
- the manner in which the warrant agreements and warrants may be modified;
- a discussion of certain federal income tax considerations; and

- any other material terms of the warrants, including terms, procedures and limitations relating to the exchange and exercise of the warrants.

## **Exercise of Warrants**

Each warrant will entitle the holder to purchase for cash the principal amount of debt securities, preferred stock or common stock at the applicable exercise price set forth in, or determined as described in, the applicable prospectus supplement. Warrants may be exercised at any time up to the close of business on the expiration date set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

Warrants may be exercised by delivering to the corporation trust office of the warrant agent or any other officer indicated in the applicable prospectus supplement (a) the warrant certificate properly completed and duly executed and (b) payment of the amount due upon exercise. As soon as practicable following exercise, we will forward the debt securities, preferred stock or common stock purchasable upon exercise. If less than all of the warrants represented by a warrant certificate are exercised, a new warrant certificate will be issued for the remaining warrants if the expiration date of the warrants has not occurred. If we so indicate in the applicable prospectus supplement, holders of the warrants may surrender securities as all or part of the exercise price for warrants. We may, but we will not be required to, permit the exercise of warrants through the delivery of a notice of guaranteed delivery from a bank, a trust company, or a New York Stock Exchange member guaranteeing delivery of (1) payment of the exercise price for the securities for which the warrant is being exercised, and (2) a properly completed and executed warrant certificate. The notice of guaranteed delivery must be received by the warrant agent before the expiration of the warrants, and the warrant agent will not honor a notice of guaranteed delivery unless a properly completed and executed warrant certificate and full payment for the securities being purchased are received by the warrant agent by the close of business on the third business day after the expiration time of the warrants.

## **Governing Law**

Unless we provide otherwise in an applicable prospectus supplement, the warrants and warrant agreements, and any claim, controversy or dispute arising under or related to the warrants or warrant agreements, will be governed by and construed in accordance with the laws of the State of New York.

## **Enforceability of Rights by Holders of Warrants**

Each warrant agent, if any, will act solely as our agent under the applicable warrant agreement and will not assume any obligation or relationship of agency or trust with any holder of any warrant. A single bank or trust company may act as warrant agent for more than one issue of warrants. A warrant agent will have no duty or responsibility in case of any default by us under the applicable warrant agreement or warrant, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a warrant may, without the consent of the related warrant agent or the holder of any other warrant, enforce by appropriate legal action its right to exercise, and receive the securities purchasable upon exercise of, its warrants.

## DESCRIPTION OF RIGHTS

We may issue rights to purchase shares of our common stock, preferred stock, or warrants in one or more series. Rights may be issued independently or together with any other offered security and may or may not be transferable by the person purchasing or receiving the subscription rights. In connection with any rights offering to our shareholders, we may enter into a standby underwriting arrangement with one or more underwriters pursuant to which the underwriters will purchase any of the offered securities remaining unsubscribed after the expiration of the rights offering. In connection with a rights offering to our shareholders, we will distribute certificates evidencing the rights and an applicable prospectus supplement to our shareholders on the record date that we set for receiving rights in the rights offering. An applicable prospectus supplement will describe the following terms of rights in respect of which this prospectus is being delivered:

- the title of the rights;
- the securities for which the rights are exercisable;
- the exercise price for the rights;
- the date of determining the security holders entitled to the rights distribution;
- the number of the rights issued to each security holder;
- the extent to which the rights are transferable;
- if applicable, a discussion of the material United States federal income tax considerations applicable to the issuance or exercise of the rights;
- the date on which the right to exercise the rights shall commence, and the date on which the rights shall expire (subject to any extension);
- the conditions to completion of the rights offering;
- any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the rights;
- the extent to which the rights include an over-subscription privilege with respect to unsubscribed securities;
- if applicable, the material terms of any standby underwriting or other purchase arrangement that we may enter into in connection with the rights offering; and
- any other terms of the rights, including terms, procedures and limitations relating to the exchange and exercise of the rights.

Each right will entitle the holder to purchase for cash the amount of securities, at the exercise price. Rights may be exercised at any time up to the close of business on the expiration date of the rights. After the close of business on the expiration date, all unexercised rights will become void. The manner in which rights may be exercised will be described in an applicable prospectus supplement. We may, but we will not be required to, permit the exercise of rights through the delivery of a notice of guaranteed delivery from a bank, a trust company, or a New York Stock Exchange member guaranteeing delivery of (1) payment of the exercise price for the securities for which the rights are being exercised, and (2) a properly completed and executed rights certificate. The notice of guaranteed delivery must be received by the rights agent before the expiration of the rights, and the rights agent will not honor a notice of guaranteed delivery unless a properly completed and executed rights certificate and full payment for the securities being purchased are received by the rights agent by the close of business on the third business day after the expiration time of the rights. Upon receipt of payment and the proper completion and due execution of the rights certificate at the designated office of the rights agent or any other office indicated in an applicable prospectus supplement, we or the transfer agent will forward, as soon as practicable, the securities purchased through upon the exercise of the rights. We may determine to offer any unsubscribed offered securities directly to persons other than shareholders, to or through agents, underwriters or dealers or through a combination of the methods, including pursuant to standby underwriting arrangements, as set forth in an applicable prospectus supplement.

## DESCRIPTION OF UNITS

The following description, together with the additional information we may include in any applicable prospectus supplement, summarizes the material terms and provisions of the units that we may offer under this prospectus. While the terms we have summarized below will apply generally to any units that we may offer under this prospectus, we will describe the particular terms of any series of units in more detail in an applicable prospectus supplement. The terms of any units offered under an applicable prospectus supplement may differ from the terms described below. However, no prospectus supplement will fundamentally change the terms that are set forth in this prospectus or offer a security that is not registered and described in this prospectus at the time of its effectiveness.

We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the form of unit agreement that describes the terms of the series of units we are offering, and any supplemental agreements, before the issuance of the related series of units. The following summaries of material terms and provisions of the units are subject to, and qualified in their entirety by reference to, all the provisions of the unit agreement and any supplemental agreements applicable to a particular series of units. We urge you to read the applicable prospectus supplements related to the particular series of units that we sell under this prospectus, as well as the complete unit agreement and any supplemental agreements that contain the terms of the units.

### General

We may issue units comprised of one or more debt securities, common stock, preferred stock, warrants and/or units in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date.

We will describe in an applicable prospectus supplement the terms of the series of units, including:

- the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- any provisions of the governing unit agreement that differ from those described below; and
- any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units.

The provisions described in this section, as well as those described under “Description of Capital Stock,” “Description of Debt Securities,” “Description of Warrants,” and “Description of Rights” will apply to each unit and to any common stock, preferred stock, debt security, warrant or right included in each unit, respectively.

### Issuance in Series

We may issue units in the amounts and in numerous distinct series as we determine.

### Enforceability of Rights by Holders of Units

Each unit agent will act solely as our agent under the applicable unit agreement and will not assume any obligation or relationship of agency or trust with any holder of any unit. A single bank or trust company may act as unit agent for more than one series of units. A unit agent will have no duty or responsibility in case of any default by us under the applicable unit agreement or unit, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a unit may, without the consent of the related unit agent or the holder of any other unit, enforce by appropriate legal action its rights as holder under any security included in the unit.

### Title

We, the unit agent and any of their agents may treat the registered holder of any unit certificate as an absolute owner of the units evidenced by that certificate for any purposes and as the person entitled to exercise the rights attaching to the units, despite any notice to the contrary.

## PLAN OF DISTRIBUTION

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

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

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

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

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

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

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

- the name or names of the underwriters, if any;
- the purchase price of the securities or other consideration therefor, and the proceeds, if any, we will receive from the sale;
- any over-allotment options under which underwriters may purchase additional securities from us;
- any agency fees or underwriting discounts and other items constituting agents' or underwriters' compensation;
- any public offering price;
- any discounts or concessions allowed or reallocated or paid to dealers; and
- any securities exchange or market on which the securities may be listed.

### **Sales Through Underwriters or Dealers**

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

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

In compliance with guidelines of the Financial Industry Regulatory Authority, Inc., or FINRA, the consideration or discount to be received by any FINRA member or independent broker dealer may not exceed eight percent of the aggregate amount of the securities offered pursuant to this prospectus and any applicable prospectus supplement.

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

### **Sales Through Dealers**

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

### **Direct Sales**

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

### **Sales Through Agents**

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

### **Delayed Delivery Contracts**

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

### **Market Making, Stabilization and Other Transactions**

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

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

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

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

### **Derivative Transactions and Hedging**

We, the underwriters or other agents may engage in derivative transactions involving the securities. These derivatives may consist of short sales for hedging purposes and any other hedging activities. The underwriters or agents may acquire a long or short position in the securities, hold or resell securities acquired and purchase options or futures on the securities and other derivative instruments with returns linked to or related to changes in the price of the securities. In order to facilitate these derivative transactions, we may enter into security lending or repurchase agreements with the underwriters or agents. The underwriters or agents may effect the derivative transactions through sales of the securities to the public, including short sales, or by lending the securities in order to facilitate short sale transactions by others.

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

### **Electronic Auctions**

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

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

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

### **General Information**

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

## LEGAL MATTERS

The validity of the securities offered by this prospectus and any applicable prospectus supplement thereto will be passed upon for us by K&L Gates LLP, Irvine, California. Additional legal matters may be passed upon for us or any underwriters, dealers or agents, by counsel that we name in the applicable prospectus supplement.

## EXPERTS

OUM & Co. LLP, our independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2016, and the effectiveness of our internal control over financial reporting as of December 31, 2016, as set forth in their reports, which are incorporated by reference in this prospectus and elsewhere in the registration statement. Our consolidated financial statements are incorporated by reference in reliance on OUM & Co. LLP's reports, given on their authority as experts in accounting and auditing.

## WHERE YOU CAN FIND MORE INFORMATION

This prospectus and any accompanying prospectus supplement do not contain all of the information set forth in the registration statement and its exhibits and schedules in accordance with SEC rules and regulations. For further information with respect to us and the securities being offered hereby, you should read the registration statement, including its exhibits and schedules. Statements contained in this prospectus and any accompanying prospectus supplement, including documents that we have incorporated by reference, as to the contents of any contract or other document referred to are not necessarily complete, and, with respect to any contract or other document filed as an exhibit to the registration statement or any other such document, each such statement is qualified in all respects by reference to the corresponding exhibit. You should review the complete document to evaluate these statements. You may obtain copies of the registration statement and its exhibits via the SEC's EDGAR database or our website, or at the offices of the SEC, where they may be examined without charge at the Public Reference Room, at the address listed below, or obtained upon payment of the prescribed fees.

We file annual, quarterly and current reports, proxy statements and other documents with the SEC under the Exchange Act. The SEC maintains a website that contains reports, proxy and information statements and other information regarding issuers, including our company, that file electronically with the SEC. You may obtain documents that we file with the SEC at <http://www.sec.gov> and read and copy them at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549 (information on operation of the Public Reference Room is available by calling the SEC at 1-800-SEC-0330).

We also make these documents available on our website at [www.biotimeinc.com](http://www.biotimeinc.com). Our website and the information contained or connected to our website is not incorporated by reference in this prospectus or any accompanying prospectus supplement, and you should not consider it part of this prospectus or any accompanying prospectus supplement.

## INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to "incorporate by reference" in this prospectus certain of the information we file with the SEC. This means we can disclose important information to you by referring you to another document that has been filed separately with the SEC. The information incorporated by reference is considered to be a part of this prospectus, and information that we file later with the SEC will automatically update and supersede information contained in this prospectus and any accompanying prospectus supplement. We incorporate by reference the documents listed below that we have previously filed with the SEC:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2016, filed with the SEC on March 16, 2017, as amended by our Annual Report on Form 10-K/A, filed with the SEC on March 29, 2017;
- our Current Reports on Form 8-K filed with the SEC on February 9, 2017, February 13, 2017, February 15, 2017, March 28, 2017 and April 4, 2017; and
- the description of our common stock contained in our Registration Statement on Form 8-A (File No. 001-12830) filed with SEC on October 26, 2009, including any amendment or report filed for the purpose of updating such description.

We also incorporate by reference into this prospectus additional documents that we may file with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the completion or termination of the offering of the securities described in this prospectus, including all such documents we may file with the SEC after the date of the initial registration statement and prior to the effectiveness of the registration statement, but excluding any information deemed furnished and not filed with the SEC. Any statements contained in a previously filed document incorporated by reference into this prospectus is deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus, or in a subsequently filed document also incorporated by reference herein, modifies or supersedes that statement. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

You may request, orally or in writing, a copy of any or all of the documents incorporated herein by reference. These documents will be provided to you at no cost by contacting: BioTime, Inc., 1010 Atlantic Avenue, Suite 102, Alameda, California 94501; telephone number: (510) 521-3390. You may also access the documents incorporated by reference in this prospectus through our website at [www.biotimeinc.com](http://www.biotimeinc.com). Except for the specific incorporated documents listed above, no information available on or through our website shall be deemed to be incorporated in this prospectus or the registration statement of which it forms a part.

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

**SUBJECT TO COMPLETION, DATED APRIL 6, 2017**

**PROSPECTUS**



**Up to \$25,000,000  
Common Stock**

We have entered into a Controlled Equity Offering<sup>SM</sup> Sales Agreement, or the Sales Agreement, with Cantor Fitzgerald & Co., or Cantor Fitzgerald, relating to the sale of shares of our common stock, no par value per share, offered by this prospectus. In accordance with the terms of the Sales Agreement, we may offer and sell shares of our common stock having an aggregate offering price of up to \$25,000,000 from time to time through Cantor Fitzgerald, acting as sales agent.

Our common stock is listed on the NYSE MKT and on the Tel Aviv Stock Exchange under the symbol "BTX." On April 4, 2017, the last reported sale price of our common stock on the NYSE MKT was \$3.38 per share.

Sales of our common stock, if any, under this prospectus may be made in sales deemed to be an "at the market offering" as defined in Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended, or the Securities Act. Cantor Fitzgerald will act as sales agent and use commercially reasonable efforts to sell on our behalf all of the shares of common stock requested to be sold by us, consistent with its normal trading and sales practices, on mutually agreed terms between Cantor Fitzgerald and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

Cantor Fitzgerald will be entitled to compensation at a commission rate of 3.0% of the gross proceeds of any shares of common stock sold under the Sales Agreement. In connection with the sale of our common stock on our behalf, Cantor Fitzgerald will be deemed to be an "underwriter" within the meaning of the Securities Act and the compensation of Cantor Fitzgerald will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to Cantor Fitzgerald with respect to certain liabilities, including liabilities under the Securities Act.

**Investing in our common stock involves a high degree of risk. See "Risk Factors" beginning on page S-6 of this prospectus and under similar headings in the other documents that are filed after the date hereof and incorporated by reference into this prospectus.**

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



The date of this prospectus is \_\_\_\_\_, 2017.



## TABLE OF CONTENTS

	Page
<u>Prospectus</u>	
About this Prospectus	S-1
Prospectus Summary	S-2
The Offering	S-5
Risk Factors	S-6
Cautionary Note Regarding Forward-Looking Statements	S-7
Use of Proceeds	S-8
Dilution	S-9
Plan of Distribution	S-10
Legal Matters	S-11
Experts	S-11
Where You Can Find Additional Information	S-11
Incorporation of Certain Information by Reference	S-11

---

**You should rely only on the information contained or incorporated by reference in this prospectus and any free writing prospectuses we may provide to you in connection with this offering. We have not, and Cantor Fitzgerald has not, authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and Cantor Fitzgerald is not, making an offer to sell or seeking an offer to buy our common stock under this prospectus in any jurisdiction where the offer or sale is not permitted. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the securities and the distribution of this prospectus outside the United States. Furthermore, you should not consider this prospectus to be an offer or solicitation relating to the securities if the person making the offer or solicitation is not qualified to do so, or if it is unlawful for you to receive such an offer or solicitation. You should not assume that the information contained in this prospectus or any prospectus supplement or free writing prospectus is accurate as of any date other than the date on the front cover of those documents, or that the information contained in any document incorporated by reference is accurate as of any date other than the date of the document incorporated by reference, regardless of the time of delivery of this prospectus or any sale of a security. Our business, financial condition, results of operations and prospects may have changed since those dates.**

---

## ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC, utilizing a “shelf” registration process. Under the shelf registration process, we may offer shares of our common stock having an aggregate offering price of up to \$25,000,000 from time to time under this prospectus at prices and on terms to be determined by market conditions at the time of the offering. In connection with such offers and when accompanied by the base prospectus included in the registration statement of which this prospectus forms a part, this prospectus will be deemed a prospectus supplement to such base prospectus.

Before making an investment decision, it is important for you to read and consider the information contained in this prospectus and the base prospectus, together with the additional information described under the heading “Where You Can Find More Information” and “Incorporation of Certain Information by Reference” below.

We provide information to you about this offering of shares of our common stock in two separate documents that are bound together: (1) this sales agreement prospectus, which describes the specific details regarding this offering; and (2) the accompanying base prospectus, which provides general information, some of which may not apply to this offering. Generally, when we refer to this “prospectus,” we are referring to both documents combined. If information in this sales agreement prospectus is inconsistent with the accompanying base prospectus, you should rely on this prospectus. To the extent there is a conflict between the information contained in this prospectus on the one hand, and the information contained in any document incorporated by reference in this prospectus, on the other hand, you should rely on the information in this prospectus. If any statement in one of these documents is inconsistent with a statement in another document having a later date, for example, a document incorporated by reference in this prospectus, the statement in the document having the later date modifies or supersedes the earlier statement as our business, financial condition, results of operations and prospects may have changed since the earlier dates.

We use various trademarks and trade names in our business, including without limitation our corporate name and logo. All other trademarks or trade names referred to in this prospectus are the property of their respective owners. Solely for convenience, the trademarks and trade names in this prospectus may be referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto.

*Unless the context otherwise requires, all references in this prospectus to “BioTime, Inc.” “BioTime,” the “Company,” “Registrant,” “we,” “us,” “our” and similar designations refer, collectively, to BioTime, Inc., a California corporation, and its consolidated subsidiaries.*

## PROSPECTUS SUMMARY

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

### **Business Overview**

We are a clinical-stage biotechnology company focused on developing and commercializing products addressing degenerative diseases. Our clinical programs are based on two platform technologies: pluripotent stem cells and cell and drug delivery platform technologies. The foundation of our core therapeutic technology platform is pluripotent cells that are capable of becoming any of the cell types in the human body. The foundation of our cell delivery platform is our *HyStem*® cell and drug delivery matrix technology. Our current clinical programs are targeting three primary sectors: aesthetics, ophthalmology and cell and drug delivery.

We also have significant equity holdings in two publicly traded companies, Asterias Biotherapeutics, Inc., or Asterias, and OncoCyte Corporation, or OncoCyte, which we founded and which, until recently, were our majority-owned consolidated subsidiaries. Asterias (NYSE MKT: AST) is presently focused on advancing three clinical-stage programs that have the potential to address areas of very high unmet medical need in the fields of neurology (spinal cord injury) and oncology (Acute Myeloid Leukemia, or AML, and lung cancer). OncoCyte (NYSE MKT: OCX) is developing confirmatory diagnostic tests for lung cancer, breast cancer, and bladder cancer utilizing novel liquid biopsy technology. The combined market value of our holdings in Asterias and OncoCyte was about \$161 million as of March 31, 2017.

We are also enabling early-stage programs in new technologies through our own research programs as well as through our subsidiaries and affiliates. These technologies have the potential to improve the treatment of diseases associated with aging, including diseases such as diabetes, and cardiovascular and metabolic disorders that affect large numbers of people. We are also researching other novel technologies that may help the body regenerate certain types of degenerated cells and tissues.

Together with our subsidiaries and affiliates, we currently have seven product candidates in human clinical trials, one of which is in a late-stage, pivotal study in Europe, one cancer diagnostic that is expected to be commercially launched in the U.S. during the second half of 2017 and several early-stage programs that may help address some of the biggest unmet medical needs faced by our aging population.

In addition, we have obtained a collection of pluripotent stem cell assets and a proprietary therapeutic delivery platform with many potential uses. Pluripotent stem cells are capable of becoming any of the cell types in the human body. Cell types derived from pluripotent stem cells have potential applications in many areas of medicine with large unmet patient needs, including various tissue injuries and age-related degenerative diseases and degenerative conditions for which there presently are no cures. Unlike pharmaceuticals which almost always require a molecular target, cell therapy strategies use cell types derived from pluripotent stem cells to regenerate, replace or augment affected cells and tissues, and therefore may have broader applicability and impact than traditional pharmaceutical products. Our pluripotent stem cell technology is complemented by our *HyStem*® technology, which includes a family of unique, biocompatible resorbable hydrogels to deliver bioactive compositions for therapeutic benefit. *HyStem*® was designed to enable the effective transfer, engraftment and metabolic support for cells, whether derived from pluripotent stem cells or from a patient’s own somatic or adult stem cells. The flexibility of the *HyStem*® technology also allows for direct therapeutic use and the sustained delivery of therapeutics.

Our near term therapeutic focus is in three core areas of aesthetics, ophthalmology, and cell and drug delivery. In addition, we, through our subsidiaries and affiliates, also focus on therapeutic products in neurology and oncology and liquid biopsies for diagnosis of cancer.

### *Facial Aesthetics*

*Renovia*®, our lead facial aesthetics product, is a potential treatment for facial lipoatrophy. “Lipoatrophy” is another word for “fat loss or deficiency.” It is currently in a pivotal clinical trial in Europe to assess its safety and efficacy in restoring normal skin contours in patients whose subcutaneous fat, or adipose tissue, has been lost due to the use of certain drugs often used to treat patients with HIV. While this pivotal trial, if successful, is expected to enable a filing for marketing authorization in the European Union, we see this trial as supportive of U.S. development of *Renovia*®, for a much larger market opportunity, for treating additional forms of facial volume restorations, whether from drugs, trauma or aging. *Renovia*® consists of our cell-transplantation delivery matrix (*HyStem*®) combined with the patient’s own adipose progenitor cells. Developed as an alternative for traditional fat transfer procedures, *Renovia*® is designed to mimic the naturally-occurring extracellular matrix and provide a 3-D scaffold that enables effective cell transplant, engraftment and proliferation. *Renovia*®, is being developed with the goal of providing a natural, long-lasting improvement to the patient’s skin contouring.

## Ophthalmology

*OpRegen*® is our lead product for ophthalmological disorders. It is a suspension of retinal pigment epithelial, or RPE, cells that are derived from pluripotent stem cells. RPE cells form the back lining of the retina, and support the function of photoreceptors (rods and cones). RPE cells can be damaged and lost in various forms of retinal degeneration. The *OpRegen*® therapeutic approach is to replace damaged or lost RPE cells and possibly slow disease progression and/or preserve or restore visual function. It is currently in a Phase I/IIa clinical trial for the treatment of the dry form of age-related macular degeneration, or AMD. AMD affects approximately 1.6 million newly diagnosed people annually in the U.S. and is the leading cause of blindness in people over the age of 60. Approximately 90 percent of AMD patients suffer from the dry form, for which the U.S. Food and Drug Administration, or FDA, has not approved any therapies.

In February 2017, we expanded our ophthalmology portfolio through the acquisition of exclusive global rights to technology from University of Pittsburgh through the execution of an exclusive license agreement. This technology allows the generation of three-dimensional laminated human retinal tissue derived from human pluripotent stem cells. This tissue contains all the cell types and layers of the human retina and has shown evidence of functional integration in proof of concept animal models for advanced retinal degeneration. The technology is being developed for implantation in patients to potentially treat or prevent a variety of retinal degenerative diseases.

## Cell and Drug Delivery

In addition to *Renevia*®, we have two additional primary programs utilizing our proprietary *HyStem*® technology. *HyStem*®-BDNF is a preclinical development program for the delivery of recombinant human brain-derived neurotrophic factor, or BDNF, directly into the stroke cavity of patients with the goal of aiding in tissue repair and functional recovery. *ReGlyde*™ is in preclinical development as a device for viscosupplementation and a combination product for drug delivery in osteoarthritis, or OA. The viscosupplementation device program aims to administer *ReGlyde*™ directly into affected OA joints provide joint lubrication to reduce pain and improve quality of life. The drug delivery programs seek to enable the sustained release of therapeutics in affected OA joints to slow or reverse disease progression, in addition to improving pain and joint function. Also, included in our delivery platform is *Premvia*™, which is a *HyStem*® hydrogel formulation for the management of wounds including partial and full-thickness wounds, ulcers, tunneled/undermined wounds, surgical wounds, and burns. *Premvia*™ was cleared by the FDA via a 510(k) device approval pathway.

In addition to these programs, we are developing *HyStem*® product enhancements. Current efforts are focused on the development of a frozen liquid product format, which, if successful, will make significant improvements in end-user convenience.

## Therapeutic Products in Neurology and Oncology

Asterias is presently focused on advancing three clinical-stage programs, which have the potential to address areas of very high unmet medical need in the fields of neurology and oncology. Asterias' lead products are:

- AST-OPC1, a therapy derived from pluripotent stem cells that is currently in a Phase I/IIa clinical trial for spinal cord injuries, with positive early efficacy data reported in September 2016;
- AST-VAC1, a patient-specific cancer immunotherapy with promising Phase II clinical trial data in AML; and
- AST-VAC2, a non-patient specific cancer immunotherapy for which the initiation of a Phase I/IIa clinical trial in non-small cell lung cancer is planned for the first half of 2017.

*Liquid Biopsies for Diagnosis of Cancer*

OncoCyte is developing confirmatory diagnostic tests for lung cancer, breast cancer, and bladder cancer utilizing novel liquid biopsy technology. While current biopsy tests use invasive surgical procedures to provide tissue samples to determine if a tumor is benign or malignant, OncoCyte is developing a next generation of diagnostic tests that will be based on liquid biopsies using blood or urine samples. OncoCyte recently conducted a 300-patient study of its lung cancer test. On March 6, 2017, OncoCyte announced the successful completion of the study.

**Our Subsidiaries and Our Affiliates**

The following table shows our subsidiaries and affiliates, their respective principal fields of business, our percentage ownership, directly and through subsidiaries, as of December 31, 2016, and the country where their principal business is located:

<b>Subsidiaries and Affiliates</b>	<b>Field of Business</b>	<b>BioTime Ownership</b>	<b>Country</b>
Cell Cure Neurosciences Ltd.	Products to treat age-related macular degeneration	62.5%(1)	Israel
ES Cell International Pte. Ltd.	Stem cell products for research, including clinical grade cell lines produced under cGMP	100%	Singapore
LifeMap Sciences, Inc.	Biomedical, gene, disease, and stem cell databases and tools	77.9%	USA
OncoCyte Corporation(2)	Cancer diagnostics	51.1%	USA
OrthoCyte Corporation	Developing bone grafting products for orthopedic diseases and injuries		USA
ReCyte Therapeutics, Inc.	Research and development involved in stem cell-derived endothelial and cardiovascular related progenitor cells for the treatment of vascular disorders, ischemic conditions and brown adipocytes for type-2 diabetes and obesity	94.8%	USA
Asterias Biotherapeutics, Inc.(3)	Therapeutic products derived from pluripotent stem cells, and immunotherapy products. Clinical programs include: AST-OPC1 for spinal cord injury, AST-VAC1 for acute myelogenous leukemia, and AST-VAC2 for non-small cell lung cancer	46%	USA

(1) Includes shares owned by us and ES Cell International Pte. Ltd. Does not include shares that would be owned by us, if we were to convert certain convertible debt into Cell Cure Neurosciences Ltd. ordinary shares.

(2) As of February 17, 2017, we deconsolidated OncoCyte and OncoCyte is no longer a subsidiary of ours as of that date, but remains an affiliate and significant investee of our company.

(3) Since the deconsolidation of Asterias in May 2016, Asterias is an affiliate and significant investee of our company.

We presently own, directly and through our subsidiary ES Cell International Pte. Ltd., approximately 62.5% of the outstanding ordinary shares of Cell Cure Neurosciences Ltd., or Cell Cure. We also hold certain Cell Cure convertible promissory notes that entitle us to acquire additional Cell Cure ordinary shares by converting those notes into ordinary shares. If we were to convert the convertible promissory notes into Cell Cure ordinary shares, and if no other ordinary shares are issued to third parties, our percentage ownership of Cell Cure would increase to 82.3%, based on the number of ordinary shares outstanding on February 28, 2017. In addition, as of March 9, 2017, we owned 77.9% of the common stock outstanding of LifeMap Sciences, Inc.

We will continue to work on simplifying our corporate, financial and organizational structure to allow us to execute our objectives more efficiently, while also making it much easier for investors, and other external stakeholders, to better understand our company. Our purpose is to deliver therapies for significant unmet, or under-met, needs to patients, while creating value for our investors. We believe that we have several valuable assets within our company, our subsidiaries and our affiliates.

**Company Information**

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

## THE OFFERING

Common stock offered by us	Shares of our common stock having an aggregate offering price of up to \$25,000,000.
Common stock to be outstanding after this offering	Up to 110,172,988 shares (as more fully described in the notes following this table), assuming sales of 7,396,449 shares of our common stock in this offering at an offering price of \$3.38 per share, which was the last reported sale price of our common stock on the NYSE MKT on April 4, 2017. The actual number of shares issued will vary depending on the sales price under this offering.
Plan of Distribution	“At the market offering” that may be made from time to time through our sales agent, Cantor Fitzgerald & Co. See “Plan of Distribution” on page S-10 of this prospectus.
Use of Proceeds	We intend to use the net proceeds from this offering for general corporate purposes, including, without limitation, to fund clinical trials, research and development activities and for general working capital. See “Use of Proceeds” on page S-8 of this prospectus.
Risk Factors	See “Risk Factors” beginning on page S-6 of this prospectus and in the documents incorporated by reference herein for a discussion of factors you should consider carefully before investing in our common stock.
NYSE MKT symbol	“BTX”

Unless we indicate otherwise, all information in this prospectus is based on 102,776,539 shares of common stock outstanding as of December 31, 2016 and excludes as of that date:

- warrants to purchase 9,394,862 shares of common stock at a weighted average exercise price of \$4.55 per share;
- options under our 2002 Stock Option Plan, or the 2002 Plan, and our 2012 Equity Incentive Plan, or the 2012 Plan, to purchase 6,958,458 shares of our common stock, with a weighted average exercise price of \$3.60 per share;
- 100,000 restricted stock units issued to certain executives under our 2012 Plan; and
- 2,894,000 shares of common stock available for issuance under our 2002 Plan and our 2012 Plan.

## RISK FACTORS

*An investment in our common stock involves a high degree of risk. Prior to making a decision about investing in our common stock, you should carefully consider the risk factors described below and the risk factors discussed in the sections entitled “Risk Factors” contained in our most recent Annual Report on Form 10-K, subsequent Quarterly Reports on Form 10-Q and our other filings with the SEC and incorporated by reference in this prospectus and the accompanying base prospectus, together with all of the other information contained in this prospectus and the accompanying base prospectus. Additional risks and uncertainties not presently known to us, or that we currently view as immaterial, may also impair our business. If any of these risks actually occur, our business, financial condition and results of operations could be materially and adversely affected. This could cause the trading price of our common stock to decline, resulting in a loss of all or part of your investment.*

### **Risks Related to this Offering**

***We have broad discretion in the use of the net proceeds of this offering and, despite our efforts, we may use the net proceeds in a manner that does not increase the value of your investment.***

We currently intend to use the net proceeds from this offering for general corporate purposes, including, without limitation, to fund clinical trials, research and development activities and for general working capital. However, we have not determined the specific allocation of the net proceeds among these potential uses. Our management will have broad discretion over the use and investment of the net proceeds of this offering, and, accordingly, investors in this offering will need to rely upon the judgment of our management with respect to the use of proceeds, with only limited information concerning our specific intentions. These proceeds could be applied in ways that do not improve our operating results or increase the value of your investment. Please see the section entitled “Use of Proceeds” on page S-8 of this prospectus for further information.

***You may experience immediate and substantial dilution in the net tangible book value per share of the common stock you purchase in the offering.***

The offering price per share in this offering may exceed the pro forma net tangible book value per share of our common stock outstanding prior to this offering. Assuming that an aggregate of 7,396,449 shares of our common stock are sold at a price of \$3.38 per share, the last reported sale price of our common stock on the NYSE MKT on April 4, 2017, for aggregate gross proceeds of approximately \$25,000,000, and after deducting commissions and estimated aggregate offering expenses payable by us, you will experience immediate dilution of \$2.07 per share, representing the difference between our pro forma as adjusted net tangible book value per share as of December 31, 2016 after giving effect to this offering and the assumed offering price. The exercise of outstanding stock options or warrants could result in further dilution of your investment. Please see the section entitled “Dilution” on page S-9 of this prospectus for a more detailed illustration of the dilution you would incur if you participate in this offering.

***You may experience future dilution as a result of future equity offerings.***

In order to raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the price per share in this offering. We may sell shares or other securities in any other offering at a price per share that is less than the price per share paid by any investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by any investors in this offering.

***We do not intend to pay dividends in the foreseeable future.***

We have never paid cash dividends on our common stock. We currently intend to retain our future earnings, if any, to finance the operation and growth of our business and currently do not plan to pay any cash dividends in the foreseeable future. As a result, only appreciation of the price of our common stock will provide a return to our shareholders for the foreseeable future.

***Sales of a significant number of shares of our common stock in the public markets, or the perception that such sales could occur, could depress the market price of our common stock.***

Sales of a substantial number of shares of our common stock in the public markets, or the perception that such sales could occur, could depress the market price of our common stock and impair our ability to raise capital through the sale of additional equity securities.

## CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

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

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

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

## USE OF PROCEEDS

We may issue and sell shares of our common stock having aggregate sales proceeds of up to \$25,000,000 from time to time. Because there is no minimum offering amount required as a condition to close this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time.

We will retain broad discretion over the use of the net proceeds from the sale of the securities offered hereby. We currently intend to use the net proceeds from this offering primarily for general corporate purposes, including, without limitation, to fund clinical trials of products we are developing, to finance our research and develop programs, and for general working capital. The precise amount and timing of the application of such proceeds will depend upon our funding requirements and the availability and cost of other capital. As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds that we will have from the sale of the shares of our common stock.

## DILUTION

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

Our historical net tangible book value at December 31, 2016 was \$120.3 million or approximately \$1.17 per share of our common stock. After giving effect to the sale of our common stock in the aggregate amount of \$25.0 million in this offering at an assumed offering price of \$3.38 per share, the last reported sale price of our common stock on the NYSE MKT on April 4, 2017, and after deducting estimated offering expenses and commissions payable by us, our adjusted net tangible book value as of December 31, 2016 would have been approximately \$144.4 million, or approximately \$1.31 per share of our common stock. This represents an immediate increase in the net tangible book value of \$0.14 per share of our common stock to our existing shareholders and an immediate dilution in net tangible book value of approximately \$2.07 per share of our common stock to new investors. The following table illustrates per share dilution:

Assumed public offering price per share	\$	3.38
Net tangible book value per share as of December 31, 2016	\$	1.17
Increase in net tangible book value per share attributable to this offering	\$	0.14
Adjusted net tangible book value per share as of December 31, 2016, after giving effect to this offering	\$	1.31
Dilution per share to new investors purchasing shares in this offering	\$	2.07

The table above assumes for illustrative purposes that an aggregate of 7,396,449 shares of our common stock are sold at a price of \$3.38 per share, the last reported sale price of our common stock on the NYSE MKT on April 4, 2017, for aggregate gross proceeds of \$25.0 million. The shares sold in this offering, if any, will be sold from time to time at various prices. An increase of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$3.38 per share shown in the table above, assuming all of our common stock in the aggregate amount of \$25.0 million is sold at that price, would increase our adjusted net tangible book value per share after the offering to \$1.33 per share and would increase the dilution in net tangible book value per share to new investors in this offering to \$3.05 per share, after deducting estimated offering expenses and commissions payable by us.

A decrease of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$3.38 per share shown in the table above, assuming all of our common stock in the aggregate amount of \$25.0 million is sold at that price, would decrease our adjusted net tangible book value per share after the offering to \$1.27 per share and would decrease the dilution in net tangible book value per share to new investors in this offering to \$1.11 per share, after deducting estimated offering expenses and commissions payable by us. This information is supplied for illustrative purposes only.

The above discussion and table is based on 102,776,539 shares of common stock outstanding as of December 31, 2016 and excludes as of that date:

- warrants to purchase 9,394,862 shares of common stock at a weighted average exercise price of \$4.55 per share;
- options under our 2002 Stock Option Plan, or the 2002 Plan, and our 2012 Equity Incentive Plan, or the 2012 Plan, to purchase 6,958,458 shares of our common stock, with a weighted average exercise price of \$3.60 per share;
- 100,000 restricted stock units issued to certain executives under our 2012 Plan; and
- 2,894,000 shares of common stock available for issuance under our 2002 Plan and our 2012 Plan.

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

## PLAN OF DISTRIBUTION

We have entered into a Controlled Equity Offering<sup>SM</sup> Sales Agreement, or the Sales Agreement, with Cantor Fitzgerald & Co., or Cantor Fitzgerald, under which we may issue and sell shares of our common stock having an aggregate gross sales price of up to \$25,000,000 from time to time through Cantor Fitzgerald acting as sales agent. Sales of the shares of our common stock, if any, may be made on the NYSE MKT at market prices and such other sales as agreed upon by us and Cantor Fitzgerald. The Sales Agreement has been filed as an exhibit to our Registration Statement on Form S-3 of which this prospectus forms a part.

Upon delivery of a placement notice and subject to the terms and conditions of the Sales Agreement, Cantor Fitzgerald may offer and sell shares of our common stock by any method permitted by law deemed to be an “at the market offering” as defined in Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended. We may instruct Cantor Fitzgerald not to sell our common stock if the sales cannot be effected at or above the price designated by us from time to time. We or Cantor Fitzgerald may suspend the offering of our common stock upon notice and subject to other conditions.

We will pay Cantor Fitzgerald commissions, in cash, for its services in acting as agent in the sale of our common stock. Cantor Fitzgerald will be entitled to compensation at a fixed commission rate of 3.0% of the gross proceeds from each sale of our common stock. Because there is no minimum offering amount required as a condition to close this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. We have also agreed, under certain circumstances, to reimburse Cantor Fitzgerald for certain specified expenses, including the fees and expenses of its legal counsel in an amount not to exceed \$50,000. We estimate that the total expenses for the offering, excluding commissions and expense reimbursements payable to Cantor Fitzgerald under the terms of the Sales Agreement, will be approximately \$150,000.

Settlement for sales of shares of our common stock will occur on the third business day following the date on which any sales are made, or on some other date that is agreed upon by us and Cantor Fitzgerald in connection with a particular transaction, in return for payment of the net proceeds to us. Sales of our common stock as contemplated in this prospectus will be settled through the facilities of The Depository Trust Company or by such other means as we and Cantor Fitzgerald may agree upon. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

Cantor Fitzgerald will act as sales agent and use its commercially reasonable efforts, consistent with its normal trading and sales practices and applicable state and federal laws, rules and regulations and the rules of the NYSE MKT, to solicit offers to purchase shares of our common stock under the terms and subject to the conditions set forth in the Sales Agreement. In connection with the sale of our common stock on our behalf, Cantor Fitzgerald will be deemed to be an “underwriter” within the meaning of the Securities Act and the compensation of Cantor Fitzgerald will be deemed to be underwriting commissions or discounts. We have agreed to provide indemnification and contribution to Cantor Fitzgerald against certain civil liabilities, including liabilities under the Securities Act.

The offering of our common stock pursuant to the Sales Agreement will terminate upon the termination of the Sales Agreement as permitted therein. We and Cantor Fitzgerald may each terminate the Sales Agreement at any time upon ten days’ prior notice.

Cantor and its affiliates may in the future provide various investment banking, commercial banking and other financial services for us and our subsidiaries or affiliates, for which services they may in the future receive customary fees. To the extent required by Regulation M, Cantor Fitzgerald will not engage in any market making activities involving our common stock while the offering is ongoing under this prospectus.

This prospectus in electronic format may be made available on a website maintained by Cantor Fitzgerald and Cantor Fitzgerald may distribute this prospectus electronically.

## LEGAL MATTERS

The validity of the issuance of the common stock offered by this prospectus will be passed upon for us by K&L Gates LLP, Irvine, California. Cantor Fitzgerald & Co. is being represented in connection with this offering by Cooley LLP, New York, New York.

## EXPERTS

OUM & Co. LLP, our independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2016, and the effectiveness of our internal control over financial reporting as of December 31, 2016, as set forth in their reports, which are incorporated by reference in this prospectus and elsewhere in the registration statement. Our consolidated financial statements are incorporated by reference in reliance on OUM & Co. LLP's reports, given on their authority as experts in accounting and auditing.

## WHERE YOU CAN FIND MORE INFORMATION

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

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

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

## INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

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

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

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2016, filed with the SEC on March 16, 2017, as amended by our Annual Report on Form 10-K/A, filed with the SEC on March 29, 2017;
- our Current Reports on Form 8-K filed with the SEC on February 9, 2017, February 13, 2017, February 15, 2017, March 28, 2017 and April 4, 2017; and

- the description of our common stock contained in our Registration Statement on Form 8-A (File No. 001-12830) filed with SEC on October 26, 2009, including any amendment or report filed for the purpose of updating such description.

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

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

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

You should rely only on information contained in, or incorporated by reference into, this prospectus and the accompanying base prospectus. We have not authorized anyone to provide you with information different from that contained in this prospectus or the accompanying base prospectus, or incorporated by reference in this prospectus or the accompanying base prospectus. We are not making offers to sell the securities in any jurisdiction in which such an offer or solicitation is not authorized or in which the person making such offer or solicitation is not qualified to do so or to anyone to whom it is unlawful to make such offer or solicitation.



Up to \$25,000,000  
Common Stock

---

PROSPECTUS

---



, 2017

---

**PART II****INFORMATION NOT REQUIRED IN PROSPECTUS****Item 14. Other Expenses of Issuance and Distribution**

Set forth below are estimates (except in the case of the SEC registration fee) of the amount of fees and expenses to be incurred in connection with the issuance and distribution of the offered securities, other than underwriting discounts and commissions.

SEC Registration Fee	\$ 8,692.50
Printing Fees and Expenses	*
Legal Fees and Expenses	*
Accounting Fees and Expenses	*
Transfer Agent's Fees and Expenses	*
Miscellaneous Expenses	*
<b>Total Expenses:</b>	<b>*</b>

\*These fees and expenses depend on the types of securities offered and the number of offerings, and accordingly cannot be estimated at this time.

**Item 15. Indemnification of Directors and Officers**

Section 317 of the California Corporations Code, or the California Code, provides for the indemnification of directors, officers, employees, and other agents of corporations under certain conditions subject to certain limitations. In addition, Section 204(a)(10) of the California Code permits a corporation to provide, in its articles of incorporation, that directors shall not have liability to the corporation or its shareholders for monetary damages for breach of fiduciary duty, subject to certain prescribed exceptions. Our Articles of Incorporation, as amended to date, contains provisions for the indemnification of directors, officers, employees and other agents within the limitations permitted by Section 317 and for the limitation on the personal liability of directors permitted by Section 204(b)(10), subject to the exceptions required thereby.

Insofar as indemnification for liabilities arising under the Securities Act of 1933, as amended, or the Securities Act, may be permitted to directors, officers or persons controlling our company pursuant to the foregoing provisions, we have been informed that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

**Item 16. Exhibits**

The exhibits to this Registration Statement are listed in the Exhibit Index to this Registration Statement, which Exhibit Index is hereby incorporated by reference.

**Item 17. Undertakings**

The undersigned undertakes:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(h) The undersigned registrant hereby undertakes to file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act ("Act") in accordance with the rules and regulations prescribed by the Commission under Section 305(b)(2) of the Act.

**SIGNATURES**

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Alameda, State of California on April 6, 2017.

BIOTIME, INC.

By: /s/ Michael D. West, Ph.D.

Michael D. West, Ph.D.

Co-Chief Executive Officer

**POWER OF ATTORNEY**

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Michael D. West, Ph.D. and Russell Skibsted, and each of them, such person's true and lawful agent, proxy and attorney-in-fact, each acting alone, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to execute any and all amendments (including post-effective amendments) to this Registration Statement (and any other registration statement for the same offering that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933, as amended), and to file the same, together with all exhibits thereto, and other documents in connection therewith, with the U.S. Securities and Exchange Commission, and such other agencies, offices and persons as may be required by applicable law, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises, as fully to all intents and purposes as such person might or could do in person, hereby ratifying and confirming all that each said attorneys-in-fact and agents or any of them, or their or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement on Form S-3 has been signed below by the following persons in the capacities and on the dates indicated:

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Michael D. West, Ph.D.</u> MICHAEL D. WEST, PH.D.	Co-Chief Executive Officer and Director (Principal Executive Officer)	April 6, 2017
<u>/s/ Aditya Mohanty</u> ADITYA MOHANTY	Co-Chief Executive Officer and Director (Principal Executive Officer)	April 6, 2017
<u>/s/ Russell Skibsted</u> RUSSELL SKIBSTED	Chief Financial Officer (Principal Financial and Accounting Officer)	April 6, 2017
<u>/s/ Neal C. Bradsher</u> NEAL C. BRADSHER	Director	April 6, 2017
<u>/s/ Deborah Andrews</u> DEBORAH ANDREWS	Director	April 6, 2017
<u>/s/ Stephen C. Farrell</u> STEPHEN C. FARRELL	Director	April 6, 2017
<u>/s/ Alfred D. Kingsley</u> ALFRED D. KINGSLEY	Director	April 6, 2017
<u>/s/ Michael H. Mulroy</u> MICHAEL H. MULROY	Director	April 6, 2017
<u>/s/ Angus C. Russell</u> ANGUS C. RUSSELL	Director	April 6, 2017
<u>/s/ David Schlachet</u> DAVID SCHLACHET	Director	April 6, 2017

**EXHIBIT INDEX**

<b>Exhibit No.</b>	<b>Description</b>
1.1+	Form of Underwriting Agreement.
<a href="#">1.2*</a>	Controlled Equity Offering <sup>SM</sup> Sales Agreement, dated as of April 6, 2017, between the Registrant and Cantor Fitzgerald & Co.
3.1	Articles of Incorporation of the Registrant, as amended to date, as filed with the Secretary of State of the State of California (incorporated by reference to the Registrant's Quarterly Report on Form 10-Q for the quarter ended June 30, 2016).
3.2	Bylaws of the Registrant, as amended (incorporated by reference to the Registrant's 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).
4.1	Specimen Common Stock Certificate of the Registrant (incorporated by reference to the Registrant's 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).
4.2+	Form of Preferred Stock Certificate of the Registrant.
4.3+	Form of Certificate of Designation of Preferred Stock of the Registrant.
<a href="#">4.4*</a>	Form of Indenture.
4.5+	Form of Debt Security.
4.6+	Form of Warrant Agreement, including form of Warrant Certificate.
4.7+	Form of Unit Agreement and Unit Certificate, if any.
4.8+	Form of Right Agreement and Right Certificate, if any.
<a href="#">5.1*</a>	Opinion of K&L Gates LLP, counsel to the Registrant.
<a href="#">5.2*</a>	Opinion of K&L Gates LLP, counsel to the Registrant, relating to the sales agreement prospectus.
<a href="#">12.1*</a>	Statement Regarding Computation of Ratio of Earnings to Fixed Charges and Ratio of Earnings to Combined Fixed Charges and Preferred Stock Dividends.
<a href="#">23.1*</a>	Consent of OUM & Co. LLP, independent registered public accounting firm.
23.2*	Consent of K&L Gates LLP (included in Exhibit 5.1).
23.3*	Consent of K&L Gates LLP (included in Exhibit 5.2).
24.1*	Powers of Attorney (included on the signature pages to this Registration Statement).
25.1**	Form T-1 Statement of Eligibility of Trustee under the Trust Indenture Act of 1939, as amended.
+	To be filed by amendment or pursuant to a report to be filed pursuant to Section 13 or 15(d) of the Exchange Act, if applicable, and incorporated herein by reference.
*	Filed herewith.
**	To be filed pursuant to Section 305(b)(2) of the Trust Indenture Act of 1939, as amended.

---

**BIOTIME, INC.**  
Shares of Common Stock  
(no par value per share)

**Controlled Equity Offering<sup>SM</sup>**

**Sales Agreement**

April 6, 2017

Cantor Fitzgerald & Co.  
499 Park Avenue  
New York, NY 10022

Ladies and Gentlemen:

BioTime, Inc., a California corporation (the "**Company**"), confirms its agreement (this "**Agreement**") with Cantor Fitzgerald & Co. (the "**Agent**"), as follows:

1. **Issuance and Sale of Shares.** The Company agrees that, from time to time during the term of this Agreement, on the terms and subject to the conditions set forth herein, it may issue and sell through the Agent, shares of common stock (the "**Placement Shares**") of the Company, no par value per share (the "**Common Stock**"); *provided, however*, that in no event shall the Company issue or sell through the Agent such number or dollar amount of Placement Shares that would exceed the (a) number or dollar amount of shares of Common Stock registered on the effective Registration Statement (defined below) pursuant to which the offering is being made, (b) number of authorized but unissued shares of Common Stock (less shares of Common Stock issuable upon exercise, conversion or exchange of any outstanding securities of the Company or otherwise reserved from the Company's authorized capital stock), (c) number or dollar amount of shares of Common Stock permitted to be sold under Form S-3 (including General Instruction I.B.6 thereof, if applicable) or (d) number or dollar amount of shares of Common Stock for which the Company has filed a Prospectus Supplement (defined below) (the lesser of (a), (b), (c) and (d), the "**Maximum Amount**"). Notwithstanding anything to the contrary contained herein, the parties hereto agree that compliance with the limitations set forth in this **Section 1** on the amount of Placement Shares issued and sold under this Agreement shall be the sole responsibility of the Company and that the Agent shall have no obligation in connection with such compliance. The offer and sale of Placement Shares through the Agent will be effected pursuant to the Registration Statement (as defined below) filed by the Company and which will be declared effective by the Securities and Exchange Commission (the "**Commission**"), although nothing in this Agreement shall be construed as requiring the Company to use the Registration Statement to issue Common Stock.

The Company has filed or will file, in accordance with the provisions of the Securities Act of 1933, as amended (the "**Securities Act**") and the rules and regulations thereunder (the "**Securities Act Regulations**"), with the Commission a registration statement on Form S-3, including a base prospectus, relating to certain securities, including the Placement Shares to be issued from time to time by the Company, and which incorporates by reference documents that the Company has filed or will file in accordance with the provisions of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), and the rules and regulations thereunder. The Company has prepared a prospectus or a prospectus supplement to the base prospectus included as part of the registration statement, which prospectus or prospectus supplement relates to the Placement Shares to be issued from time to time by the Company (the "**Prospectus Supplement**"). The Company will furnish to the Agent, for use by the Agent, copies of the prospectus included as part of such registration statement, as supplemented, by the Prospectus Supplement, relating to the Placement Shares to be issued from time to time by the Company. The Company may file one or more additional registration statements from time to time that will contain a base prospectus and related prospectus or prospectus supplement, if applicable (which shall be a Prospectus Supplement), with respect to the Placement Shares. Except where the context otherwise requires, such registration statement(s), including all documents filed as part thereof or incorporated by reference therein, and including any information contained in a Prospectus (as defined below) subsequently filed with the Commission pursuant to Rule 424(b) under the Securities Act Regulations or deemed to be a part of such registration statement pursuant to Rule 430B of the Securities Act Regulations, is herein called the "**Registration Statement**." The base prospectus or base prospectuses, including all documents incorporated therein by reference, included in the Registration Statement, as it may be supplemented, if necessary, by the Prospectus Supplement, in the form in which such prospectus or prospectuses and/or Prospectus Supplement have most recently been filed by the Company with the Commission pursuant to Rule 424(b) under the Securities Act Regulations, together with the then issued Issuer Free Writing Prospectus(es), is herein called the "**Prospectus**."

---

Any reference herein to the Registration Statement, any Prospectus Supplement, Prospectus or any Issuer Free Writing Prospectus (defined below) shall be deemed to refer to and include the documents, if any, incorporated by reference therein (the “**Incorporated Documents**”), including, unless the context otherwise requires, the documents, if any, filed as exhibits to such Incorporated Documents. Any reference herein to the terms “amend,” “amendment” or “supplement” with respect to the Registration Statement, any Prospectus Supplement, the Prospectus or any Issuer Free Writing Prospectus shall be deemed to refer to and include the filing of any document under the Exchange Act on or after the most-recent effective date of the Registration Statement, or the date of the Prospectus Supplement, Prospectus or such Issuer Free Writing Prospectus, as the case may be, and incorporated therein by reference. For purposes of this Agreement, all references to the Registration Statement, the Prospectus or to any amendment or supplement thereto shall be deemed to include the most recent copy filed with the Commission pursuant to its Electronic Data Gathering Analysis and Retrieval system, or if applicable, the Interactive Data Electronic Application system when used by the Commission (collectively, “**EDGAR**”).

2. **Placements.** Each time that the Company wishes to issue and sell Placement Shares hereunder (each, a “**Placement**”), it will notify the Agent by email notice (or other method mutually agreed to by the parties) of the number of Placement Shares to be issued, the time period during which sales are requested to be made, any limitation on the number of Placement Shares that may be sold in any one day and any minimum price below which sales may not be made (a “**Placement Notice**”), the form of which is attached hereto as Schedule 1. The Placement Notice shall originate from any of the individuals from the Company set forth on Schedule 3 (with a copy to each of the other individuals from the Company listed on such schedule), and shall be addressed to each of the individuals from the Agent set forth on Schedule 3, as such Schedule 3 may be amended from time to time. The Placement Notice shall be effective unless and until (i) the Agent declines to accept the terms contained therein for any reason, in its sole discretion, (ii) the entire amount of the Placement Shares thereunder have been sold, (iii) the Company suspends or terminates the Placement Notice or (iv) this Agreement has been terminated under the provisions of Section 12. The amount of any commission to be paid by the Company to Agent in connection with the sale of the Placement Shares shall be calculated in accordance with the terms set forth in Schedule 2. It is expressly acknowledged and agreed that neither the Company nor the Agent will have any obligation whatsoever with respect to a Placement or any Placement Shares unless and until the Company delivers a Placement Notice to the Agent and the Agent does not decline such Placement Notice pursuant to the terms set forth above, and then only upon the terms specified therein and herein. In the event of a conflict between the terms of this Agreement and the terms of a Placement Notice, the terms of the Placement Notice will control.

3. **Sale of Placement Shares by Agent.** Subject to the provisions of Section 5(a), the Agent, for the period specified in the Placement Notice, will use its commercially reasonable efforts consistent with its normal trading and sales practices and applicable state and federal laws, rules and regulations and the rules of the NYSE MKT (the “**Exchange**”), to sell the Placement Shares up to the amount specified, and otherwise in accordance with the terms of such Placement Notice. The Agent will provide written confirmation to the Company no later than the opening of the Trading Day (as defined below) immediately following the Trading Day on which it has made sales of Placement Shares hereunder setting forth the number of Placement Shares sold on such day, the compensation payable by the Company to the Agent pursuant to Section 2 with respect to such sales, and the Net Proceeds (as defined below) payable to the Company, with an itemization of the deductions made by the Agent (as set forth in Section 5(b)) from the gross proceeds that it receives from such sales. Subject to the terms of the Placement Notice, the Agent may sell Placement Shares by any method permitted by law deemed to be an “at the market offering” as defined in Rule 415(a)(4) of the Securities Act Regulations, including sales made directly on or through the Exchange or any other existing trading market for the Common Stock, in negotiated transactions at market prices prevailing at the time of sale or at prices related to such prevailing market prices and/or any other method permitted by law. “**Trading Day**” means any day on which Common Stock is traded on the Exchange. During the term of this Agreement, the Agent shall not engage in (i) any short sale of any security of the Company, as defined in Regulation SHO, (ii) any sale of any security of the Company that the Agent does not own or any sale which is consummated by the delivery of a security of the Company borrowed by, or for the account of, the Agent or (iii) any market making, bidding, stabilization or other trading activity with regard to the Common Stock or related derivative securities, in each case, if such activity would be prohibited under Regulation M or other anti-manipulation rules under the Securities Act or any other law applicable to the Agent.

4. Suspension of Sales. The Company or the Agent may, upon notice to the other party in writing (including by email correspondence to each of the individuals of the other party set forth on Schedule 3, if receipt of such correspondence is actually acknowledged by any of the individuals to whom the notice is sent, other than via auto-reply) or by telephone (confirmed immediately by verifiable facsimile transmission or email correspondence to each of the individuals of the other party set forth on Schedule 3), suspend any sale of Placement Shares (a “**Suspension**”); *provided, however*, that such Suspension shall not affect or impair any party’s obligations with respect to any Placement Shares sold hereunder prior to the receipt of such notice. While a Suspension is in effect any obligation under Sections 7(l), 7(m), and 7(n) with respect to the delivery of certificates, opinions, or comfort letters to the Agent, shall be waived. Each of the parties agrees that no such notice under this Section 4 shall be effective against any other party unless it is made to one of the individuals named on Schedule 3 hereto, as such Schedule may be amended from time to time.

5. Sale and Delivery to the Agent; Settlement.

(a) Sale of Placement Shares. On the basis of the representations and warranties herein contained and subject to the terms and conditions herein set forth, upon the Agent’s acceptance of the terms of a Placement Notice, and unless the sale of the Placement Shares described therein has been declined, suspended, or otherwise terminated in accordance with the terms of this Agreement, the Agent, for the period specified in the Placement Notice, will use its commercially reasonable efforts consistent with its normal trading and sales practices and applicable law and regulations to sell such Placement Shares up to the amount specified, and otherwise in accordance with the terms of such Placement Notice. The Company acknowledges and agrees that (i) there can be no assurance that the Agent will be successful in selling Placement Shares, (ii) the Agent will incur no liability or obligation to the Company or any other person or entity if it does not sell Placement Shares for any reason other than a failure by the Agent to use its commercially reasonable efforts consistent with its normal trading and sales practices and applicable law and regulations to sell such Placement Shares as required under this Agreement and (iii) the Agent shall be under no obligation to purchase Placement Shares on a principal basis pursuant to this Agreement, except as otherwise agreed by the Agent and the Company.

(b) Settlement of Placement Shares. Unless otherwise specified in the applicable Placement Notice, settlement for sales of Placement Shares will occur on the third (3<sup>rd</sup>) Trading Day (or such earlier day as is industry practice for regular-way trading) following the date on which such sales are made (each, a “**Settlement Date**”). The Agent shall notify the Company of each sale of Placement Shares no later than the opening of the Trading Day immediately following the Trading Day on which it has made sales of Placement Shares hereunder. The amount of proceeds to be delivered to the Company on a Settlement Date against receipt of the Placement Shares sold (the “**Net Proceeds**”) will be equal to the aggregate sales price received by the Agent, after deduction for (i) the Agent’s commission for such sales payable by the Company pursuant to Section 2 hereof, and (ii) any transaction fees imposed by any governmental or self-regulatory organization in respect of such sales.

(c) Delivery of Placement Shares. On or before each Settlement Date, the Company will, or will cause its transfer agent to, electronically transfer the Placement Shares being sold by crediting the Agent’s or its designee’s account (provided the Agent shall have given the Company written notice of such designee at least one Trading Day prior to the Settlement Date) at The Depository Trust Company through its Deposit and Withdrawal at Custodian System or by such other means of delivery as may be mutually agreed upon by the parties hereto which in all cases shall be freely tradable, transferable, registered shares in good deliverable form. On each Settlement Date, the Agent will deliver the related Net Proceeds in same day funds to an account designated by the Company on, or prior to, the Settlement Date. The Company agrees that if the Company, or its transfer agent (if applicable), defaults in its obligation to deliver Placement Shares on a Settlement Date, the Company agrees that in addition to and in no way limiting the rights and obligations set forth in Section 10(a) hereto, it will (i) hold the Agent harmless against any loss, claim, damage, or expense (including reasonable legal fees and expenses), as incurred, arising out of or in connection with such default by the Company or its transfer agent (if applicable) and (ii) pay to the Agent any commission to which it would otherwise have been entitled absent such default.

(d) Denominations; Registration. Certificates for the Placement Shares, if any, shall be in such denominations and registered in such names as the Agent may request in writing at least one full Business Day (as defined below) before the Settlement Date. The certificates for the Placement Shares, if any, will be made available by the Company for examination and packaging by the Agent in The City of New York not later than noon (New York time) on the Business Day prior to the Settlement Date.

(e) Limitations on Offering Size. Under no circumstances shall the Company cause or request the offer or sale of any Placement Shares if, after giving effect to the sale of such Placement Shares, the aggregate gross sales proceeds of Placement Shares sold pursuant to this Agreement would exceed the lesser of (A) together with all sales of Placement Shares under this Agreement, the Maximum Amount and (B) the amount authorized from time to time to be issued and sold under this Agreement by the Company's board of directors, a duly authorized committee thereof or a duly authorized executive committee, and notified to the Agent in writing. Under no circumstances shall the Company cause or request the offer or sale of any Placement Shares pursuant to this Agreement at a price lower than the minimum price authorized from time to time by the Company's board of directors, a duly authorized committee thereof or a duly authorized executive committee. Further, under no circumstances shall the Company cause or permit the aggregate offering amount of Placement Shares sold pursuant to this Agreement to exceed the Maximum Amount, provided the Agent sells the Placement Shares in accordance with the terms of the Placement Notice issued by the Company.

6. Representations and Warranties of the Company. The Company represents and warrants to, and agrees with the Agent that as of the date of this Agreement and as of each Applicable Time (as defined below), unless such representation, warranty or agreement specifies a different time:

(a) Registration Statement and Prospectus. The Company and the transactions contemplated by this Agreement meet the requirements for and comply with the applicable conditions set forth in Form S-3 (including General Instructions I.A and I.B) under the Securities Act. The Registration Statement has been or will be filed with the Commission and will be declared effective by the Commission under the Securities Act prior to the issuance of any Placement Notices by the Company. The Prospectus Supplement will name the Agent as the agent in the section entitled "Plan of Distribution." The Company has not received, and has no notice of, any order of the Commission preventing or suspending the use of the Registration Statement, or threatening or instituting proceedings for that purpose. The Registration Statement and the offer and sale of Placement Shares as contemplated hereby meet the requirements of Rule 415 under the Securities Act and comply in all material respects with said Rule. Any statutes, regulations, contracts or other documents that are required to be described in the Registration Statement or the Prospectus or to be filed as exhibits to the Registration Statement have been so described or filed. Copies of the Registration Statement, the Prospectus, and any such amendments or supplements and all documents incorporated by reference therein that were filed with the Commission on or prior to the date of this Agreement have been delivered, or are available through EDGAR, to the Agent and its counsel. The Company has not distributed and, prior to the later to occur of each Settlement Date and completion of the distribution of the Placement Shares, will not distribute any offering material in connection with the offering or sale of the Placement Shares other than the Registration Statement and the Prospectus and any Issuer Free Writing Prospectus (as defined below) to which the Agent has consented, any such consent not to be unreasonably withheld, conditioned or delayed. The Common Stock is registered pursuant to Section 12(b) of the Exchange Act and is currently listed on the Exchange under the trading symbol "BTX." The Company has taken no action designed to, or likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act, delisting the Common Stock from the Exchange, nor has the Company received any notification that the Commission or the Exchange is contemplating terminating such registration or listing. To the Company's knowledge, it is in compliance with all applicable listing requirements of the Exchange.

(b) No Misstatement or Omission. The Registration Statement, when it became or becomes effective, and the Prospectus, and any amendment or supplement thereto, on the date of such Prospectus or amendment or supplement, conformed and will conform in all material respects with the requirements of the Securities Act. At each Settlement Date, the Registration Statement and the Prospectus, as of such date, will conform in all material respects with the requirements of the Securities Act. The Registration Statement, when it became or becomes effective, did not, and will not, contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. The Prospectus and any amendment and supplement thereto, on the date thereof and at each Applicable Time, did not or will not include an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading. The Incorporated Documents did not, and any further Incorporated Documents will not, when filed with the Commission, contain an untrue statement of a material fact or omit to state a material fact required to be stated in such document or necessary to make the statements in such document, in light of the circumstances under which they were made, not misleading. The foregoing shall not apply to statements in, or omissions from, any such document made in reliance upon, and in conformity with, information furnished to the Company by the Agent specifically for use in the preparation thereof.

(c) Conformity with Securities Act and Exchange Act. The Registration Statement, the Prospectus, any Issuer Free Writing Prospectus or any amendment or supplement thereto, and the Incorporated Documents, when such documents were or are filed with the Commission under the Securities Act or the Exchange Act or became or become effective under the Securities Act, as the case may be, conformed or will conform in all material respects with the requirements of the Securities Act and the Exchange Act, as applicable.

(d) Financial Information. The consolidated financial statements of the Company included or incorporated by reference in the Registration Statement, the Prospectus and the Issuer Free Writing Prospectuses, if any, together with the related notes and schedules, present fairly, in all material respects, the consolidated financial position of the Company and its consolidated Subsidiaries (as defined below) as of the dates indicated and the consolidated results of operations, cash flows and changes in stockholders' equity of the Company for the periods specified (subject, in the case of unaudited financial statements to normal year-end adjustments) and have been prepared in compliance with the requirements of the Securities Act and Exchange Act and in conformity with generally accepted accounting principles in the United States ("GAAP") applied on a consistent basis (subject, in the case of unaudited financial statements to normal year-end adjustments) during the periods involved; the other financial and statistical data with respect to the Company and its consolidated Subsidiaries contained or incorporated by reference in the Registration Statement, the Prospectus and the Issuer Free Writing Prospectuses, if any, fairly present in all material respects the information shown therein as and at the respective dates and for the periods specified and are derived from the financial statements and books and records of the Company; there are no financial statements (historical or pro forma) that are required to be included or incorporated by reference in the Registration Statement, or the Prospectus that are not included or incorporated by reference as required; the Company and the Subsidiaries do not have any material liabilities or obligations, direct or contingent (including any off-balance sheet obligations), not described in the Registration Statement (excluding the exhibits thereto), and the Prospectus; and all disclosures contained or incorporated by reference in the Registration Statement, the Prospectus and the Issuer Free Writing Prospectuses, if any, regarding "non-GAAP financial measures" (as such term is defined by the rules and regulations of the Commission) comply, in all material respects, with Regulation G of the Exchange Act and Item 10 of Regulation S-K under the Securities Act, to the extent applicable. The interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement and the Prospectus fairly presents the information called for in all material respects and has been prepared in all material respects in accordance with the Commission's rules and guidelines applicable thereto.

(e) Conformity with EDGAR Filing. The Prospectus delivered to the Agent for use in connection with the sale of the Placement Shares pursuant to this Agreement will be identical to the versions of the Prospectus created to be transmitted to the Commission for filing via EDGAR, except to the extent permitted by Regulation S-T.

(f) Organization. The Company and each of its Subsidiaries is duly organized, validly existing and in good standing under the laws of their respective jurisdictions of incorporation or organization and each such entity has all requisite power and authority to carry on its business as is currently being conducted as described in the Registration Statement and the Prospectus, and to own, lease and operate its properties. The Company and each of its Subsidiaries is duly qualified to do business and is in good standing as a foreign entity in each jurisdiction in which the nature of the business conducted by it or location of the assets or properties owned, leased or licensed by it requires such qualification, except where the failure to be so qualified or in good standing or have such power or authority would not, individually or in the aggregate, have a material adverse effect or would reasonably be expected to have a material adverse effect on or affecting the assets, business, operations, earnings, properties, condition (financial or otherwise), prospects, stockholders' equity or results of operations of the Company and its Subsidiaries taken as a whole, or prevent or materially interfere with consummation of the transactions contemplated hereby (a "Material Adverse Effect").

(g) Subsidiaries. The Company and each majority-owned subsidiary (as that term is defined in Rule 405 of the Securities Act Regulations) (collectively, the “Subsidiaries”), are the Company’s only significant subsidiaries (as such term is defined in Rule 1-02 of Regulation S-X promulgated by the Commission). Except as set forth in the Registration Statement and in the Prospectus, the Company owns, directly or indirectly, all of the equity interests of the Subsidiaries free and clear of any lien, charge, security interest, encumbrance, right of first refusal or other restriction, and all the equity interests of the Subsidiaries are validly issued and are fully paid, nonassessable and free of preemptive and similar rights. No Subsidiary is currently prohibited, directly or indirectly, from paying any dividends to the Company, from making any other distribution on such Subsidiary’s capital stock, from repaying to the Company any loans or advances to such Subsidiary from the Company or from transferring any of such Subsidiary’s property or assets to the Company or any other Subsidiary of the Company.

(h) No Violation or Default. Neither the Company nor any of its Subsidiaries is (i) in violation of its charter or by-laws or similar organizational documents; (ii) in default, and no event has occurred that, with notice or lapse of time or both, would constitute such a default, in the due performance or observance of any term, covenant or condition contained in any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its Subsidiaries is a party or by which the Company or any of its Subsidiaries is bound or to which any of the property or assets of the Company or any of its Subsidiaries are subject; or (iii) in violation of any law or statute or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory authority, except, in the case of each of clauses (ii) and (iii) above, for any such violation or default that would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect. To the Company’s knowledge, no other party under any material contract or other agreement to which it or any of its Subsidiaries is a party is in default in any respect thereunder where such default would have a Material Adverse Effect.

(i) No Material Adverse Change. Subsequent to the respective dates as of which information is given in the Registration Statement, the Prospectus and the Free Writing Prospectuses, if any (including the Incorporated Documents), there has not been (i) any Material Adverse Effect or the occurrence of any development that the Company reasonably expects will result in a Material Adverse Effect, (ii) any transaction which is material to the Company and its Subsidiaries taken as a whole, (iii) any obligation or liability, direct or contingent (including any off-balance sheet obligations), incurred by the Company or any Subsidiary, which is material to the Company and its Subsidiaries taken as a whole, (iv) any material change in the capital stock or outstanding long-term indebtedness of the Company or any of its Subsidiaries or (v) any dividend or distribution of any kind declared, paid or made on the capital stock of the Company or any Subsidiary, other than in each case above in the ordinary course of business or as otherwise disclosed in the Registration Statement or Prospectus (including the Incorporated Documents).

(j) Capitalization. The issued and outstanding shares of capital stock of the Company have been validly issued, are fully paid and nonassessable and, other than as disclosed in the Registration Statement or the Prospectus, are not subject to any preemptive rights, rights of first refusal or similar rights. The Company has authorized, issued and outstanding shares of Common Stock as set forth in the Registration Statement and the Prospectus as of the dates referred to therein (other than the grant of additional options or other awards under the Company’s existing equity incentive plans, or changes in the number of outstanding shares of Common Stock of the Company due to the issuance of shares upon the exercise or conversion of securities exercisable for, or convertible into, Common Stock outstanding on the date hereof) and such authorized capital stock conforms in all material respects to the description thereof set forth in the Registration Statement and the Prospectus. The description of the securities of the Company in the Registration Statement and the Prospectus is complete and accurate in all material respects. Except as disclosed in or contemplated by the Registration Statement or the Prospectus, as of the date each was filed with the Commission, the Company does not have outstanding any options to purchase, or any rights or warrants to subscribe for, or any securities or obligations convertible into, or exchangeable for, or any contracts or commitments to issue or sell, any shares of capital stock or other securities.

(k) Authorization; Enforceability. The Company has full legal right, power and authority to enter into this Agreement and perform the transactions contemplated hereby. This Agreement has been duly authorized, executed and delivered by the Company and is a legal, valid and binding agreement of the Company enforceable in accordance with its terms, except to the extent that enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium or similar laws affecting creditors' rights generally and by general equitable principles.

(l) Authorization of Placement Shares. The Placement Shares, when issued and delivered pursuant to the terms contained in the Placement Notice which has been approved by the board of directors of the Company or a duly authorized committee thereof, or a duly authorized executive committee, against payment therefor as provided herein, will be duly and validly authorized and issued and fully paid and nonassessable, free and clear of any pledge, lien, encumbrance, security interest or other claim, including any statutory or contractual preemptive rights, resale rights, rights of first refusal or other similar rights, and will be registered pursuant to Section 12 of the Exchange Act. The Placement Shares, when issued, will conform in all material respects to the description thereof set forth in or incorporated into the Prospectus.

(m) No Consents Required. No consent, approval, authorization, order, registration or qualification of or with any Governmental Authority is required for the execution, delivery and performance by the Company of this Agreement, the issuance and sale by the Company of the Placement Shares, except for such consents, approvals, authorizations, orders and registrations or qualifications as may be required under applicable state securities laws or by the by-laws and rules of the Financial Industry Regulatory Authority ("FINRA") or the Exchange in connection with the sale of the Placement Shares by the Agent.

(n) No Preferential Rights. Except as set forth in the Registration Statement and the Prospectus, (i) no person, as such term is defined in Rule 1-02 of Regulation S-X promulgated under the Securities Act (each, a "Person"), has the right, contractual or otherwise, to cause the Company to issue or sell to such Person any Common Stock or shares of any other capital stock or other securities of the Company (other than upon the exercise of options or warrants to purchase Common Stock or upon the exercise of options or vesting of restricted stock units or stock awards that may be granted from time to time under the Company's existing equity incentive plans and which are disclosed in the Registration Statement and Prospectus), (ii) no Person has any preemptive rights, resale rights, rights of first refusal, rights of co-sale, or any other rights (whether pursuant to a "poison pill" provision or otherwise) to purchase any Common Stock or shares of any other capital stock or other securities of the Company, (iii) no Person has the right to act as an underwriter or as a financial advisor to the Company in connection with the offer and sale of the Common Stock, and (iv) no Person has the right, contractual or otherwise, to require the Company to register under the Securities Act any Common Stock or shares of any other capital stock or other securities of the Company, or to include any such shares or other securities in the Registration Statement or the offering contemplated thereby, whether as a result of the filing or effectiveness of the Registration Statement or the sale of the Placement Shares as contemplated thereby or otherwise.

(o) Independent Public Accounting Firm. OUM & Co. LLP (the "Accountant"), whose report on the consolidated financial statements of the Company is filed with the Commission as part of the Company's most recent Annual Report on Form 10-K filed with the Commission and incorporated by reference into the Registration Statement and the Prospectus, are and, during the periods covered by their report, were an independent registered public accounting firm within the meaning of the Securities Act and the Public Company Accounting Oversight Board (United States). To the Company's knowledge, the Accountant is not in violation of the auditor independence requirements of the Sarbanes-Oxley Act of 2002 (the "Sarbanes-Oxley Act") with respect to the Company.

(p) Enforceability of Agreements. To the Company's knowledge, all agreements between the Company and third parties expressly referenced in the Prospectus are legal, valid and binding obligations of the Company enforceable in accordance with their respective terms, except to the extent that (i) enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium or similar laws affecting creditors' rights generally and by general equitable principles, (ii) the indemnification provisions of certain agreements may be limited by federal or state securities laws or public policy considerations in respect thereof, and (iii) any unenforceability that, individually or in the aggregate, would not reasonably be expected to have a Material Adverse Effect.

(q) No Litigation. Except as set forth in the Registration Statement or the Prospectus, there are no actions, suits or proceedings by or before any Governmental Authority pending, nor, to the Company's knowledge, any audits or investigations by or before any Governmental Authority, to which the Company or a Subsidiary is a party or to which any property of the Company or any of its Subsidiaries is the subject that, individually or in the aggregate, would have a Material Adverse Effect and, to the Company's knowledge, no such actions, suits, proceedings, audits or investigations are threatened or contemplated by any Governmental Authority or threatened by others; and (i) there are no current or pending audits, investigations, actions, suits or proceedings by or before any Governmental Authority that are required under the Securities Act to be described in the Prospectus that are not so described; and (ii) there are no contracts or other documents that are required under the Securities Act to be filed as exhibits to the Registration Statement that are not so filed.

(r) Consents and Permits. Except as disclosed in the Registration Statement and the Prospectus, the Company and its Subsidiaries have made all filings, applications and submissions required by, possesses and is operating in compliance with, all approvals, licenses, certificates, certifications, clearances, consents, grants, exemptions, marks, notifications, orders, permits and other authorizations issued by, the appropriate federal, state or foreign governmental or regulatory authorities (including, without limitation, the United States Food and Drug Administration (the "**FDA**"), the United States Drug Enforcement Administration or any other foreign, federal, state, provincial, court or local government or regulatory authorities including self-regulatory organizations engaged in the regulation of clinical trials, pharmaceuticals, biologics or biohazardous substances or materials) necessary for the ownership or lease of their respective properties or to conduct its businesses as described in the Registration Statement and the Prospectus (collectively, "**Permits**"), except for such Permits the failure of which to possess, obtain or make the same would not reasonably be expected to have a Material Adverse Effect; the Company and its Subsidiaries are in compliance with the terms and conditions of all such Permits, except where the failure to be in compliance would not reasonably be expected to have a Material Adverse Effect; all of the Permits are valid and in full force and effect, except where any invalidity, individually or in the aggregate, would not be reasonably expected to have a Material Adverse Effect; and neither the Company nor any of its Subsidiaries has received any written notice relating to the limitation, revocation, cancellation, suspension, modification or non-renewal of any such Permit which, singly or in the aggregate, if the subject of an unfavorable decision, ruling or finding, would have a Material Adverse Effect, or has any reason to believe that any such license, certificate, permit or authorization will not be renewed in the ordinary course. To the extent required by applicable laws and regulations of the FDA, the Company or the applicable Subsidiary has submitted to the FDA an Investigational New Drug Application or amendment or supplement thereto for each clinical trial it has conducted or sponsored or is conducting or sponsoring; all such submissions were in material compliance with applicable laws and rules and regulations when submitted and no material deficiencies have been asserted by the FDA with respect to any such submissions. The Company and each Subsidiary possess such valid and current certificates, authorizations or permits issued by the appropriate state, federal or foreign regulatory agencies or bodies necessary to conduct their respective businesses, and neither the Company nor any Subsidiary has received, or has any reason to believe that it will receive, any notice of proceedings relating to the revocation or modification of, or non-compliance with, any such certificate, authorization or permit which, singly or in the aggregate, if the subject of an unfavorable decision, ruling or finding, could result in a Material Adverse Effect.

(s) Regulatory Filings. Except as disclosed in the Registration Statement and the Prospectus, neither the Company nor any of its Subsidiaries has failed to file with the applicable Governmental Authorities (including, without limitation, the FDA, or any foreign, federal, state, provincial or local governmental or regulatory authority performing functions similar to those performed by the FDA) any required filing, declaration, listing, registration, report or submission, except for such failures that, individually or in the aggregate, would not have a Material Adverse Effect; except as disclosed in the Registration Statement and the Prospectus, all such filings, declarations, listings, registrations, reports or submissions were in compliance with applicable laws when filed and no deficiencies have been asserted by any applicable regulatory authority with respect to any such filings, declarations, listings, registrations, reports or submissions, except for any deficiencies that, individually or in the aggregate, would not have a Material Adverse Effect. The Company has operated and currently is, in all material respects, in compliance with the United States Federal Food, Drug, and Cosmetic Act, all applicable rules and regulations of the FDA and other federal, state, local and foreign governmental bodies exercising comparable authority. The Company has no knowledge of any studies, tests or trials not described in the Prospectus the results of which reasonably call into question in any material respect the results of the studies, tests and trials described in the Prospectus.

(t) **Intellectual Property.** Except as disclosed in the Registration Statement and the Prospectus and to the Company's knowledge, the Company and its Subsidiaries own, possess, license or have other rights to use all foreign and domestic patents, patent applications, trade and service marks, trade and service mark registrations, trade names, copyrights, licenses, inventions, trade secrets, technology, Internet domain names, know-how and other intellectual property (collectively, the "**Intellectual Property**") described in the Registration Statement and the Prospectus as being owned or licensed by them, necessary for the conduct of their respective businesses as now conducted except to the extent that the failure to own, possess, license or otherwise hold adequate rights to use such Intellectual Property would not, individually or in the aggregate, have a Material Adverse Effect. Except as disclosed in the Registration Statement and the Prospectus (i) to the Company's knowledge, there are no rights of third parties to any such Intellectual Property owned by the Company and its Subsidiaries that the Company reasonably expects would interfere with the use of such Intellectual Property in the operation of the Company's and its Subsidiaries' respective businesses; (ii) to the Company's knowledge, there is no infringement by third parties of any such Intellectual Property; (iii) there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others challenging the Company's and its Subsidiaries' rights in or to any such Intellectual Property, and the Company is unaware of any facts which could form a reasonable basis for any such action, suit, proceeding or claim; (iv) there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others challenging the validity or scope of any such Intellectual Property; (v) there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others that the Company and its Subsidiaries infringe or otherwise violate any patent, trademark, copyright, trade secret or other proprietary rights of others; (vi) to the Company's knowledge, there is no third-party U.S. patent or published U.S. patent application which contains claims for which an Interference Proceeding (as defined in 35 U.S.C. § 135) has been commenced against any patent or patent application described in the Prospectus as being owned by or licensed to the Company; and (vii) the Company and its Subsidiaries have complied in all material respects with the terms of each agreement pursuant to which Intellectual Property has been licensed to the Company or such Subsidiary, and all such agreements are in full force and effect, except, in the case of any of clauses (i)-(vii) above, for any such infringement by third parties or any such pending or threatened suit, action, proceeding or claim as would not, individually or in the aggregate, reasonably be expected to result in a Material Adverse Effect.

(u) **Clinical Studies.** To the Company's knowledge, the preclinical studies and tests and clinical trials described in the Prospectus were, and, if still pending, are being, to the Company's knowledge, conducted in all material respects in accordance with the experimental protocols, procedures and controls pursuant to, where applicable, accepted professional and scientific standards for products or product candidates comparable to those being developed by the Company; the descriptions of such studies, tests and trials, and the results thereof, contained in the Prospectus are accurate and complete in all material respects; the Company is not aware of any tests, studies or trials not described in the Prospectus, the results of which reasonably call into question the results of the tests, studies and trials described in the Prospectus; and the Company has not received any written notice or correspondence from the FDA or any foreign, state or local Governmental Authority exercising comparable authority or any institutional review board or comparable authority requiring the termination, suspension, clinical hold or material modification of any tests, studies or trials.

(v) **Market Capitalization.** At the time the Registration Statement was or will be originally declared effective, and at the time the Company's most recent Annual Report on Form 10-K was filed with the Commission, the Company met or will meet the then applicable requirements for the use of Form S-3 under the Securities Act, including, but not limited to, General Instruction I.B.1 of Form S-3. The Company satisfies the pre-1992 eligibility requirements for the use of a registration statement on Form S-3 in connection with this offering (the pre-1992 eligibility requirements for the use of the registration statement on Form S-3 include (i) having a non-affiliate, public common equity float of at least \$150 million or a non-affiliate, public common equity float of at least \$100 million and annual trading volume of at least three million shares and (ii) having been subject to the Exchange Act reporting requirements for a period of 36 months). The Company is not a shell company (as defined in Rule 405 under the Securities Act) and has not been a shell company for at least 12 calendar months previously and if it has been a shell company at any time previously, has filed current Form 10 information (as defined in Instruction I.B.6 of Form S-3) with the Commission at least 12 calendar months previously reflecting its status as an entity that is not a shell company.

(w) **No Material Defaults.** Neither the Company nor any of its Subsidiaries has defaulted on any installment on indebtedness for borrowed money or on any rental on one or more long-term leases, which defaults, individually or in the aggregate, would reasonably be expected to have a Material Adverse Effect. The Company has not filed a report pursuant to Section 13(a) or 15(d) of the Exchange Act since the filing of its last Annual Report on Form 10-K, indicating that it (i) has failed to pay any dividend or sinking fund installment on preferred stock or (ii) has defaulted on any installment on indebtedness for borrowed money or on any rental on one or more long-term leases, which defaults, individually or in the aggregate, would reasonably be expected to have a Material Adverse Effect.

(x) Certain Market Activities. Neither the Company, nor any of its Subsidiaries, nor to the knowledge of the Company, any of their respective directors, officers or controlling persons has taken, directly or indirectly, any action designed, or that has constituted or might reasonably be expected to cause or result in, under the Exchange Act or otherwise, the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Placement Shares.

(y) Broker/Dealer Relationships. Neither the Company nor any of the Subsidiaries (i) is required to register as a “broker” or “dealer” in accordance with the provisions of the Exchange Act or (ii) directly or indirectly through one or more intermediaries, controls or is a “person associated with a member” or “associated person of a member” (within the meaning set forth in the FINRA Manual).

(z) No Reliance. The Company has not relied upon the Agent or legal counsel for the Agent for any legal, tax or accounting advice in connection with the offering and sale of the Placement Shares.

(aa) Taxes. The Company and each of its Subsidiaries have filed all federal, state, local and foreign tax returns which have been required to be filed and paid all taxes shown thereon through the date hereof, to the extent that such taxes have become due and are not being contested in good faith, except where the failure to so file or pay would not have a Material Adverse Effect. Except as otherwise disclosed in or contemplated by the Registration Statement or the Prospectus, no tax deficiency has been determined adversely to the Company or any of its Subsidiaries which has had, or would reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect. The Company has no knowledge of any federal, state or other governmental tax deficiency, penalty or assessment which has been or might be asserted or threatened against it which would have a Material Adverse Effect.

(bb) Title to Real and Personal Property. Except as set forth in the Registration Statement or the Prospectus, the Company and its Subsidiaries have good and marketable title in fee simple to all items of real property owned by them, good and valid title to all personal property described in the Registration Statement or Prospectus as being owned by them, in each case free and clear of all liens, encumbrances and claims, except those matters that (i) do not materially interfere with the use made and proposed to be made of such property by the Company and any of its Subsidiaries or (ii) would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect. Any real or personal property described in the Registration Statement or Prospectus as being leased by the Company and any of its Subsidiaries is held by them under valid, existing and enforceable leases, except those that (A) do not materially interfere with the use made or proposed to be made of such property by the Company or any of its Subsidiaries or (B) would not be reasonably expected, individually or in the aggregate, to have a Material Adverse Effect.

(cc) Environmental Laws. Except as set forth in the Registration Statement or the Prospectus, the Company and its Subsidiaries (i) are in compliance with any and all applicable federal, state, local and foreign laws, rules, regulations, decisions and orders relating to the protection of human health and safety, the environment or hazardous or toxic substances or wastes, pollutants or contaminants (collectively, “**Environmental Laws**”); (ii) have received and are in compliance with all permits, licenses or other approvals required of them under applicable Environmental Laws to conduct their respective businesses as described in the Registration Statement and the Prospectus; and (iii) have not received notice of any actual or potential liability for the investigation or remediation of any disposal or release of hazardous or toxic substances or wastes, pollutants or contaminants, except, in the case of any of clauses (i), (ii) or (iii) above, for any such failure to comply or failure to receive required permits, licenses, other approvals or liability as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(dd) Disclosure Controls. The Company and each of its Subsidiaries maintain systems of internal accounting controls designed to provide reasonable assurance that (i) transactions are executed in accordance with management’s general or specific authorizations; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability; (iii) access to assets is permitted only in accordance with management’s general or specific authorization; and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. The Company’s internal control over financial reporting is effective and the Company is not aware of any material weaknesses in its internal control over financial reporting (other than as set forth in the Prospectus). Since the date of the latest audited financial statements of the Company included in the Prospectus, there has been no change in the Company’s internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company’s internal control over financial reporting (other than as set forth in the Prospectus). The Company has established disclosure controls and procedures (as defined in Exchange Act Rules 13a-15 and 15d-15) for the Company and designed such disclosure controls and procedures to ensure that material information relating to the Company and each of its Subsidiaries is made known to the certifying officers by others within those entities, particularly during the period in which the Company’s Annual Report on Form 10-K or Quarterly Report on Form 10-Q, as the case may be, is being prepared. The Company’s certifying officers have evaluated the effectiveness of the Company’s disclosure controls and procedures as of a date within 90 days prior to the filing date of the Form 10-K for the fiscal year most recently ended (such date, the “**Evaluation Date**”). The Company presented in its Form 10-K for the fiscal year most recently ended the conclusions of the certifying officers about the effectiveness of the disclosure controls and procedures based on their evaluations as of the Evaluation Date and the disclosure controls and procedures are effective. Since the Evaluation Date, there have been no significant changes in the Company’s internal control over financial reporting (as such term is defined in Item 307(b) of Regulation S-K under the Securities Act) or, to the Company’s knowledge, in other factors that could significantly affect the Company’s internal controls.

(ee) Sarbanes-Oxley. There is and has been no failure on the part of the Company or, to the Company’s knowledge, any of the Company’s directors or officers, in their capacities as such, to comply in all material respects with any applicable provisions of the Sarbanes-Oxley Act and the rules and regulations promulgated thereunder. Each of the principal executive officer and the principal financial officer of the Company (or each former principal executive officer of the Company and each former principal financial officer of the Company as applicable) has made all certifications required by Exchange Act rules 13a-14 and 15d-14 and Section 906 of the Sarbanes-Oxley Act with respect to all reports, schedules, forms, statements and other documents required to be filed by it or furnished by it to the Commission. For purposes of the preceding sentence, “principal executive officer” and “principal financial officer” shall have the meanings given to such terms in the Sarbanes-Oxley Act.

(ff) Finder’s Fees. Neither the Company nor any of the Subsidiaries has incurred any liability for any finder’s fees, brokerage commissions or similar payments in connection with the transactions herein contemplated, except as may otherwise exist with respect to Agent pursuant to this Agreement.

(gg) Labor Disputes. No labor disturbance by or dispute with employees of the Company or any of its Subsidiaries exists or, to the knowledge of the Company, is threatened which would reasonably be expected to result in a Material Adverse Effect.

(hh) Investment Company Act. Neither the Company nor any of the Subsidiaries is or, after giving effect to the offering and sale of the Placement Shares, will be an “investment company” or an entity “controlled” by an “investment company,” as such terms are defined in the Investment Company Act of 1940, as amended (the “**Investment Company Act**”).

(ii) Operations. The operations of the Company and its Subsidiaries are and have been conducted at all times in compliance with applicable financial record keeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all jurisdictions to which the Company or its Subsidiaries are subject, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any Governmental Authority (collectively, the “**Money Laundering Laws**”), except as would not reasonably be expected to result in a Material Adverse Effect; and no action, suit or proceeding by or before any Governmental Authority involving the Company or any of its Subsidiaries with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(jj) Off-Balance Sheet Arrangements. There are no transactions, arrangements and other relationships between and/or among the Company and/or any of its affiliates and any unconsolidated entity, including, but not limited to, any structural finance, special purpose or limited purpose entity (each, an “Off-Balance Sheet Transaction”) that could reasonably be expected to materially affect the Company’s liquidity or the availability of or requirements for its capital resources, including those Off-Balance Sheet Transactions described in the Commission’s Statement about Management’s Discussion and Analysis of Financial Conditions and Results of Operations (Release Nos. 33-8056; 34-45321; FR-61), required to be described in the Prospectus which have not been described as required.

(kk) Underwriter Agreements. The Company is not a party to any agreement with an agent or underwriter for any other “at the market” or continuous equity transaction.

(ll) ERISA. To the knowledge of the Company, each material employee benefit plan, within the meaning of Section 3(3) of the Employee Retirement Income Security Act of 1974, as amended (“ERISA”), that is maintained, administered or contributed to by the Company or any of its affiliates for employees or former employees of the Company and any of its Subsidiaries has been maintained in material compliance with its terms and the requirements of any applicable statutes, orders, rules and regulations, including but not limited to ERISA and the Internal Revenue Code of 1986, as amended (the “Code”); no prohibited transaction, within the meaning of Section 406 of ERISA or Section 4975 of the Code, has occurred which would result in a material liability to the Company with respect to any such plan excluding transactions effected pursuant to a statutory or administrative exemption; and for each such plan that is subject to the funding rules of Section 412 of the Code or Section 302 of ERISA, no “accumulated funding deficiency” as defined in Section 412 of the Code has been incurred, whether or not waived, and the fair market value of the assets of each such plan (excluding for these purposes accrued but unpaid contributions) exceeds the present value of all benefits accrued under such plan determined using reasonable actuarial assumptions.

(mm) Forward-Looking Statements. No forward-looking statement (within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act) (a “Forward-Looking Statement”) contained in the Registration Statement and the Prospectus has been made or reaffirmed without a reasonable basis or has been disclosed other than in good faith.

(nn) Agent Purchases. The Company acknowledges and agrees that Agent has informed the Company that the Agent may, to the extent permitted under the Securities Act and the Exchange Act, purchase and sell Common Stock for its own account while this Agreement is in effect, *provided*, that (i) no such purchase or sales shall take place while a Placement Notice is in effect (except to the extent the Agent may engage in sales of Placement Shares purchased or deemed purchased from the Company as a “riskless principal” or in a similar capacity) and (ii) the Company shall not be deemed to have authorized or consented to any such purchases or sales by the Agent.

(oo) Margin Rules. Neither the issuance, sale and delivery of the Placement Shares nor the application of the proceeds thereof by the Company as described in the Registration Statement and the Prospectus will violate Regulation T, U or X of the Board of Governors of the Federal Reserve System or any other regulation of such Board of Governors.

(pp) Insurance. The Company and each of its Subsidiaries carry, or are covered by, insurance in such amounts and covering such risks as the Company and each of its Subsidiaries reasonably believe are adequate for the conduct of their properties and as is customary for companies engaged in similar businesses in similar industries.

(qq) No Improper Practices. (i) Neither the Company nor, the Subsidiaries, nor to the Company's knowledge, any of their respective executive officers has, in the past five years, made any unlawful contributions to any candidate for any political office (or failed fully to disclose any contribution in violation of law) or made any contribution or other payment to any official of, or candidate for, any federal, state, municipal, or foreign office or other person charged with similar public or quasi-public duty in violation of any law or of the character required to be disclosed in the Prospectus; (ii) no relationship, direct or indirect, exists between or among the Company or any Subsidiary or any affiliate of any of them, on the one hand, and the directors, officers and stockholders of the Company or any Subsidiary, on the other hand, that is required by the Securities Act to be described in the Registration Statement and the Prospectus that is not so described; (iii) no relationship, direct or indirect, exists between or among the Company or any Subsidiary or any affiliate of them, on the one hand, and the directors, officers, or stockholders of the Company or any Subsidiary, on the other hand, that is required by the rules of FINRA to be described in the Registration Statement and the Prospectus that is not so described; (iv) except as described in the Registration Statement and the Prospectus, there are no material outstanding loans or advances or material guarantees of indebtedness by the Company or any Subsidiary to or for the benefit of any of their respective officers or directors or any of the members of the families of any of them; and (v) the Company has not offered, or caused any placement agent to offer, Common Stock to any person with the intent to influence unlawfully (A) a customer or supplier of the Company or any Subsidiary to alter the customer's or supplier's level or type of business with the Company or any Subsidiary or (B) a trade journalist or publication to write or publish favorable information about the Company or any Subsidiary or any of their respective products or services, and, (vi) neither the Company nor any Subsidiary nor, to the Company's knowledge, any employee or agent of the Company or any Subsidiary has made any payment of funds of the Company or any Subsidiary or received or retained any funds in violation of any law, rule or regulation (including, without limitation, the Foreign Corrupt Practices Act of 1977), which payment, receipt or retention of funds is of a character required to be disclosed in the Registration Statement or the Prospectus.

(rr) Status Under the Securities Act. The Company was not and is not an ineligible issuer as defined in Rule 405 under the Securities Act at the times specified in Rules 164 and 433 under the Securities Act in connection with the offering of the Placement Shares.

(ss) No Misstatement or Omission in an Issuer Free Writing Prospectus. Each Issuer Free Writing Prospectus, as of its issue date and as of each Applicable Time, did not, does not and will not include any information that conflicted, conflicts or will conflict with the information contained in the Registration Statement or the Prospectus, including any Incorporated Document deemed to be a part thereof that has not been superseded or modified. The foregoing sentence does not apply to statements in or omissions from any Issuer Free Writing Prospectus based upon and in conformity with written information furnished to the Company by the Agent specifically for use therein.

(tt) No Conflicts. Neither the execution of this Agreement, nor the issuance, offering or sale of the Placement Shares, nor the consummation of any of the transactions contemplated herein and therein, nor the compliance by the Company with the terms and provisions hereof and thereof will conflict with, or will result in a breach of, any of the terms and provisions of, or has constituted or will constitute a default under, or has resulted in or will result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Company pursuant to the terms of any contract or other agreement to which the Company may be bound or to which any of the property or assets of the Company is subject, except (i) such conflicts, breaches or defaults as may have been waived and (ii) such conflicts, breaches and defaults that would not have a Material Adverse Effect; nor will such action result (x) in any violation of the provisions of the organizational or governing documents of the Company, or (y) in any material violation of the provisions of any statute or any order, rule or regulation applicable to the Company or of any court or of any federal, state or other Governmental Authority having jurisdiction over the Company.

(uu) Sanctions. (i) The Company represents that, neither the Company nor any of its Subsidiaries (collectively, the "Entity") or, to the Company's knowledge, any director, officer, employee, agent, affiliate or representative of the Entity, is a government, individual, or entity (in this paragraph (uu), "Person") that is, or is owned or controlled by a Person that is:

(A) the subject of any sanctions administered or enforced by the U.S. Department of Treasury's Office of Foreign Assets Control, the United Nations Security Council, the European Union, Her Majesty's Treasury, or other relevant sanctions authority (as amended, collectively, "Sanctions"), nor

(B) located, organized or resident in a country or territory that is the subject of Sanctions (including, without limitation, Burma/Myanmar, Cuba, Iran, North Korea, Sudan and Syria).

(ii) The Entity represents and covenants that it will not, directly or indirectly, use the proceeds of the offering, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other Person:

(A) to fund or facilitate any activities or business of or with any Person or in any country or territory that, at the time of such funding or facilitation, is the subject of Sanctions; or

(B) in any other manner that will result in a violation of Sanctions by any Person (including any Person participating in the offering, whether as underwriter, advisor, investor or otherwise).

(iii) The Entity represents and covenants that, except as detailed in the Registration Statement and the Prospectus, for the past 5 years, it has not knowingly engaged in, is not now knowingly engaging in, and will not engage in, any dealings or transactions with any Person, or in any country or territory, that at the time of the dealing or transaction is or was the subject of Sanctions.

(vv) Stock Transfer Taxes. On each Settlement Date, all stock transfer or other taxes (other than income taxes) which are required to be paid in connection with the sale and transfer of the Placement Shares to be sold hereunder will be, or will have been, fully paid or provided for by the Company and all laws imposing such taxes will be or will have been fully complied with.

(ww) Compliance with Laws. Each of the Company and its Subsidiaries: (A) is and at all times has been in compliance with all statutes, rules, or regulations applicable to the ownership, testing, development, manufacture, packaging, processing, use, distribution, marketing, labeling, promotion, sale, offer for sale, storage, import, export or disposal of any product manufactured or distributed by the Company or its Subsidiaries ("Applicable Laws"), except as could not, individually or in the aggregate, reasonably be expected to result in a Material Adverse Effect; (B) has not received any FDA Form 483, notice of adverse finding, warning letter, untitled letter or other correspondence or notice from the FDA or any other governmental authority alleging or asserting noncompliance with any Applicable Laws or any licenses, certificates, approvals, clearances, authorizations, permits and supplements or amendments thereto required by any such Applicable Laws ("Authorizations"); (C) possesses all material Authorizations and such Authorizations are valid and in full force and effect and are not in material violation of any term of any such Authorizations; (D) has not received notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any governmental authority or third party alleging that any product operation or activity is in violation of any Applicable Laws or Authorizations and has no knowledge that any such governmental authority or third party is considering any such claim, litigation, arbitration, action, suit, investigation or proceeding; (E) has not received notice that any governmental authority has taken, is taking or intends to take action to limit, suspend, modify or revoke any Authorizations and has no knowledge that any such governmental authority is considering such action; (F) has filed, obtained, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Applicable Laws or Authorizations and that all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete and correct on the date filed (or were corrected or supplemented by a subsequent submission); and (G) has not, either voluntarily or involuntarily, initiated, conducted, or issued or caused to be initiated, conducted or issued, any recall, market withdrawal or replacement, safety alert, post sale warning, "dear healthcare provider" letter, or other notice or action relating to the alleged lack of safety or efficacy of any product or any alleged product defect or violation and, to the Company's knowledge, no third party has initiated, conducted or intends to initiate any such notice or action.

(xx) Statistical and Market-Related Data. The statistical, demographic and market-related data included in the Registration Statement and Prospectus are based on or derived from sources that the Company believes to be reliable and accurate or represent the Company's good faith estimates that are made on the basis of data derived from such sources.

Any certificate signed by an officer of the Company and delivered to the Agent or to counsel for the Agent pursuant to or in connection with this Agreement shall be deemed to be a representation and warranty by the Company, as applicable, to the Agent as to the matters set forth therein.

7. Covenants of the Company. The Company covenants and agrees with the Agent that:

(a) Registration Statement Amendments. After the date of this Agreement and during any period in which a Prospectus relating to any Placement Shares is required to be delivered by Agent under the Securities Act (including in circumstances where such requirement may be satisfied pursuant to Rule 172 under the Securities Act or similar rule), (i) the Company will notify the Agent promptly of the time when any subsequent amendment to the Registration Statement, other than Incorporated Documents, has been filed with the Commission and/or has become effective or any subsequent supplement to the Prospectus has been filed and of any request by the Commission for any amendment or supplement to the Registration Statement or Prospectus or for additional information, (ii) the Company will prepare and file with the Commission, promptly upon the Agent's request, any amendments or supplements to the Registration Statement or Prospectus that, in such Agent's reasonable opinion, may be necessary or advisable in connection with the distribution of the Placement Shares by the Agent (*provided, however*, that the failure of the Agent to make such request shall not relieve the Company of any obligation or liability hereunder, or affect the Agent's right to rely on the representations and warranties made by the Company in this Agreement and *provided, further*, that the only remedy the Agent shall have with respect to the failure to make such filing shall be to cease making sales under this Agreement until such amendment or supplement is filed); (iii) the Company will not file any amendment or supplement to the Registration Statement or Prospectus relating to the Placement Shares or a security convertible into the Placement Shares unless a copy thereof has been submitted to the Agent within a reasonable period of time before the filing and the Agent has not reasonably objected thereto (*provided, however*, that the failure of the Agent to make such objection shall not relieve the Company of any obligation or liability hereunder, or affect the Agent's right to rely on the representations and warranties made by the Company in this Agreement and *provided, further*, that the only remedy the Agent shall have with respect to the failure by the Company to obtain such consent shall be to cease making sales under this Agreement) and the Company will furnish to the Agent at the time of filing thereof a copy of any document that upon filing is deemed to be incorporated by reference into the Registration Statement or Prospectus, except for those documents available via EDGAR; and (iv) the Company will cause each amendment or supplement to the Prospectus to be filed with the Commission as required pursuant to the applicable paragraph of Rule 424(b) of the Securities Act or, in the case of any document to be incorporated therein by reference, to be filed with the Commission as required pursuant to the Exchange Act, within the time period prescribed (the determination to file or not file any amendment or supplement with the Commission under this Section 7(a)), based on the Company's reasonable opinion or reasonable objections, shall be made exclusively by the Company).

(b) Notice of Commission Stop Orders. The Company will advise the Agent, promptly after it receives notice or obtains knowledge thereof, of the issuance or threatened issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement, of the suspension of the qualification of the Placement Shares for offering or sale in any jurisdiction, or of the initiation or threatening of any proceeding for any such purpose; and it will promptly use its commercially reasonable efforts to prevent the issuance of any stop order or to obtain its withdrawal if such a stop order should be issued. The Company will advise the Agent promptly after it receives any request by the Commission for any amendments to the Registration Statement or any amendment or supplements to the Prospectus or any Issuer Free Writing Prospectus or for additional information related to the offering of the Placement Shares or for additional information related to the Registration Statement, the Prospectus or any Issuer Free Writing Prospectus.

(c) Delivery of Prospectus; Subsequent Changes. During any period in which a Prospectus relating to the Placement Shares is required to be delivered by the Agent under the Securities Act with respect to the offer and sale of the Placement Shares, (including in circumstances where such requirement may be satisfied pursuant to Rule 172 under the Securities Act or similar rule), the Company will comply with all requirements imposed upon it by the Securities Act, as from time to time in force, and to file on or before their respective due dates all reports and any definitive proxy or information statements required to be filed by the Company with the Commission pursuant to Sections 13(a), 13(c), 14, 15(d) or any other provision of or under the Exchange Act. If the Company has omitted any information from the Registration Statement pursuant to Rule 430B under the Securities Act, it will use its best efforts to comply with the provisions of and make all requisite filings with the Commission pursuant to said Rule 430B and to notify the Agent promptly of all such filings. If during such period any event occurs as a result of which the Prospectus as then amended or supplemented would include an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances then existing, not misleading, or if during such period it is necessary to amend or supplement the Registration Statement or Prospectus to comply with the Securities Act, the Company will promptly notify the Agent to suspend the offering of Placement Shares during such period and the Company will promptly amend or supplement the Registration Statement or Prospectus (at the expense of the Company) so as to correct such statement or omission or effect such compliance; *provided, however*, that the Company may delay any such amendment or supplement if, in the reasonable judgment of the Company, it is in the best interests of the Company to do so, provided that no Placement Notice is in effect during such time.

(d) Listing of Placement Shares. Prior to the date of the first Placement Notice, the Company will use its reasonable best efforts to cause the Placement Shares to be listed on the Exchange.

(e) Delivery of Registration Statement and Prospectus. The Company will furnish to the Agent and its counsel (at the expense of the Company) copies of the Registration Statement, the Prospectus (including all Incorporated Documents) and all amendments and supplements to the Registration Statement or Prospectus that are filed with the Commission during any period in which a Prospectus relating to the Placement Shares is required to be delivered under the Securities Act (including all Incorporated Documents), in each case as soon as reasonably practicable and in such quantities as the Agent may from time to time reasonably request and, at the Agent's reasonable request, will also furnish copies of the Prospectus to each exchange or market on which sales of the Placement Shares may be made; *provided, however*, that the Company shall not be required to furnish any document (other than the Prospectus) to the Agent to the extent such document is available on EDGAR.

(f) Earning Statement. The Company will make generally available to its security holders as soon as practicable, but in any event not later than 15 months after the end of the Company's current fiscal quarter, an earning statement covering a 12-month period that satisfies the provisions of Section 11(a) and Rule 158 of the Securities Act.

(g) Use of Proceeds. The Company will use the Net Proceeds as described in the Prospectus in the section entitled "Use of Proceeds."

(h) Notice of Other Sales. Without the prior written consent of the Agent (not to be unreasonably withheld, conditioned or delayed), the Company will not, directly or indirectly, offer to sell, sell, contract to sell, grant any option to sell or otherwise dispose of any Common Stock (other than the Placement Shares offered pursuant to this Agreement) or securities convertible into or exchangeable for Common Stock, warrants or any rights to purchase or acquire, Common Stock during the period beginning on the fifth (5<sup>th</sup>) Trading Day immediately prior to the date on which any Placement Notice is delivered to Agent hereunder and ending on the fifth (5<sup>th</sup>) Trading Day immediately following the final Settlement Date with respect to Placement Shares sold pursuant to such Placement Notice (or, if the Placement Notice has been terminated or suspended prior to the sale of all Placement Shares covered by a Placement Notice, the date of such suspension or termination); and will not directly or indirectly in any other "at the market" or continuous equity transaction offer to sell, sell, contract to sell, grant any option to sell or otherwise dispose of any Common Stock (other than the Placement Shares offered pursuant to this Agreement) or securities convertible into or exchangeable for Common Stock, warrants or any rights to purchase or acquire, Common Stock prior to the later of the termination of this Agreement and the sixtieth (60<sup>th</sup>) day immediately following the final Settlement Date with respect to Placement Shares sold pursuant to such Placement Notice; *provided, however*, that such restrictions will not be required in connection with the Company's issuance or sale of (i) Common Stock, options to purchase Common Stock or Common Stock issuable upon the exercise of options, pursuant to any employee or director stock option or benefits plan, stock ownership plan or dividend reinvestment plan (but not Common Stock subject to a waiver to exceed plan limits in its dividend reinvestment plan) of the Company whether now in effect or hereafter implemented, (ii) Common Stock issuable upon conversion of securities or the exercise of warrants, options or other rights in effect or outstanding, and disclosed in filings by the Company available on EDGAR or otherwise in writing to the Agent and (iii) Common Stock or securities convertible into or exchangeable for shares of Common Stock as consideration for mergers, acquisitions, other business combinations or strategic alliances occurring after the date of this Agreement which are not issued for capital raising purposes.

(i) Change of Circumstances. The Company will, at any time during the pendency of a Placement Notice advise the Agent promptly after it shall have received notice or obtained knowledge thereof, of any information or fact that would alter or affect in any material respect any opinion, certificate, letter or other document required to be provided to the Agent pursuant to this Agreement.

(j) Due Diligence Cooperation. The Company will cooperate with any reasonable due diligence review conducted by the Agent or its representatives in connection with the transactions contemplated hereby, including, without limitation, providing information and making available documents and senior corporate officers, during regular business hours and at the Company's principal offices, as the Agent may reasonably request.

(k) Required Filings Relating to Placement of Placement Shares. The Company agrees that on such dates as the Securities Act shall require, the Company will (i) file a prospectus supplement with the Commission under the applicable paragraph of Rule 424(b) under the Securities Act (each and every filing date under Rule 424(b), a "**Filing Date**"), which prospectus supplement will set forth, within the relevant period, the amount of Placement Shares sold through the Agent, the Net Proceeds to the Company and the compensation payable by the Company to the Agent with respect to such Placement Shares, and (ii) deliver such number of copies of each such prospectus supplement to each exchange or market on which such sales were effected as may be required by the rules or regulations of such exchange or market.

(l) Representation Dates; Certificate. (1) Prior to the date of the first Placement Notice and (2) each time the Company:

(i) files the Prospectus relating to the Placement Shares or amends or supplements (other than a prospectus supplement relating solely to an offering of securities other than the Placement Shares) the Registration Statement or the Prospectus relating to the Placement Shares by means of a post-effective amendment, sticker, or supplement but not by means of incorporation of documents by reference into the Registration Statement or the Prospectus relating to the Placement Shares;

(ii) files an annual report on Form 10-K under the Exchange Act (including any Form 10-K/A containing amended financial information or a material amendment to the previously filed Form 10-K);

(iii) files its quarterly reports on Form 10-Q under the Exchange Act; or

(iv) files a current report on Form 8-K containing amended financial information (other than information "furnished" pursuant to Items 2.02 or 7.01 of Form 8-K or to provide disclosure pursuant to Item 8.01 of Form 8-K relating to the reclassification of certain properties as discontinued operations in accordance with Statement of Financial Accounting Standards No. 144) under the Exchange Act (each date of filing of one or more of the documents referred to in clauses (i) through (iv) shall be a "**Representation Date**");

the Company shall furnish the Agent (but in the case of clause (iv) above only if the Agent reasonably determines that the information contained in such Form 8-K is material) with a certificate dated the Representation Date, in the form and substance satisfactory to the Agent and its counsel, substantially similar to the form previously provided to the Agent and its counsel, modified, as necessary, to relate to the Registration Statement and the Prospectus as amended or supplemented. The requirement to provide a certificate under this Section 7(l) shall be automatically waived for any Representation Date occurring at a time a Suspension is in effect or at which no Placement Notice is pending, which waiver shall continue until the earlier to occur of the date the Company delivers a Placement Notice hereunder (which for such calendar quarter shall be considered a Representation Date) and the next occurring Representation Date. Notwithstanding the foregoing, if the Company subsequently decides to sell Placement Shares following a Representation Date when the Company relied on such waiver and did not provide the Agent with a certificate under this Section 7(l), then simultaneously with or prior to the time the Company delivers the Placement Notice or the Agent sells any Placement Shares pursuant to such Placement Notice, the Company shall provide the Agent with a certificate in conformity with this Section 7(l), dated as of the date of such Placement Notice.

(m) Legal Opinion. (1) Prior to the date of the first Placement Notice and (2) within five (5) Trading Days of each Representation Date with respect to which the Company is obligated to deliver a certificate pursuant to Section 7(l) for which no waiver is applicable and excluding the date of this Agreement, the Company shall cause to be furnished to the Agent a written opinion of K&L Gates LLP ("**Company Counsel**"), or other counsel satisfactory to the Agent, in form and substance satisfactory to Agent and its counsel, substantially similar to the form previously provided to the Agent and its counsel, modified, as necessary, to relate to the Registration Statement and the Prospectus as then amended or supplemented; *provided, however*, the Company shall be required to furnish to Agent no more than one opinion hereunder per calendar quarter; *provided, further*, that in lieu of such opinions for subsequent periodic filings under the Exchange Act, counsel may furnish the Agent with a letter (a "**Reliance Letter**") to the effect that the Agent may rely on a prior opinion delivered under this Section 7(m) to the same extent as if it were dated the date of such letter (except that statements in such prior opinion shall be deemed to relate to the Registration Statement and the Prospectus as amended or supplemented as of the date of the Reliance Letter).

(n) Comfort Letter. (1) Prior to the date of the first Placement Notice and (2) within five (5) Trading Days of each Representation Date with respect to which the Company is obligated to deliver a certificate pursuant to Section 7(l), for which no waiver is applicable and excluding the date of this Agreement, the Company shall cause its independent registered public accounting firm to furnish the Agent letters (the “**Comfort Letters**”), dated the date the Comfort Letter is delivered, which shall meet the requirements set forth in this Section 7(n); *provided*, that if reasonably requested by the Agent, the Company shall cause a Comfort Letter to be furnished to the Agent within ten (10) Trading Days of the date of occurrence of any material transaction or event, including the restatement of the Company’s financial statements. The Comfort Letter from the Company’s independent registered public accounting firm shall be in a form and substance satisfactory to the Agent, (i) confirming that they are an independent registered public accounting firm within the meaning of the Securities Act and the PCAOB, (ii) stating, as of such date, the conclusions and findings of such firm with respect to the financial information and other matters ordinarily covered by accountants’ “comfort letters” to underwriters in connection with registered public offerings (the first such letter, the “**Initial Comfort Letter**”) and (iii) updating the Initial Comfort Letter with any information that would have been included in the Initial Comfort Letter had it been given on such date and modified as necessary to relate to the Registration Statement and the Prospectus, as amended and supplemented to the date of such letter.

(o) Market Activities. The Company will not, directly or indirectly, (i) take any action designed to cause or result in, or that constitutes or might reasonably be expected to constitute, the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of Common Stock or (ii) sell, bid for, or purchase Common Stock in violation of Regulation M, or pay anyone any compensation for soliciting purchases of the Placement Shares other than the Agent.

(p) Investment Company Act. The Company will conduct its affairs in such a manner so as to reasonably ensure that neither it nor any of its Subsidiaries will be or become, at any time prior to the termination of this Agreement, required to register as an “investment company,” as such term is defined in the Investment Company Act.

(q) No Offer to Sell. Other than an Issuer Free Writing Prospectus approved in advance by the Company and the Agent in its capacity as agent hereunder, neither the Agent nor the Company (including its agents and representatives, other than the Agent in its capacity as such) will make, use, prepare, authorize, approve or refer to any written communication (as defined in Rule 405 under the Securities Act), required to be filed with the Commission, that constitutes an offer to sell or solicitation of an offer to buy Placement Shares hereunder.

(r) Blue Sky and Other Qualifications. The Company will use its commercially reasonable efforts, in cooperation with the Agent, to qualify the Placement Shares for offering and sale, or to obtain an exemption for the Placement Shares to be offered and sold, under the applicable securities laws of such states and other jurisdictions (domestic or foreign) as the Agent may designate and to maintain such qualifications and exemptions in effect for so long as required for the distribution of the Placement Shares (but in no event for less than one year from the date of this Agreement); *provided, however*, that the Company shall not be obligated to file any general consent to service of process or to qualify as a foreign corporation or as a dealer in securities in any jurisdiction in which it is not so qualified or to subject itself to taxation in respect of doing business in any jurisdiction in which it is not otherwise so subject. In each jurisdiction in which the Placement Shares have been so qualified or exempt, the Company will file such statements and reports as may be required by the laws of such jurisdiction to continue such qualification or exemption, as the case may be, in effect for so long as required for the distribution of the Placement Shares (but in no event for less than one year from the date of this Agreement).

(s) Sarbanes-Oxley Act. The Company and the Subsidiaries will maintain and keep accurate books and records reflecting their assets and maintain internal accounting controls in a manner designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP and including those policies and procedures that (i) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the Company, (ii) provide reasonable assurance that transactions are recorded as necessary to permit the preparation of the Company's consolidated financial statements in accordance with GAAP, (iii) that receipts and expenditures of the Company are being made only in accordance with management's and the Company's directors' authorization, and (iv) 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 its financial statements. The Company and the Subsidiaries will maintain such controls and other procedures, including, without limitation, those required by Sections 302 and 906 of the Sarbanes-Oxley Act, and the applicable regulations thereunder that are designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Commission's rules and forms, including, without limitation, controls and procedures designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the Company's management, including its principal executive officer and principal financial officer, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure and to ensure that material information relating to the Company or the Subsidiaries is made known to them by others within those entities, particularly during the period in which such periodic reports are being prepared.

(t) Secretary's Certificate; Further Documentation. Prior to the date of the first Placement Notice, the Company shall deliver to the Agent a certificate of the Secretary of the Company and attested to by an executive officer of the Company, dated as of such date, certifying as to (i) the Articles of Incorporation of the Company, (ii) the Bylaws of the Company, (iii) the resolutions of the Board of Directors of the Company authorizing the execution, delivery and performance of this Agreement and the issuance of the Placement Shares and (iv) the incumbency of the officers duly authorized to execute this Agreement and the other documents contemplated by this Agreement. Within five (5) Trading Days of each Representation Date, the Company shall have furnished to the Agent such further information, certificates and documents as the Agent may reasonably request.

8. Payment of Expenses. The Company will pay all expenses incident to the performance of its obligations under this Agreement, including (i) the preparation and filing of the Registration Statement, including any fees required by the Commission, and the printing or electronic delivery of the Prospectus as originally filed and of each amendment and supplement thereto, in such number as the Agent shall deem necessary, (ii) the printing and delivery to the Agent of this Agreement and such other documents as may be required in connection with the offering, purchase, sale, issuance or delivery of the Placement Shares, (iii) the preparation, issuance and delivery of the certificates, if any, for the Placement Shares to the Agent, including any stock or other transfer taxes and any capital duties, stamp duties or other duties or taxes payable upon the sale, issuance or delivery of the Placement Shares to the Agent, (iv) the fees and disbursements of the counsel, accountants and other advisors to the Company, (v) the fees and expenses of Agent including but not limited to the fees and expenses of the counsel to the Agent, payable upon the execution of this Agreement, in an amount not to exceed \$50,000, (vi) the qualification or exemption of the Placement Shares under state securities laws in accordance with the provisions of Section 7(r) hereof, including filing fees, but excluding fees of the Agent's counsel, (vii) the printing and delivery to the Agent of copies of any Permitted Issuer Free Writing Prospectus and the Prospectus and any amendments or supplements thereto in such number as the Agent shall deem necessary, (viii) the preparation, printing and delivery to the Agent of copies of the blue sky survey, (ix) the fees and expenses of the transfer agent and registrar for the Common Stock, (x) the filing and other fees incident to any review by FINRA of the terms of the sale of the Placement Shares including the fees of the Agent's counsel (subject to the cap, set forth in clause (v) above), and (xi) the fees and expenses incurred in connection with the listing of the Placement Shares on the Exchange.

9. Representations and Covenants of Agent. The Agent represents and warrants that it is duly registered as a broker-dealer under FINRA, the Exchange Act and the applicable statutes and regulations of each state in which the Placement Shares will be offered and sold, except such states in which the Agent is exempt from registration or such registration is not otherwise required. The Agent shall continue, for the term of this Agreement, to be duly registered as a broker-dealer under FINRA, the Exchange Act and the applicable statutes and regulations of each state in which the Placement Shares will be offered and sold, except such states in which the Agent is exempt from registration or such registration is not otherwise required, during the term of this Agreement. The Agent will comply in all material respects with all applicable law and regulations in connection with the Placement Shares, including, but not limited to, Regulation M.

10. Conditions to Agent's Obligations. The obligations of the Agent hereunder with respect to a Placement will be subject to the continuing accuracy and completeness of the representations and warranties made by the Company herein, to the due performance by the Company of its obligations hereunder, to the completion by the Agent of a due diligence review satisfactory to it in its reasonable judgment, and to the continuing satisfaction (or waiver by the Agent in its sole discretion) of the following additional conditions:

(a) Registration Statement Effective. The Registration Statement shall have become effective and shall be available for the (i) resale of all Placement Shares issued to the Agent and not yet sold by the Agent and (ii) sale of all Placement Shares contemplated to be issued by any Placement Notice.

(b) No Material Notices. None of the following events shall have occurred and be continuing: (i) receipt by the Company of any request for additional information from the Commission or any other federal or state Governmental Authority during the period of effectiveness of the Registration Statement, the response to which would require any post-effective amendments or supplements to the Registration Statement or the Prospectus; (ii) the issuance by the Commission or any other federal or state Governmental Authority of any stop order suspending the effectiveness of the Registration Statement or the initiation of any proceedings for that purpose; (iii) receipt by the Company of any notification with respect to the suspension of the qualification or exemption from qualification of any of the Placement Shares for sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose; or (iv) the occurrence of any event that makes any material statement made in the Registration Statement or the Prospectus or any material Incorporated Document untrue in any material respect or that requires the making of any changes in the Registration Statement, the Prospectus or Incorporated Documents so that, in the case of the Registration Statement, it will not contain an untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading and, that in the case of the Prospectus, it will not contain an untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(c) No Misstatement or Material Omission. Agent shall not have advised the Company that the Registration Statement or Prospectus, or any amendment or supplement thereto, contains an untrue statement of fact that in the Agent's reasonable opinion is material, or omits to state a fact that in the Agent's reasonable opinion is material and is required to be stated therein or is necessary to make the statements therein not misleading.

(d) Material Changes. Except as contemplated in the Prospectus, or disclosed in the Company's reports filed with the Commission, there shall not have been any material adverse change in the authorized capital stock of the Company or any Material Adverse Effect or any development that would reasonably be expected to cause a Material Adverse Effect, or a downgrading in or withdrawal of the rating assigned to any of the Company's securities (other than asset backed securities) by any rating organization or a public announcement by any rating organization that it has under surveillance or review its rating of any of the Company's securities (other than asset backed securities), the effect of which, in the case of any such action by a rating organization described above, in the reasonable judgment of the Agent (without relieving the Company of any obligation or liability it may otherwise have), is so material as to make it impracticable or inadvisable to proceed with the offering of the Placement Shares on the terms and in the manner contemplated in the Prospectus.

(e) Legal Opinions. The Agent shall have received the opinions of Company Counsel required to be delivered pursuant to Section 7(m) on or before the date on which such delivery of such opinions is required pursuant to Section 7(m).

(f) Comfort Letter. The Agent shall have received the Comfort Letter required to be delivered pursuant to Section 7(n) on or before the date on which such delivery of such Comfort Letter is required pursuant to Section 7(n).

(g) Representation Certificate. The Agent shall have received the certificate required to be delivered pursuant to Section 7(l) on or before the date on which delivery of such certificate is required pursuant to Section 7(l).

(h) No Suspension. Trading in the Common Stock shall not have been suspended on the Exchange and the Common Stock shall not have been delisted from the Exchange.

(i) Other Materials. On each date on which the Company is required to deliver a certificate pursuant to Section 7(l), the Company shall have furnished to the Agent such appropriate further information, opinions, certificates, letters and other documents as the Agent may reasonably request. All such opinions, certificates, letters and other documents will be in compliance with the provisions hereof.

(j) Securities Act Filings Made. All filings with the Commission with respect to the Placement Shares required by Rule 424 under the Securities Act to have been filed prior to the issuance of any Placement Notice hereunder shall have been made within the applicable time period prescribed for such filing by Rule 424.

(k) Approval for Listing. The Placement Shares shall either have been (i) approved for listing on the Exchange, subject only to notice of issuance, or (ii) the Company shall have filed an application for listing of the Placement Shares on the Exchange at, or prior to, the issuance of any Placement Notice and the Exchange shall have reviewed such application and not provided any objections thereto.

(l) FINRA. If applicable, FINRA shall have raised no objection to the terms of this offering and the amount of compensation allowable or payable to the Agent as described in the Prospectus.

(m) No Termination Event. There shall not have occurred any event that would permit the Agent to terminate this Agreement pursuant to Section 12(a).

11. Indemnification and Contribution.

(a) Company Indemnification. The Company agrees to indemnify and hold harmless the Agent, its affiliates and their respective partners, members, directors, officers, employees and agents and each person, if any, who controls the Agent or any affiliate within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act as follows:

(i) against any and all loss, liability, claim, damage and expense whatsoever, as incurred, joint or several, arising out of or based upon any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement (or any amendment thereto), or the omission or alleged omission therefrom of a material fact required to be stated therein or necessary to make the statements therein not misleading, or arising out of any untrue statement or alleged untrue statement of a material fact included in any related Issuer Free Writing Prospectus or the Prospectus (or any amendment or supplement thereto), or the omission or alleged omission therefrom of a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading;

(ii) against any and all loss, liability, claim, damage and expense whatsoever, as incurred, joint or several, to the extent of the aggregate amount paid in settlement of any litigation, or any investigation or proceeding by any governmental agency or body, commenced or threatened, or of any claim whatsoever based upon any such untrue statement or omission, or any such alleged untrue statement or omission; *provided* that (subject to Section 10(d) below) any such settlement is effected with the written consent of the Company, which consent shall not unreasonably be delayed or withheld; and

(iii) against any and all expense whatsoever, as incurred (including the fees and disbursements of counsel), reasonably incurred in investigating, preparing or defending against any litigation, or any investigation or proceeding by any governmental agency or body, commenced or threatened, or any claim whatsoever based upon any such untrue statement or omission, or any such alleged untrue statement or omission (whether or not a party), to the extent that any such expense is not paid under (i) or (ii) above,

provided, however, that this indemnity agreement shall not apply to any loss, liability, claim, damage or expense to the extent arising out of any untrue statement or omission or alleged untrue statement or omission made solely in reliance upon and in conformity with the Agent Information (as defined below).

(b) Agent Indemnification. Agent agrees to indemnify and hold harmless the Company and its directors and each officer of the Company who signed the Registration Statement, and each person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act against any and all loss, liability, claim, damage and expense described in the indemnity contained in Section 10(a), as incurred, but only with respect to untrue statements or omissions, or alleged untrue statements or omissions, made in the Registration Statement (or any amendments thereto), the Prospectus (or any amendment or supplement thereto) or any Issuer Free Writing Prospectus (or any amendment or supplement thereto) in reliance upon and in conformity with information relating to the Agent and furnished to the Company in writing by the Agent expressly for use therein. The Company hereby acknowledges that the only information that the Agent has furnished to the Company expressly for use in the Registration Statement, the Prospectus or any Issuer Free Writing Prospectus (or any amendment or supplement thereto) are the statements set forth in the seventh and eighth paragraphs under the caption “Plan of Distribution” in the Prospectus (the “Agent Information”).

(c) Procedure. Any party that proposes to assert the right to be indemnified under this Section 11 will, promptly after receipt of notice of commencement of any action against such party in respect of which a claim is to be made against an indemnifying party or parties under this Section 11, notify each such indemnifying party of the commencement of such action, enclosing a copy of all papers served, but the omission so to notify such indemnifying party will not relieve the indemnifying party from (i) any liability that it might have to any indemnified party otherwise than under this Section 11 and (ii) any liability that it may have to any indemnified party under the foregoing provision of this Section 11 unless, and only to the extent that, such omission results in the forfeiture of substantive rights or defenses by the indemnifying party. If any such action is brought against any indemnified party and it notifies the indemnifying party of its commencement, the indemnifying party will be entitled to participate in and, to the extent that it elects by delivering written notice to the indemnified party promptly after receiving notice of the commencement of the action from the indemnified party, jointly with any other indemnifying party similarly notified, to assume the defense of the action, with counsel reasonably satisfactory to the indemnified party, and after notice from the indemnifying party to the indemnified party of its election to assume the defense, the indemnifying party will not be liable to the indemnified party for any other legal expenses except as provided below and except for the reasonable costs of investigation subsequently incurred by the indemnified party in connection with the defense. The indemnified party will have the right to employ its own counsel in any such action, but the fees, expenses and other charges of such counsel will be at the expense of such indemnified party unless (1) the employment of counsel by the indemnified party has been authorized in writing by the indemnifying party, (2) the indemnified party has reasonably concluded (based on advice of counsel) that there may be legal defenses available to it or other indemnified parties that are different from or in addition to those available to the indemnifying party, (3) a conflict or potential conflict exists (based on advice of counsel to the indemnified party) between the indemnified party and the indemnifying party (in which case the indemnifying party will not have the right to direct the defense of such action on behalf of the indemnified party) or (4) the indemnifying party has not in fact employed counsel to assume the defense of such action or counsel reasonably satisfactory to the indemnified party, in each case, within a reasonable time after receiving notice of the commencement of the action; in each of which cases the reasonable fees, disbursements and other charges of counsel will be at the expense of the indemnifying party or parties. It is understood that the indemnifying party or parties shall not, in connection with any proceeding or related proceedings in the same jurisdiction, be liable for the reasonable fees, disbursements and other charges of more than one separate firm (plus local counsel) admitted to practice in such jurisdiction at any one time for all such indemnified party or parties. All such fees, disbursements and other charges will be reimbursed by the indemnifying party after the indemnifying party receives a written notice relating to the fees, disbursements and other charges in reasonable detail. An indemnifying party will not, in any event, be liable for any settlement of any action or claim effected without its written consent. No indemnifying party shall, without the prior written consent of each indemnified party, settle or compromise or consent to the entry of any judgment in any pending or threatened claim, action or proceeding relating to the matters contemplated by this Section 11 (whether or not any indemnified party is a party thereto), unless such settlement, compromise or consent (1) includes an unconditional release of each indemnified party, in form and substance reasonably satisfactory to such indemnified party, from all liability arising out of such litigation, investigation, proceeding or claim and (2) does not include a statement as to or an admission of fault, culpability or a failure to act by or on behalf of any indemnified party.

(d) Settlement Without Consent if Failure to Reimburse. If an indemnified party shall have requested an indemnifying party to reimburse the indemnified party for reasonable fees and expenses of counsel, such indemnifying party agrees that it shall be liable for any settlement of the nature contemplated by Section 11(a)(ii) effected without its written consent if (1) such settlement is entered into more than 45 days after receipt by such indemnifying party of the aforesaid request, (2) such indemnifying party shall have received notice of the terms of such settlement at least 30 days prior to such settlement being entered into and (3) such indemnifying party shall not have reimbursed such indemnified party in accordance with such request prior to the date of such settlement.

(e) Contribution. In order to provide for just and equitable contribution in circumstances in which the indemnification provided for in the foregoing paragraphs of this Section 10 is applicable in accordance with its terms but for any reason is held to be unavailable or insufficient from the Company or the Agent, the Company and the Agent will contribute to the total losses, claims, liabilities, expenses and damages (including any investigative, legal and other expenses reasonably incurred in connection with, and any amount paid in settlement of, any action, suit or proceeding or any claim asserted) to which the Company and the Agent may be subject in such proportion as shall be appropriate to reflect the relative benefits received by the Company on the one hand and the Agent on the other hand. The relative benefits received by the Company on the one hand and the Agent on the other hand shall be deemed to be in the same proportion as the total net proceeds from the sale of the Placement Shares (before deducting expenses) received by the Company bear to the total compensation received by the Agent from the sale of Placement Shares on behalf of the Company. If, but only if, the allocation provided by the foregoing sentence is not permitted by applicable law, the allocation of contribution shall be made in such proportion as is appropriate to reflect not only the relative benefits referred to in the foregoing sentence but also the relative fault of the Company, on the one hand, and the Agent, on the other hand, with respect to the statements or omission that resulted in such loss, claim, liability, expense or damage, or action in respect thereof, as well as any other relevant equitable considerations with respect to such offering. Such relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or omission or alleged omission to state a material fact relates to information supplied by the Company or the Agent, the intent of the parties and their relative knowledge, access to information and opportunity to correct or prevent such statement or omission. The Company and the Agent agree that it would not be just and equitable if contributions pursuant to this Section 11(e) were to be determined by pro rata allocation or by any other method of allocation that does not take into account the equitable considerations referred to herein. The amount paid or payable by an indemnified party as a result of the loss, claim, liability, expense, or damage, or action in respect thereof, referred to above in this Section 11(e) shall be deemed to include, for the purpose of this Section 11(e), any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any such action or claim to the extent consistent with Section 11(c) hereof. Notwithstanding the foregoing provisions of this Section 11(e), the Agent shall not be required to contribute any amount in excess of the commissions received by it under this Agreement and no person found guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) will be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. For purposes of this Section 11(e), any person who controls a party to this Agreement within the meaning of the Securities Act, any affiliates of the Agent and any officers, directors, partners, employees or agents of the Agent or any of its affiliates, will have the same rights to contribution as that party, and each director of the Company and each officer of the Company who signed the Registration Statement will have the same rights to contribution as the Company, subject in each case to the provisions hereof. Any party entitled to contribution, promptly after receipt of notice of commencement of any action against such party in respect of which a claim for contribution may be made under this Section 11(e), will notify any such party or parties from whom contribution may be sought, but the omission to so notify will not relieve that party or parties from whom contribution may be sought from any other obligation it or they may have under this Section 11(e) except to the extent that the failure to so notify such other party materially prejudiced the substantive rights or defenses of the party from whom contribution is sought. Except for a settlement entered into pursuant to the last sentence of Section 11(c) hereof, no party will be liable for contribution with respect to any action or claim settled without its written consent if such consent is required pursuant to Section 11(c) hereof.

12. Representations and Agreements to Survive Delivery. The indemnity and contribution agreements contained in Section 11 of this Agreement and all representations and warranties of the Company herein or in certificates delivered pursuant hereto shall survive, as of their respective dates, regardless of (i) any investigation made by or on behalf of the Agent, any controlling persons, or the Company (or any of their respective officers, directors, employees or controlling persons), (ii) delivery and acceptance of the Placement Shares and payment therefor or (iii) any termination of this Agreement.

13. Termination.

(a) The Agent may terminate this Agreement, by notice to the Company, as hereinafter specified at any time (1) if there has been, since the time of execution of this Agreement or since the date as of which information is given in the Prospectus, any change, or any development or event involving a prospective change, in the condition, financial or otherwise, or in the business, properties, earnings, results of operations or prospects of the Company and its Subsidiaries considered as one enterprise, whether or not arising in the ordinary course of business, which individually or in the aggregate, in the sole judgment of the Agent is material and adverse and makes it impractical or inadvisable to market the Placement Shares or to enforce contracts for the sale of the Placement Shares, (2) if there has occurred any material adverse change in the financial markets in the United States or the international financial markets, any outbreak of hostilities or escalation thereof or other calamity or crisis or any change or development involving a prospective change in national or international political, financial or economic conditions, in each case the effect of which is such as to make it, in the judgment of the Agent, impracticable or inadvisable to market the Placement Shares or to enforce contracts for the sale of the Placement Shares, (3) if trading in the Common Stock has been suspended or limited by the Commission or the Exchange, or if trading generally on the Exchange has been suspended or limited, or minimum prices for trading have been fixed on the Exchange, (4) if any suspension of trading of any securities of the Company on any exchange or in the over-the-counter market shall have occurred and be continuing, (5) if a major disruption of securities settlements or clearance services in the United States shall have occurred and be continuing, or (6) if a banking moratorium has been declared by either U.S. Federal or New York authorities. Any such termination shall be without liability of any party to any other party except that the provisions of Section 8 (Payment of Expenses), Section 11 (Indemnification and Contribution), Section 12 (Representations and Agreements to Survive Delivery), Section 18 (Governing Law and Time; Waiver of Jury Trial) and Section 19 (Consent to Jurisdiction) hereof shall remain in full force and effect notwithstanding such termination. If the Agent elects to terminate this Agreement as provided in this Section 13(a), the Agent shall provide the required notice as specified in Section 14 (Notices).

(b) The Company shall have the right, by giving ten (10) days notice as hereinafter specified to terminate this Agreement in its sole discretion at any time after the date of this Agreement. Any such termination shall be without liability of any party to any other party except that the provisions of Section 8, Section 11, Section 12, Section 18 and Section 19 hereof shall remain in full force and effect notwithstanding such termination.

(c) The Agent shall have the right, by giving ten (10) days notice as hereinafter specified to terminate this Agreement in its sole discretion at any time after the date of this Agreement. Any such termination shall be without liability of any party to any other party except that the provisions of Section 8, Section 11, Section 12, Section 18 and Section 19 hereof shall remain in full force and effect notwithstanding such termination.

(d) This Agreement shall remain in full force and effect unless terminated pursuant to Sections 13(a), (b), or (c) above or otherwise by mutual agreement of the parties; *provided, however*, that any such termination by mutual agreement shall in all cases be deemed to provide that Section 8, Section 11, Section 12, Section 18 and Section 19 shall remain in full force and effect.

(e) Any termination of this Agreement shall be effective on the date specified in such notice of termination; *provided, however*, that such termination shall not be effective until the close of business on the date of receipt of such notice by the Agent or the Company, as the case may be. If such termination shall occur prior to the Settlement Date for any sale of Placement Shares, such Placement Shares shall settle in accordance with the provisions of this Agreement.

14. **Notices.** All notices or other communications required or permitted to be given by any party to any other party pursuant to the terms of this Agreement shall be in writing, unless otherwise specified, and if sent to the Agent, shall be delivered to:

Cantor Fitzgerald & Co.  
499 Park Avenue  
New York, NY 10022  
Attention: Capital Markets/Jeffrey Lumby  
Facsimile: (212) 307-3730

and:

Cantor Fitzgerald & Co.  
499 Park Avenue  
New York, NY 10022  
Attention: General Counsel  
Facsimile: (212) 829-4708

with a copy to:

Cooley LLP  
1114 Avenue of the Americas  
New York, NY 10036  
Attention: Daniel I. Goldberg, Esq.  
Facsimile: (212) 479-6275

and if to the Company, shall be delivered to:

BioTime, Inc.  
1010 Atlantic Avenue, #102  
Alameda, CA 94501  
Attention: Chief Financial Officer

with a copy to:

K&L Gates LLP  
1 Park Plaza, Twelfth Floor  
Irvine, CA 92614  
Attention: Michael A. Hedge

Each party to this Agreement may change such address for notices by sending to the parties to this Agreement written notice of a new address for such purpose. Each such notice or other communication shall be deemed given (i) when delivered personally or by verifiable facsimile transmission (with an original to follow) on or before 4:30 p.m., New York City time, on a Business Day or, if such day is not a Business Day, on the next succeeding Business Day, (ii) on the next Business Day after timely delivery to a nationally-recognized overnight courier and (iii) on the Business Day actually received if deposited in the U.S. mail (certified or registered mail, return receipt requested, postage prepaid). For purposes of this Agreement, "**Business Day**" shall mean any day on which the Exchange and commercial banks in the City of New York are open for business.

An electronic communication ("**Electronic Notice**") shall be deemed written notice for purposes of this [Section 14](#) if sent to the electronic mail address specified by the receiving party under separate cover. Electronic Notice shall be deemed received at the time the party sending Electronic Notice receives verification of receipt by the receiving party. Any party receiving Electronic Notice may request and shall be entitled to receive the notice on paper, in a nonelectronic form ("**Nonelectronic Notice**") which shall be sent to the requesting party within ten (10) days of receipt of the written request for Nonelectronic Notice.

15. **Successors and Assigns.** This Agreement shall inure to the benefit of and be binding upon the Company and the Agent and their respective successors and the parties referred to in Section 11 hereof. References to any of the parties contained in this Agreement shall be deemed to include the successors and permitted assigns of such party. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and permitted assigns any rights, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided in this Agreement. Neither party may assign its rights or obligations under this Agreement without the prior written consent of the other party; *provided, however*, that the Agent may assign its rights and obligations hereunder to an affiliate thereof without obtaining the Company's consent.

16. **Adjustments for Stock Splits.** The parties acknowledge and agree that all share-related numbers contained in this Agreement shall be adjusted to take into account any stock split, stock dividend or similar event effected with respect to the Placement Shares.

17. **Entire Agreement; Amendment; Severability; Waiver.** This Agreement (including all schedules and exhibits attached hereto and Placement Notices issued pursuant hereto) constitutes the entire agreement and supersedes all other prior and contemporaneous agreements and undertakings, both written and oral, among the parties hereto with regard to the subject matter hereof. Neither this Agreement nor any term hereof may be amended except pursuant to a written instrument executed by the Company and the Agent. In the event that any one or more of the provisions contained herein, or the application thereof in any circumstance, is held invalid, illegal or unenforceable as written by a court of competent jurisdiction, then such provision shall be given full force and effect to the fullest possible extent that it is valid, legal and enforceable, and the remainder of the terms and provisions herein shall be construed as if such invalid, illegal or unenforceable term or provision was not contained herein, but only to the extent that giving effect to such provision and the remainder of the terms and provisions hereof shall be in accordance with the intent of the parties as reflected in this Agreement. No implied waiver by a party shall arise in the absence of a waiver in writing signed by such party. No failure or delay in exercising any right, power, or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any right, power, or privilege hereunder.

18. **GOVERNING LAW AND TIME; WAIVER OF JURY TRIAL.** THIS AGREEMENT SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW YORK WITHOUT REGARD TO THE PRINCIPLES OF CONFLICTS OF LAWS. SPECIFIED TIMES OF DAY REFER TO NEW YORK CITY TIME. EACH PARTY HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY.

19. **CONSENT TO JURISDICTION.** EACH PARTY HEREBY IRREVOCABLY SUBMITS TO THE EXCLUSIVE JURISDICTION OF THE STATE AND FEDERAL COURTS SITTING IN THE CITY OF NEW YORK, BOROUGH OF MANHATTAN, FOR THE ADJUDICATION OF ANY DISPUTE HEREUNDER OR IN CONNECTION WITH ANY TRANSACTION CONTEMPLATED HEREBY, AND HEREBY IRREVOCABLY WAIVES, AND AGREES NOT TO ASSERT IN ANY SUIT, ACTION OR PROCEEDING, ANY CLAIM THAT IT IS NOT PERSONALLY SUBJECT TO THE JURISDICTION OF ANY SUCH COURT, THAT SUCH SUIT, ACTION OR PROCEEDING IS BROUGHT IN AN INCONVENIENT FORUM OR THAT THE VENUE OF SUCH SUIT, ACTION OR PROCEEDING IS IMPROPER. EACH PARTY HEREBY IRREVOCABLY WAIVES PERSONAL SERVICE OF PROCESS AND CONSENTS TO PROCESS BEING SERVED IN ANY SUCH SUIT, ACTION OR PROCEEDING BY MAILING A COPY THEREOF (CERTIFIED OR REGISTERED MAIL, RETURN RECEIPT REQUESTED) TO SUCH PARTY AT THE ADDRESS IN EFFECT FOR NOTICES TO IT UNDER THIS AGREEMENT AND AGREES THAT SUCH SERVICE SHALL CONSTITUTE GOOD AND SUFFICIENT SERVICE OF PROCESS AND NOTICE THEREOF. NOTHING CONTAINED HEREIN SHALL BE DEEMED TO LIMIT IN ANY WAY ANY RIGHT TO SERVE PROCESS IN ANY MANNER PERMITTED BY LAW.

20. Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Delivery of an executed Agreement by one party to the other may be made by facsimile or electronic transmission.

21. Construction. The section and exhibit headings herein are for convenience only and shall not affect the construction hereof. References herein to any law, statute, ordinance, code, regulation, rule or other requirement of any Governmental Authority shall be deemed to refer to such law, statute, ordinance, code, regulation, rule or other requirement of any Governmental Authority as amended, reenacted, supplemented or superseded in whole or in part and in effect from time to time and also to all rules and regulations promulgated thereunder.

22. Permitted Free Writing Prospectuses. The Company represents, warrants and agrees that, unless it obtains the prior written consent of the Agent, which consent shall not be unreasonably withheld, conditioned or delayed, and the Agent represents, warrants and agrees that, unless it obtains the prior written consent of the Company, which consent shall not be unreasonably withheld, conditioned or delayed, it has not made and will not make any offer relating to the Placement Shares that would constitute an Issuer Free Writing Prospectus, or that would otherwise constitute a “free writing prospectus,” as defined in Rule 405, required to be filed with the Commission. Any such free writing prospectus consented to by the Agent or by the Company, as the case may be, is hereinafter referred to as a “Permitted Free Writing Prospectus.” The Company represents and warrants that it has treated and agrees that it will treat each Permitted Free Writing Prospectus as an “issuer free writing prospectus,” as defined in Rule 433, and has complied and will comply with the requirements of Rule 433 applicable to any Permitted Free Writing Prospectus, including timely filing with the Commission where required, legending and record keeping. For the purposes of clarity, the parties hereto agree that all free writing prospectuses, if any, listed in Exhibit 21 hereto are Permitted Free Writing Prospectuses.

23. Absence of Fiduciary Relationship. The Company acknowledges and agrees that:

(a) the Agent is acting solely as agent in connection with the public offering of the Placement Shares and in connection with each transaction contemplated by this Agreement and the process leading to such transactions, and no fiduciary or advisory relationship between the Company or any of its respective affiliates, stockholders (or other equity holders), creditors or employees or any other party, on the one hand, and the Agent, on the other hand, has been or will be created in respect of any of the transactions contemplated by this Agreement, irrespective of whether or not the Agent has advised or is advising the Company on other matters, and the Agent has no obligation to the Company with respect to the transactions contemplated by this Agreement except the obligations expressly set forth in this Agreement;

(b) it is capable of evaluating and understanding, and understands and accepts, the terms, risks and conditions of the transactions contemplated by this Agreement;

(c) neither the Agent nor its affiliates have provided any legal, accounting, regulatory or tax advice with respect to the transactions contemplated by this Agreement and it has consulted its own legal, accounting, regulatory and tax advisors to the extent it has deemed appropriate;

(d) it is aware that the Agent and its affiliates are engaged in a broad range of transactions which may involve interests that differ from those of the Company and the Agent and its affiliates have no obligation to disclose such interests and transactions to the Company by virtue of any fiduciary, advisory or agency relationship or otherwise; and

(e) it waives, to the fullest extent permitted by law, any claims it may have against the Agent or its affiliates for breach of fiduciary duty or alleged breach of fiduciary duty in connection with the sale of Placement Shares under this Agreement and agrees that the Agent and its affiliates shall not have any liability (whether direct or indirect, in contract, tort or otherwise) to it in respect of such a fiduciary duty claim or to any person asserting a fiduciary duty claim on its behalf or in right of it or the Company, employees or creditors of Company.

24. Definitions. As used in this Agreement, the following terms have the respective meanings set forth below:

**“Applicable Time”** means (i) each Representation Date, (ii) the time of each sale of any Placement Shares pursuant to this Agreement and (iii) each Settlement Date.

**“Governmental Authority”** means (i) any federal, provincial, state, local, municipal, national or international government or governmental authority, regulatory or administrative agency, governmental commission, department, board, bureau, agency or instrumentality, court, tribunal, arbitrator or arbitral body (public or private); (ii) any self-regulatory organization; or (iii) any political subdivision of any of the foregoing.

**“Issuer Free Writing Prospectus”** means any “issuer free writing prospectus,” as defined in Rule 433, relating to the Placement Shares that (1) is required to be filed with the Commission by the Company, (2) is a “road show” that is a “written communication” within the meaning of Rule 433(d)(8)(i) whether or not required to be filed with the Commission, or (3) is exempt from filing pursuant to Rule 433(d)(5)(i) because it contains a description of the Placement Shares or of the offering that does not reflect the final terms, in each case in the form filed or required to be filed with the Commission or, if not required to be filed, in the form retained in the Company’s records pursuant to Rule 433(g) under the Securities Act Regulations.

**“Rule 164,” “Rule 172,” “Rule 405,” “Rule 415,” “Rule 424,” “Rule 424(b),” “Rule 430B,”** and **“Rule 433”** refer to such rules under the Securities Act Regulations.

All references in this Agreement to financial statements and schedules and other information that is “contained,” “included” or “stated” in the Registration Statement or the Prospectus (and all other references of like import) shall be deemed to mean and include all such financial statements and schedules and other information that is incorporated by reference in the Registration Statement or the Prospectus, as the case may be.

All references in this Agreement to the Registration Statement, the Prospectus or any amendment or supplement to any of the foregoing shall be deemed to include the copy filed with the Commission pursuant to EDGAR; all references in this Agreement to any Issuer Free Writing Prospectus (other than any Issuer Free Writing Prospectuses that, pursuant to Rule 433, are not required to be filed with the Commission) shall be deemed to include the copy thereof filed with the Commission pursuant to EDGAR; and all references in this Agreement to “supplements” to the Prospectus shall include, without limitation, any supplements, “wrappers” or similar materials prepared in connection with any offering, sale or private placement of any Placement Shares by the Agent outside of the United States.

*[Signature Page Follows]*

If the foregoing correctly sets forth the understanding between the Company and the Agent, please so indicate in the space provided below for that purpose, whereupon this letter shall constitute a binding agreement between the Company and the Agent.

Very truly yours,

BIOTIME, INC.

By: /s/Russell Skibsted  
Name: Russell Skibsted  
Title: Chief Financial Officer

ACCEPTED as of the date first-above written:

CANTOR FITZGERALD & CO.

By: /s/Jeffrey Lumby  
Name: Jeffrey Lumby  
Title: Senior Managing Director

---

SCHEDULE 1

---

Form of Placement Notice

---

From: BioTime, Inc.

To: Cantor Fitzgerald & Co.  
Attention: [•]

Subject: Placement Notice

Date: [•], 201[•]

Ladies and Gentlemen:

Pursuant to the terms and subject to the conditions contained in the Sales Agreement between BioTime, Inc., a California corporation (the "**Company**"), and Cantor Fitzgerald & Co. ("**Agent**"), dated April 6, 2017, the Company hereby requests that the Agent sell up to [•] of the Company's common stock, no par value per share, at a minimum market price of \$[•] per share, during the time period beginning [month, day, time] and ending [month, day, time].

---

## SCHEDULE 2

---

### Compensation

---

The Company shall pay to the Agent in cash, upon each sale of Placement Shares pursuant to this Agreement, an amount equal to 3.0% of the aggregate gross proceeds from each sale of Placement Shares.

---

**SCHEDULE 3**

---

**Notice Parties**

---

The Company

Russell Skibsted

Stephana Patton

The Agent

Jeffrey Lumby (jlumby@cantor.com)

Joshua Feldman (jfeldman@cantor.com)

Sameer Vasudev (svasudev@cantor.com)

With copies to:

CFControlledEquityOffering@cantor.com

---

**Exhibit 21**

**Permitted Free Writing Prospectus**

None.

---

**BIOTIME, INC.**

**Issuer**

**AND**

**as Trustee**

**INDENTURE**

**Dated as of           , 20**

**Debt Securities**

---

**CROSS-REFERENCE TABLE(1)****SECTION OF  
TRUST INDENTURE  
ACT OF 1939, AS AMENDED****SECTION(S) OF  
INDENTURE**

---

310(a)	7.9
310(b)	7.8
311(a)	7.13
311(b)	7.13
312(a)	5.1, 5.2(a)
312(b)	5.2(b)
312(c)	5.2(c)
313(a)	5.4
313(b)	5.4
313(c)	5.4
313(d)	5.4
314(a)	5.3, 14.12
314(c)	14.7(a)
314(e)	14.7(b)
315(a)	7.1
315(b)	7.14
315(c)	7.1
315(d)	7.1
315(e)	6.7
316(a)	6.6, 8.4
316(b)	6.4
316(c)	8.1
317(a)	6.2
317(b)	4.2
318(a)	14.9

(1) This Cross-Reference Table does not constitute part of the Indenture and shall not have any bearing on the interpretation of any of its terms or provisions.

---

**TABLE OF CONTENTS**

		<b>Page</b>
ARTICLE I	DEFINITIONS	
Section 1.1	Definitions of Terms	1
Section 1.2	Incorporation by Reference of Trust Indenture Act	4
ARTICLE II	ISSUE, DESCRIPTION, TERMS, EXECUTION, REGISTRATION AND EXCHANGE OF SECURITIES	
Section 2.1	Designation and Terms of Securities	5
Section 2.2	Form of Securities and Trustee’s Certificate	7
Section 2.3	Denominations; Provisions for Payment	7
Section 2.4	Execution and Authentication	8
Section 2.5	Registration of Transfer and Exchange	8
Section 2.6	Temporary Securities	9
Section 2.7	Mutilated, Destroyed, Lost or Stolen Securities	10
Section 2.8	Cancellation	10
Section 2.9	Benefits of Indenture	11
Section 2.10	Authenticating Agent	11
Section 2.11	Global Securities	11
Section 2.12	CUSIP and ISIN Numbers	12
ARTICLE III	REDEMPTION OF SECURITIES AND SINKING FUND PROVISIONS	
Section 3.1	Redemption	12
Section 3.2	Notice of Redemption	12
Section 3.3	Payment Upon Redemption	13
Section 3.4	Sinking Fund	13
Section 3.5	Satisfaction of Sinking Fund Payments with Securities	14
Section 3.6	Redemption of Securities for Sinking Fund	14
ARTICLE IV	COVENANTS	
Section 4.1	Payment of Principal, Premium and Interest	14
Section 4.2	Paying Agent and Security Registrar	14
Section 4.3	Appointment to Fill Vacancy in Office of Trustee	15
Section 4.4	Compliance with Consolidation Provisions	16
ARTICLE V	SECURITYHOLDERS’ LISTS AND REPORTS BY THE COMPANY AND THE TRUSTEE	
Section 5.1	Company to Furnish Trustee Names and Addresses of Securityholders	16
Section 5.2	Preservation of Information; Communications With Securityholders	16
Section 5.3	Reports by the Company	16
Section 5.4	Reports by the Trustee	17
ARTICLE VI	REMEDIES OF THE TRUSTEE AND SECURITYHOLDERS ON EVENT OF DEFAULT	
Section 6.1	Events of Default	17
Section 6.2	Collection of Indebtedness and Suits for Enforcement by Trustee	18
Section 6.3	Application of Moneys Collected	19
Section 6.4	Limitation on Suits	20
Section 6.5	Rights and Remedies Cumulative; Delay or Omission Not Waiver	20
Section 6.6	Control by Securityholders	20
Section 6.7	Undertaking to Pay Costs	21
ARTICLE VII	CONCERNING THE TRUSTEE	
Section 7.1	Certain Duties and Responsibilities of Trustee	21
Section 7.2	Certain Rights of Trustee	22
Section 7.3	Trustee Not Responsible for Recitals or Issuance or Securities	23

---

Section 7.4	May Hold Securities and Otherwise Deal With the Company	23
Section 7.5	Moneys Held in Trust	24
Section 7.6	Compensation and Reimbursement	24
Section 7.7	Reliance on Officer's Certificate	24
Section 7.8	Disqualification; Conflicting Interests	24
Section 7.9	Corporate Trustee Required; Eligibility	25
Section 7.10	Resignation and Removal; Appointment of Successor	25
Section 7.11	Acceptance of Appointment By Successor	26
Section 7.12	Merger, Conversion, Consolidation or Succession to Business.	27
Section 7.13	Preferential Collection of Claims Against the Company	27
Section 7.14	Notice of Default	27
Section 7.15	Limitation of Liability	27
<b>ARTICLE VIII CONCERNING THE SECURITYHOLDERS</b>		
Section 8.1	Evidence of Action by Securityholders	28
Section 8.2	Proof of Execution by Securityholders	28
Section 8.3	Who May be Deemed Owners	28
Section 8.4	Certain Securities Owned by Company Disregarded	28
Section 8.5	Actions Binding on Future Securityholders	28
<b>ARTICLE IX SUPPLEMENTAL INDENTURES</b>		
Section 9.1	Supplemental Indentures Without the Consent of Securityholders	29
Section 9.2	Supplemental Indentures With the Consent of Securityholders	30
Section 9.3	Effect of Supplemental Indentures	31
Section 9.4	Securities Affected by Supplemental Indentures	31
Section 9.5	Execution of Supplemental Indentures	31
<b>ARTICLE X SUCCESSOR ENTITY</b>		
Section 10.1	Company May Consolidate, Etc.	31
Section 10.2	Successor Entity Substituted	32
Section 10.3	Evidence of Consolidation, Etc. to Trustee	32
<b>ARTICLE XI SATISFACTION AND DISCHARGE</b>		
Section 11.1	Satisfaction and Discharge of Indenture	32
Section 11.2	Application of Trust Money	33
<b>ARTICLE XII LEGAL DEFEASANCE AND COVENANT DEFEASANCE</b>		
Section 12.1	Option to Effect Legal Defeasance or Covenant Defeasance	34
Section 12.2	Legal Defeasance and Discharge	34
Section 12.3	Covenant Defeasance	34
Section 12.4	Conditions to Legal or Covenant Defeasance	35
Section 12.5	Deposited Money and Government Securities to be Held in Trust; Other Miscellaneous Provisions	35
Section 12.6	Repayment to Company	36
Section 12.7	Reinstatement	36
<b>ARTICLE XIII IMMUNITY OF INCORPORATORS, STOCKHOLDERS, OFFICERS AND DIRECTORS</b>		
Section 13.1	No Recourse	36
<b>ARTICLE XIV MISCELLANEOUS PROVISIONS</b>		
Section 14.1	Effect on Successors and Assigns	37
Section 14.2	Actions by Successor	37
Section 14.3	Surrender of Company Powers	37
Section 14.4	Notices	37
Section 14.5	Governing Law/Waiver of Jury Trial	37
Section 14.6	Treatment of Securities as Debt	37

Section 14.7	Compliance Certificates and Opinions	37
Section 14.8	Payments on Business Days	38
Section 14.9	Conflict with Trust Indenture Act	38
Section 14.10	Counterparts	38
Section 14.11	Severability	38
Section 14.12	Compliance Certificates	38
Section 14.13	USA Patriot Act	39
Section 14.14	Consent to Jurisdiction and Service	39
Section 14.15	Force Majeure	39

## INDENTURE

INDENTURE, dated as of \_\_\_\_\_, 20\_\_\_\_, among BIOTIME, INC., a California corporation (the “**Company**”), and \_\_\_\_\_, a national banking association organized under the laws of the United States, as trustee (the “**Trustee**”):

WHEREAS, for its lawful corporate purposes, the Company has duly authorized the execution and delivery of this Indenture to provide for the issuance of debt securities (hereinafter referred to as the “**Securities**”), in an unlimited aggregate principal amount to be issued from time to time in one or more series as in this Indenture provided, as registered Securities without coupons, to be authenticated by the Trustee;

WHEREAS, to provide the terms and conditions upon which the Securities are to be authenticated, issued and delivered, the Company has duly authorized the execution of this Indenture; and

WHEREAS, all things necessary to make this Indenture a valid agreement of the Company, in accordance with its terms, have been done.

NOW, THEREFORE, in consideration of the premises and the purchase of the Securities by the holders thereof, it is mutually covenanted and agreed as follows for the equal and ratable benefit of the holders of Securities:

### ARTICLE I DEFINITIONS

#### SECTION 1.1 DEFINITIONS OF TERMS.

The terms defined in this Section (except as in this Indenture or any Board Resolution or indenture supplemental hereto otherwise expressly provided or unless the context otherwise requires) for all purposes of this Indenture and of any Board Resolution or indenture supplemental hereto shall have the respective meanings specified in this Section and shall include the plural as well as the singular. All other terms used in this Indenture that are defined in the Trust Indenture Act of 1939, as amended, or that are by reference in such Act defined in the Securities Act (except as herein or any Board Resolution or indenture supplemental hereto otherwise expressly provided or unless the context otherwise requires), shall have the meanings assigned to such terms in said Trust Indenture Act and in said Securities Act as in force at the date of the execution of this instrument.

“**Authenticating Agent**” means an authenticating agent with respect to all or any of the series of Securities appointed by the Trustee pursuant to Section 2.10.

“**Affiliate**” of any specified Person means any other Person directly or indirectly controlling or controlled by or under direct or indirect common control with such specified person. For purposes of this definition, “control,” as used with respect to any Person, means the possession, directly or indirectly, of the power to direct or cause the direction of the management or policies of such Person, whether through the ownership of voting securities, by agreement or otherwise. For purposes of this definition, the terms “controlling,” “controlled by” and “under common control with” have correlative meanings.

“**Authorized Officer**,” when used with respect to the Company, means the Chairman of the Board of Directors, the Co-Chief Executive Officers, the President, the Chief Operating Officer, the Chief Financial Officer, the Treasurer, any Assistant Treasurer, the Controller, the Secretary or any Executive Vice President or Senior Vice President of the Company.

“**Bankruptcy Law**” means Title 11, U.S. Code, or any similar federal or state law for the relief of debtors.

“**Board of Directors**” means the Board of Directors of the Company or any duly authorized committee of such Board.

“**Board Resolution**” means a copy of one or more resolutions certified by the Secretary or an Assistant Secretary of the Company to have been duly adopted by the Board of Directors, or such committee of the Board of Directors or officers of the Company to which authority to act on behalf of the Board of Directors has been delegated, and to be in full force and effect on the date of such certification, and to be delivered to the Trustee.

---

“**Business Day**” means, with respect to any series of Securities, any day other than a day on which federal or state banking institutions in the Borough of Manhattan, the City and State of New York, are authorized or obligated by law, executive order or regulation to close.

“**Code**” means the Internal Revenue Code of 1986, as amended.

“**Commission**” means the Securities and Exchange Commission.

“**Company**” means BioTime, Inc., a corporation duly organized and existing under the laws of the State of California, and, subject to the provisions of Article X, shall also include its successors and assigns.

“**Company Request**” and “**Company Order**” means a written request or order signed in the name of the Company by one or more Authorized Officers of the Company, and delivered to the Trustee.

“**Corporate Trust Office**” means the principal office of the Trustee at which, at any particular time, this Indenture shall be administered, which office at the date hereof is located at \_\_\_\_\_; Attention: \_\_\_\_\_. With respect to presentation for transfer or exchange, conversions or principal payment, such address shall be \_\_\_\_\_; Attention: \_\_\_\_\_, or such other address as the Trustee may designate from time to time by written notice to the Securityholders and the Company, or the principal corporate trust office of any successor Trustee (or such other address as such successor Trustee may designate from time to time by written notice to the Securityholders and the Company).

“**Covenant Defeasance**” shall have the meaning set forth in Section 12.3.

“**Custodian**” means any receiver, trustee, assignee, liquidator or similar official under any Bankruptcy Law.

“**Default**” means any event, act or condition that with notice or lapse of time, or both, would constitute an Event of Default.

“**Depository**” means, with respect to Securities of any series for which the Company shall determine that such Securities will be issued as a Global Security, The Depository Trust Company, New York, New York, another clearing agency, or any successor registered as a clearing agency under the Exchange Act, or other applicable statute or regulation, which, in each case, shall be designated by the Company pursuant to either Section 2.1 or 2.11.

“**Event of Default**” means, with respect to Securities of a particular series, any event specified in Section 6.1, continued for the period of time, if any, therein designated.

“**Exchange Act**” means the Securities Exchange Act of 1934, as amended.

“**Global Security**” means, with respect to any series of Securities, a Security executed by the Company and delivered by the Trustee to the Depository or pursuant to the Depository’s instruction, all in accordance with this Indenture, which shall be registered in the name of the Depository or its nominee.

“**Governmental Obligations**” means securities that are (a) direct obligations of the U.S. for the payment of which its full faith and credit is pledged or (b) obligations of a Person controlled or supervised by and acting as an agency or instrumentality of the U.S., the payment of which is unconditionally guaranteed as a full faith and credit obligation by the U.S. that, in either case, are not callable or redeemable at the option of the issuer thereof, and shall also include a depositary receipt issued by a bank (as defined in Section 3(a)(2) of the Securities Act) as custodian with respect to any such Governmental Obligation or a specific payment of principal of or interest on any such Governmental Obligation held by such custodian for the account of the holder of such depositary receipt; provided, however, that (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the holder of such depositary receipt from any amount received by the custodian in respect of the Governmental Obligation or the specific payment of principal of or interest on the Governmental Obligation evidenced by such depositary receipt.

“**herein**,” “**hereof**” and “**hereunder**,” and other words of similar import, refer to this Indenture as a whole and not to any particular Article, Section or other subdivision.

“**Indenture**” means this instrument as originally executed or as it may from time to time be supplemented or amended by one or more Board Resolutions or one or more indentures supplemental hereto entered into in accordance with the terms hereof.

“**Interest Payment Date**,” when used with respect to any installment of interest on a Security of a particular series, means the date specified in such Security or in a Board Resolution or in an indenture supplemental hereto with respect to such series as the fixed date on which an installment of interest with respect to Securities of that series is due and payable.

“**Legal Defeasance**” shall have the meaning set forth in Section 12.2.

“**Officer’s Certificate**” means a certificate signed by an Authorized Officer of the Company that is delivered to the Trustee in accordance with the terms hereof. Each such certificate shall include the statements provided for in Section 14.7, if and to the extent required by the provisions thereof. An Officer’s Certificate given pursuant to Section 14.12 shall be signed by the principal executive, financial or accounting officer of the Company but need not contain the statements provided for in Section 14.7.

“**Opinion of Counsel**” means an opinion in writing subject to customary exceptions of legal counsel, who may be an employee of or counsel for the Company, that is delivered to the Trustee in accordance with the terms hereof. Each such opinion shall include the statements provided for in Section 14.7, if and to the extent required by the provisions thereof.

“**Outstanding**,” when used with reference to Securities of any series, means, subject to the provisions of Section 8.4, as of any particular time, all Securities of that series theretofore authenticated and delivered by the Trustee under this Indenture, except (a) Securities theretofore canceled by the Trustee, or delivered to the Trustee or any Paying Agent for cancellation or that have previously been canceled; (b) Securities or portions thereof for the payment or redemption of which cash or Governmental Obligations in the necessary amount shall have been irrevocably deposited in trust with the Trustee or with any Paying Agent (other than the Company) or shall have been set aside and segregated in trust by the Company (if the Company shall act as its own Paying Agent); provided, however, that if such Securities or portions of such Securities are to be redeemed prior to the maturity thereof, notice of such redemption shall have been given as in Article III provided, or provision satisfactory to the Trustee shall have been made for giving such notice; and (c) Securities in lieu of or in substitution for which other Securities shall have been authenticated and delivered pursuant to the terms of Section 2.7, unless the Trustee and the Company receive proof satisfactory to them that the replaced Security is held by a protected purchaser.

“**Paying Agent**” shall have the meaning set forth in Section 4.2(a).

“**Person**” means any individual, corporation, partnership, joint venture, association, joint-stock company, trust, unincorporated organization, limited liability company or government or other entity, and includes any syndicate or group that would be deemed to be a “person” under Section 13(d)(3) of the Exchange Act.

“**Predecessor Security**” of any particular Security means every previous Security evidencing all or a portion of the same debt as that evidenced by such particular Security; and, for the purposes of this definition, any Security authenticated and delivered under Section 2.7 in lieu of a lost, destroyed or stolen Security shall be deemed to evidence the same debt as the lost, destroyed or stolen Security.

“**Redemption Date**,” when used with respect to any Security to be redeemed, means the date fixed for such redemption by or pursuant to this Indenture.

“**Securities**” shall have the meaning set forth in the recitals to this Indenture.

“**Securities Act**” means the Securities Act of 1933, as amended.

“**Securityholder**,” “**holder of Securities**,” “**registered holder**,” or other similar term, means the Person or Persons in whose name or names a particular Security shall be registered on the Security Register in accordance with the terms of this Indenture.

“**Security Register**” shall have the meaning set forth in Section 4.2(a).

“**Security Registrar**” shall have the meaning set forth in Section 4.2(a).

“**Stated Maturity**,” when used with respect to any security or any installment of principal thereof or interest thereon, means the date specified in such Security or a coupon representing such installment of interest as the fixed date on which the principal of such Security or such installment of principal or interest is due and payable.

“**Subsidiary**” means, with respect to any Person, (i) any corporation at least a majority of whose outstanding Voting Stock shall at the time be owned, directly or indirectly, by such Person or by one or more of its Subsidiaries or by such Person and one or more of its Subsidiaries, (ii) any general partnership, joint venture or similar entity, at least a majority of whose outstanding partnership or similar interests shall at the time be owned by such Person, or by one or more of its Subsidiaries, or by such Person and one or more of its Subsidiaries and (iii) any limited partnership of which such Person or any of its Subsidiaries is a general partner.

“**Trustee**” means \_\_\_\_\_, and, subject to the provisions of Article VII, shall also include its successors and assigns, and, if at any time there is more than one Person acting in such capacity hereunder, “Trustee” shall mean each such Person. The term “Trustee” as used with respect to a particular series of the Securities shall mean the trustee with respect to that series.

“**Trust Indenture Act**” means the Trust Indenture Act of 1939, as amended.

“**Trust Officer**” means any officer of the Trustee with direct responsibility for the administration of this Indenture and also means, with respect to a particular corporate trust matter hereunder, any other officer of the Trustee to whom such matter is referred because of his or her knowledge of and familiarity with the particular subject.

“**Uniform Commercial Code**” means the New York Uniform Commercial Code as in effect from time to time.

“**U.S.**” means the United States of America.

“**USA Patriot Act**” shall have the meaning set forth in Section 14.13.

“**Voting Stock**,” as applied to stock of any Person, means shares, interests, participations or other equivalents in the equity interest (however designated) in such Person having ordinary voting power for the election of a majority of the directors (or the equivalent) of such Person, other than shares, interests, participations or other equivalents having such power only by reason of the occurrence of a contingency.

## **SECTION 1.2 INCORPORATION BY REFERENCE OF TRUST INDENTURE ACT.**

Whenever this Indenture refers to a provision of the Trust Indenture Act, the provision is incorporated by reference in and made a part of this Indenture.

All Trust Indenture Act terms used in this Indenture that are defined by the Trust Indenture Act, defined by Trust Indenture Act reference to another statute or defined by Commission rule have the meanings assigned to them by such definitions.

**ARTICLE II**  
**ISSUE, DESCRIPTION, TERMS, EXECUTION, REGISTRATION**  
**AND EXCHANGE OF SECURITIES**

**SECTION 2.1 DESIGNATION AND TERMS OF SECURITIES.**

The aggregate principal amount of Securities that may be authenticated and delivered under this Indenture is unlimited. The Securities may be issued in one or more series up to the aggregate principal amount of Securities of that series from time to time authorized by or pursuant to a Board Resolution or pursuant to one or more indentures supplemental hereto. Prior to the initial issuance of Securities of any series, there shall be established in or pursuant to a Board Resolution, and set forth in an Officer's Certificate, or established in one or more indentures supplemental hereto:

- (1) the title of the Securities of the series (which shall distinguish the Securities of that series from all other Securities);
- (2) the principal amount of the Securities being offered and any limit upon the aggregate principal amount of the Securities of that series that may be authenticated and delivered under this Indenture (except for Securities authenticated and delivered upon registration of transfer of, or in exchange for, or in lieu of, other Securities of that series);
- (3) the date or dates on which the principal of the Securities of the series is payable, any original issue discount that may apply to the Securities of that series upon their issuance, the principal amount due at maturity, and the place(s) of payment;
- (4) the rate or rates at which the Securities of the series shall bear interest or the manner of calculation of such rate or rates, if any, and whether the rate(s) are fixed or variable;
- (5) the date or dates from which such interest shall accrue, the Interest Payment Dates on which such interest will be payable or the manner of determination of such Interest Payment Dates, the place(s) of payment, and the record date for the determination of holders to whom interest is payable on any such Interest Payment Dates or the manner of determination of such record dates;
- (6) the right, if any, to extend the interest payment periods and the duration of such extension;
- (7) the period or periods within which, the price or prices at which and the terms and conditions upon which Securities of the series may be redeemed, in whole or in part, at the option of the Company;
- (8) the obligation, if any, of the Company to redeem or purchase Securities of the series pursuant to any sinking fund, mandatory redemption, or analogous provisions (including payments made in cash in satisfaction of future sinking fund obligations) or at the option of a holder thereof and the period or periods within which, the price or prices at which, and the terms and conditions upon which, Securities of the series shall be redeemed or purchased, in whole or in part, pursuant to such obligation;
- (9) the terms of the subordination of any series of subordinated debt;
- (10) the form of the Securities of the series including the form of the certificate of authentication for such series;
- (11) if other than minimum denominations of two thousand U.S. dollars (\$2,000) or any integral multiple of one thousand U.S. dollars (\$1,000) in excess thereof, the minimum denominations and multiples in excess thereof in which the Securities of the series shall be issuable;
- (12) whether the Securities are issuable as a Global Security and, in such case, the terms and the identity of the Depositary for such series;

(13) whether the Securities will be convertible into or exchangeable for shares of common stock or other securities of the Company or any other Person or other securities and, if so, the terms and conditions upon which such Securities will be so convertible or exchangeable, including the conversion or exchange price, as applicable, or how it will be calculated and may be adjusted, any mandatory or optional (at the Company's option or the holders' option) conversion or exchange features, and the applicable conversion or exchange period;

(14) if other than the principal amount thereof, the portion of the principal amount of Securities of the series which shall be payable upon declaration of acceleration of the maturity thereof pursuant to Section 6.1;

(15) any additional or different Events of Default or restrictive covenants (which may but shall not be required to include, among other restrictions, restrictions on the Company's ability or the ability of the Company's Subsidiaries to: incur additional indebtedness; issue additional securities; create liens; pay dividends or make distributions in respect of their capital stock; redeem capital stock; in the case of such Subsidiaries, pay dividends, make distributions or transfer assets; make investments or other restricted payments; sell or otherwise dispose of assets; enter into sale leaseback transactions; engage in transactions with stockholders and affiliates; issue or sell stock of the Company's Subsidiaries; or effect a consolidation or merger) or financial covenants (which may include, among other financial covenants, financial covenants that require the Company and its Subsidiaries to maintain specified interest coverage, fixed charge, cash flow-based, asset-based or other financial ratios) provided for with respect to the Securities of the series;

(16) if other than U.S. dollars, the coin or currency in which the Securities of the series are denominated (including, but not limited to, foreign currency);

(17) the terms and conditions, if any, upon which the Company shall pay amounts in addition to the stated interest, premium, if any, and principal amounts of the Securities of the series to any Securityholder that is not a "United States person" for federal tax purposes, and the terms and conditions, if any, relating to the Company's ability to redeem such Securities if the Company is required to pay such additional amounts;

(18) a discussion of any material U.S. federal income tax considerations applicable to the Securities of the series;

(19) any restrictions on transfer, sale or assignment of the Securities of the series;

(20) the terms, if any, relating to any auction or remarketing of the Securities of the series and any security for the obligations of the Company with respect to such Securities;

(21) whether the Securities of the series are secured or unsecured, and if the Securities are secured, the terms of the secured Securities;

(22) information describing any book-entry features;

(23) the identity of any guarantors and the terms of the guarantees; and

(24) any and all other terms with respect to the series (which terms shall not be inconsistent with the terms of this Indenture, as amended by any Board Resolution or supplemental indenture, but which may modify or delete any provisions of this Indenture insofar as it applies to such series), including any terms which may be required by or advisable under the laws of the U.S. or regulations thereunder or advisable (as determined by the Company) in connection with the marketing of Securities of that series.

All Securities of any one series shall be substantially identical except as to denomination and except as may otherwise be provided in or pursuant to any such Board Resolution or in any indentures supplemental hereto.

If any of the terms of the series are established by action taken pursuant to a Board Resolution of the Company, a copy of an appropriate record of such action shall be certified by the secretary or an assistant secretary of the Company and delivered to the Trustee at or prior to the delivery of the Officer's Certificate of the Company setting forth the terms of the series.

Securities of any particular series may be issued at various times, with different dates on which the principal or any installment of principal is payable, with different rates of interest, if any, or different methods by which rates of interest may be determined, with different dates on which such interest may be payable and with different redemption dates. A series may be reopened for issuances of additional Securities of such series or to establish additional terms of such Securities.

## **SECTION 2.2 FORM OF SECURITIES AND TRUSTEE'S CERTIFICATE.**

The Securities of any series and the Trustee's certificate of authentication to be borne by such Securities shall be substantially of the tenor and purport as set forth in one or more indentures supplemental hereto or as provided in a Board Resolution, and set forth in an Officer's Certificate, and they may have such letters, numbers or other marks of identification or designation and such legends or endorsements printed, lithographed or engraved thereon as the Company may deem appropriate and as are not inconsistent with the provisions of this Indenture, or as may be required to comply with any law or with any rule or regulation made pursuant thereto or with any rule or regulation of any securities exchange on which Securities of that series may be listed, or to conform to usage.

## **SECTION 2.3 DENOMINATIONS; PROVISIONS FOR PAYMENT.**

The Securities shall be issuable as registered Securities and in the minimum denomination of two thousand U.S. dollars (\$2,000) or any integral multiple of one thousand U.S. dollars (\$1,000) in excess thereof, subject to Section 2.1(11). The Securities of a particular series shall bear interest payable on the dates and at the rate specified with respect to that series. The principal of and the interest on the Securities of any series, as well as any premium thereon, shall be payable in the coin or currency of the U.S. that at the time is legal tender for public and private debt, at the office or agency of the Company maintained for that purpose in the United States, which shall initially be an office or agency of the Trustee. Each Security shall be dated the date of its authentication. Interest on the Securities shall be computed on the basis of a 360-day year composed of twelve 30-day months. Presentment and surrender of the Securities is required for final payment thereon.

The interest installment on any Security that is payable, and is punctually paid or duly provided for, on any Interest Payment Date for Securities of that series shall be paid to the Person in whose name said Security (or one or more Predecessor Securities) is registered at the close of business on the regular record date for such interest installment. In the event that any Security of a particular series or portion thereof is called for redemption and the redemption date is subsequent to a regular record date with respect to any Interest Payment Date and prior to such Interest Payment Date, interest on such Security will be paid upon presentation and surrender of such Security as provided in Section 3.3.

Any interest on any Security that is payable, but is not punctually paid or duly provided for, on any Interest Payment Date for Securities of the same series (herein called "**Defaulted Interest**") shall forthwith cease to be payable to the registered holder on the relevant regular record date by virtue of having been such holder; and such Defaulted Interest shall be paid by the Company, at its election, as provided in clause (1) or clause (2) below:

(1) The Company may make payment of any Defaulted Interest on Securities to the Persons in whose names such Securities (or their respective Predecessor Securities) are registered at the close of business on a special record date for the payment of such Defaulted Interest, which shall be fixed in the following manner: the Company shall notify the Trustee in writing of the amount of Defaulted Interest proposed to be paid on each such Security and the date of the proposed payment, and at the same time the Company shall deposit with the Trustee an amount of money equal to the aggregate amount proposed to be paid in respect of such Defaulted Interest or shall make arrangements satisfactory to the Trustee for such deposit prior to the date of the proposed payment, such money when deposited to be held in trust for the benefit of the Persons entitled to such Defaulted Interest as in this clause provided. Thereupon the Trustee shall fix a special record date for the payment of such Defaulted Interest which shall not be more than 15 nor less than 10 days prior to the date of the proposed payment and not less than 10 days after the receipt by the Trustee of the notice of the proposed payment. The Trustee shall promptly notify the Company of such special record date and, in the name and at the expense of the Company, shall cause notice of the proposed payment of such Defaulted Interest and the special record date therefor to be mailed, first class postage prepaid (or, in the case of Securities held in book-entry form, by electronic transmission), to each Securityholder at his or her address as it appears in the Security Register (as hereinafter defined), not less than 10 days prior to such special record date. Notice of the proposed payment of such Defaulted Interest and the special record date therefor having been mailed as aforesaid, such Defaulted Interest shall be paid to the Persons in whose names such Securities (or their respective Predecessor Securities) are registered on such special record date.

(2) The Company may make payment of any Defaulted Interest on any Securities in any other lawful manner not inconsistent with the requirements of any securities exchange on which such Securities may be listed, and upon such notice as may be required by such exchange, if, after notice given by the Company to the Trustee of the proposed payment pursuant to this clause, such manner of payment shall be deemed practicable by the Trustee.

Unless otherwise set forth in a Board Resolution or one or more indentures supplemental hereto establishing the terms of any series of Securities pursuant to Section 2.1 hereof, the term “**regular record date**” as used in this Section with respect to a series of Securities and any Interest Payment Date for such series shall mean either the fifteenth day of the month immediately preceding the month in which an Interest Payment Date established for such series pursuant to Section 2.1 hereof shall occur, if such Interest Payment Date is the first day of a month, or the last day of the month immediately preceding the month in which an Interest Payment Date established for such series pursuant to Section 2.1 hereof shall occur, if such Interest Payment Date is the fifteenth day of a month, whether or not such date is a Business Day.

Subject to the foregoing provisions of this Section and Sections 2.5 and 2.11, each Security of a series delivered under this Indenture upon transfer of or in exchange for or in lieu of any other Security of such series shall carry the rights to interest accrued and unpaid, and to accrue, that were carried by such other Security.

#### **SECTION 2.4 EXECUTION AND AUTHENTICATION.**

The Securities shall be signed on behalf of the Company by an Authorized Officer and, to the extent necessary, under its corporate seal. Signatures may be in the form of a manual or facsimile signature.

The Company may use the facsimile signature of any Person who shall have been an Authorized Officer thereof, notwithstanding the fact that at the time the Securities shall be authenticated and delivered or disposed of such Person shall have ceased to be such an officer of the Company. To the extent a Company seal is necessary, the Company seal may be in the form of a facsimile of such seal and may be impressed, affixed, imprinted or otherwise reproduced on the Securities. The Securities may contain such notations, legends or endorsements required by law, stock exchange rule or usage. Each Security shall be dated the date of its authentication by the Trustee.

A Security shall not be valid until authenticated manually by an authorized signatory of the Trustee. Such signature shall be conclusive evidence that the Security so authenticated has been duly authenticated and delivered hereunder and that the holder is entitled to the benefits of this Indenture. At any time and from time to time after the execution and delivery of this Indenture, the Company may deliver Securities of any series executed by the Company to the Trustee for authentication, together with a Company Order for the authentication and delivery of such Securities, signed by an Authorized Officer, and the Trustee in accordance with such Company Order shall authenticate and deliver such Securities.

In authenticating such Securities and accepting the additional responsibilities under this Indenture in relation to such Securities, the Trustee shall receive, and (subject to Section 7.1) shall be fully protected in conclusively relying upon, an Opinion of Counsel stating that the form and terms thereof have been established in conformity with the provisions of this Indenture.

The Trustee shall not be required to authenticate such Securities if the issue of such Securities pursuant to this Indenture will affect the Trustee’s own rights, duties or immunities under the Securities and this Indenture or otherwise in a manner that is not reasonably acceptable to the Trustee.

#### **SECTION 2.5 REGISTRATION OF TRANSFER AND EXCHANGE.**

(a) Securities of any series may be exchanged upon presentation thereof at the office of the Security Registrar, for other Securities of such series of authorized denominations, and for a like aggregate principal amount, upon payment of a sum sufficient to cover any tax or other governmental charge in relation thereto, all as provided in this Section. In respect of any Securities so surrendered for exchange, the Company shall execute, the Trustee shall authenticate and such office or agency shall deliver in exchange therefor the Security or Securities of the same series that the Securityholder making the exchange shall be entitled to receive, bearing numbers not contemporaneously outstanding.

(b) Upon surrender for transfer of any Security at the office of the Security Registrar, the Company shall execute, the Trustee shall authenticate and the Security Registrar shall deliver in the name of the transferee or transferees a new Security or Securities of the same series as the Security presented for a like aggregate principal amount.

All Securities presented or surrendered for exchange or registration of transfer, as provided in this Section, shall be accompanied (if so required by the Company or the Security Registrar) by a written instrument or instruments of transfer, in form satisfactory to the Company or the Security Registrar, duly executed by the registered holder or by such holder's duly authorized attorney in writing.

(c) Except as provided pursuant to Section 2.1 pursuant to a Board Resolution, and set forth in an Officer's Certificate, or established in one or more indentures supplemental to this Indenture, no service charge shall be made for any exchange or registration of transfer of Securities, or issue of new Securities in case of partial repurchase or redemption of any series, but the Company and the Trustee may require payment of a sum sufficient to cover any tax or other governmental charge in relation thereto, other than exchanges pursuant to Section 2.6, Section 3.3(b) and Section 9.4 not involving any transfer.

(d) The Company shall not be required (i) to issue, exchange or register the transfer of any Securities during a period beginning at the opening of business 15 days before the day of the mailing of a notice of redemption of less than all the Outstanding Securities of the same series and ending at the close of business on the day of such mailing, nor (ii) to register the transfer of or exchange any Securities of any series or portion thereof called for redemption, other than the unredeemed portion of any such Securities being redeemed in part.

(e) Successive registrations and registrations of transfers and exchanges as aforesaid may be made from time to time as desired, and each such registration shall be noted on the register for the Securities.

(f) The Security Registrar shall provide to the Trustee such information as the Trustee may reasonably require in connection with the delivery by such Security Registrar of Securities upon transfer or exchange of Securities.

(g) The provisions of this Section 2.5 are, with respect to any Global Security, subject to Section 2.11 hereof.

(h) The Trustee shall have no obligation or duty to monitor, determine or inquire as to compliance with any restrictions on transfer imposed under this Indenture or under applicable law with respect to any transfer of any interest in any Security (including any transfers between or among Depository participants or beneficial owners of interests in any Global Security) other than to require delivery of such certificates and other documentation or evidence as are expressly required by, and to do so if and when expressly required by the terms of, this Indenture, and to examine the same to determine substantial compliance as to form with the express requirements hereof.

(i) Neither the Trustee nor any agent shall have any responsibility or liability for any actions taken or not taken by the Depository.

## **SECTION 2.6 TEMPORARY SECURITIES.**

Pending the preparation of definitive Securities of any series, the Company may execute, and the Trustee shall authenticate and deliver, temporary Securities (printed, lithographed or typewritten) of any authorized denomination. Such temporary Securities shall be substantially in the form of the definitive Securities in lieu of which they are issued, but with such omissions, insertions and variations as may be appropriate for temporary Securities, all as may be determined by the Company. Every temporary Security of any series shall be executed by the Company and be authenticated by the Trustee upon the same conditions and in substantially the same manner, and with like effect, as the definitive Securities of such series. Without unnecessary delay the Company will execute and will furnish definitive Securities of such series and thereupon any or all temporary Securities of such series may be surrendered in exchange therefor (without charge to the holders), at the office of the Security Registrar, and the Trustee shall authenticate and the Security Registrar shall deliver in exchange for such temporary Securities an equal aggregate principal amount of definitive Securities of such series, unless the Company advises the Trustee to the effect that definitive Securities need not be executed and furnished until further notice from the Company. Until so exchanged, the temporary Securities of such series shall be entitled to the same benefits under this Indenture as definitive Securities of such series authenticated and delivered hereunder.

## **SECTION 2.7 MUTILATED, DESTROYED, LOST OR STOLEN SECURITIES.**

In case any temporary or definitive Security shall become mutilated or be destroyed, lost or stolen, the Company (subject to the next succeeding sentence) shall execute, and upon a Company Request, the Trustee (subject as aforesaid) shall authenticate and deliver, a new Security of the same series, bearing a number not contemporaneously outstanding, in exchange and substitution for the mutilated Security, or in lieu of and in substitution for the Security so destroyed, lost or stolen. In every case, the requirements of Section 8-405 of the Uniform Commercial Code shall be met and the applicant for a substituted Security shall furnish to the Company and the Trustee such security or indemnity as may be required by them to save each of them harmless, and, in every case of destruction, loss or theft, the applicant shall also furnish to the Company and the Trustee evidence to their satisfaction of the destruction, loss or theft of the applicant's Security and of the ownership thereof. The Trustee may authenticate any such substituted Security and deliver the same upon the delivery of a Company Order. Upon the issuance of any substituted Security, the Company may require the payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in relation thereto and any other expenses (including the fees and expenses of the Trustee) connected therewith.

In case any Security that has matured or is about to mature shall become mutilated or be destroyed, lost or stolen, the Company may, instead of issuing a substitute Security, pay or authorize the payment of the same (without surrender thereof except in the case of a mutilated Security) if the applicant for such payment shall furnish to the Company and the Trustee such security or indemnity as they may require to save them harmless, and, in case of destruction, loss or theft, evidence to the satisfaction of the Company and the Trustee of the destruction, loss or theft of such Security and of the ownership thereof.

Every replacement Security issued pursuant to the provisions of this Section shall constitute an additional contractual obligation of the Company whether or not the mutilated, destroyed, lost or stolen Security shall be found at any time, or be enforceable by anyone, and shall be entitled to all the benefits of this Indenture equally and proportionately with any and all other Securities of the same series duly issued hereunder. All Securities shall be held and owned upon the express condition that the foregoing provisions are exclusive with respect to the replacement or payment of mutilated, destroyed, lost or stolen Securities, and shall preclude (to the extent lawful) any and all other rights or remedies, notwithstanding any law or statute existing or hereafter enacted to the contrary with respect to the replacement or payment of negotiable instruments or other securities without their surrender.

## **SECTION 2.8 CANCELLATION.**

All Securities surrendered for the purpose of payment, redemption, exchange or registration of transfer shall, if surrendered to the Company or any Paying Agent, be delivered to the Trustee for cancellation, or, if surrendered to the Trustee, shall be cancelled by it, and no Securities shall be issued in lieu thereof except as expressly required or permitted by any of the provisions of this Indenture. On the delivery of a Company Order at the time of such surrender, the Trustee shall cancel Securities held by the Trustee in accordance with its standard procedures and applicable law and provide confirmation to the Company of such cancellation if requested by the Company. In the absence of such request, the Trustee may dispose of canceled Securities in accordance with its standard procedures and deliver evidence of cancellation to the Company. If the Company shall otherwise acquire any of the Securities, however, such acquisition shall not operate as a redemption or satisfaction of the indebtedness represented by such Securities unless and until the same are delivered to the Trustee for cancellation.

## **SECTION 2.9 BENEFITS OF INDENTURE.**

Nothing in this Indenture or in the Securities, express or implied, shall give or be construed to give to any Person, other than the parties hereto and the holders of the Securities any legal or equitable right, remedy or claim under or in respect of this Indenture, or under any covenant, condition or provision herein contained; all such covenants, conditions and provisions being for the sole benefit of the parties hereto and of the holders of the Securities.

## **SECTION 2.10 AUTHENTICATING AGENT.**

So long as any of the Securities of any series remain Outstanding there may be an Authenticating Agent for any or all such series of Securities which the Trustee shall have the right to appoint. Said Authenticating Agent shall be authorized to act on behalf of the Trustee to authenticate Securities of such series issued upon exchange, transfer or partial redemption thereof, and Securities so authenticated shall be entitled to the benefits of this Indenture and shall be valid and obligatory for all purposes as if authenticated by the Trustee hereunder. All references in this Indenture to the authentication of Securities by the Trustee shall be deemed to include authentication by an Authenticating Agent for such series. Each Authenticating Agent shall be acceptable to the Company and shall be a corporation that has a combined capital and surplus, as most recently reported or determined by it, sufficient under the laws of any jurisdiction under which it is organized or in which it is doing business to conduct a trust business, and that is otherwise authorized under such laws to conduct such business and is subject to supervision or examination by federal or state authorities. If at any time any Authenticating Agent shall cease to be eligible in accordance with these provisions, it shall resign immediately.

Any Authenticating Agent may at any time resign by giving written notice of resignation to the Trustee and to the Company. The Trustee may at any time (and upon a Company Request shall) terminate the agency of any Authenticating Agent by giving written notice of termination to such Authenticating Agent and to the Company. Upon resignation, termination or cessation of eligibility of any Authenticating Agent, the Trustee may appoint an eligible successor Authenticating Agent acceptable to the Company. Any successor Authenticating Agent, upon acceptance of its appointment hereunder, shall become vested with all the rights, powers and duties of its predecessor hereunder as if originally named as an Authenticating Agent pursuant hereto.

## **SECTION 2.11 GLOBAL SECURITIES.**

(a) If the Company shall establish pursuant to Section 2.1 that the Securities of a particular series are to be issued as a Global Security, then the Company shall execute and the Trustee shall, in accordance with Section 2.4, authenticate and deliver, a Global Security that (i) shall represent, and shall be denominated in an amount equal to the aggregate principal amount of, all of the Outstanding Securities of such series, (ii) shall be registered in the name of the Depository or its nominee, (iii) shall be delivered by the Trustee to the Depository or pursuant to the Depository's instruction and (iv) shall bear a legend substantially to the following effect: "Except as otherwise provided in Section 2.11 of this Indenture, this Security may be transferred, in whole but not in part, only to another nominee of the Depository or to a successor Depository or to a nominee of such successor Depository."

(b) Notwithstanding the provisions of Section 2.5, the Global Security of a series may be transferred, in whole but not in part and in the manner provided in Section 2.5, only to another nominee of the Depository for such series, or to a successor Depository for such series selected or approved by the Company or to a nominee of such successor Depository. Nothing in this Section 2.11(b) shall prohibit or render ineffective any transfer of a beneficial interest in a Global Security effected in accordance with the other provisions of this Indenture.

(c) If at any time the Depository for a series of the Securities notifies the Company that it is unwilling or unable to continue as Depository for such series or if at any time the Depository for such series shall no longer be registered or in good standing under the Exchange Act, or other applicable statute or regulation, and a successor Depository for such series is not appointed by the Company within 90 days after the Company receives such notice or becomes aware of such condition, as the case may be, or if an Event of Default has occurred and is continuing and the Company has received a request from the Depository, this Section 2.11 shall no longer be applicable to the Securities of such series and the Company will execute, and subject to Section 2.4, the Trustee will authenticate and deliver the Securities of such series in definitive registered form without coupons, in authorized denominations, and in an aggregate principal amount equal to the principal amount of the Global Security of such series in exchange for such Global Security. In addition, the Company may at any time determine that the Securities of any series shall no longer be represented by a Global Security and that the provisions of this Section 2.11 shall no longer apply to the Securities of such series. In such event the Company will execute and, subject to Section 2.4, the Trustee, upon receipt of an Officer's Certificate evidencing such determination by the Company, will authenticate and deliver the Securities of such series in definitive registered form without coupons, in authorized denominations, and in an aggregate principal amount equal to the principal amount of the Global Security of such series in exchange for such Global Security. Upon the exchange of the Global Security for such Securities in definitive registered form without coupons, in authorized denominations, the Global Security shall be canceled by the Trustee. Such Securities in definitive registered form issued in exchange for the Global Security pursuant to this Section 2.11(c) shall be registered in such names and in such authorized denominations as the Depository, pursuant to instructions from its direct or indirect participants or otherwise, shall instruct the Trustee. The Trustee shall deliver such Securities to the Persons in whose names such Securities are so registered.

## **SECTION 2.12 CUSIP AND ISIN NUMBERS.**

The Company, in issuing the Securities, shall use CUSIP and ISIN numbers for such Securities (if then generally in use). The Trustee shall use CUSIP and ISIN numbers in notices of redemption as a convenience to holders; provided, however, that neither the Company nor the Trustee shall have any responsibility for any defect in the CUSIP or ISIN number that appears on any Security, check, advice of payment or redemption notice, and any such notice may state that no representation is made as to the correctness of such numbers either as printed on the Securities or as contained in any notice of redemption and that reliance may be placed only on the other identification numbers printed on the Securities, and any such redemption shall not be affected by any defect in or omission of such numbers. The Company shall promptly notify the Trustee in writing in the event of any change in the CUSIP or ISIN numbers.

## **ARTICLE III REDEMPTION OF SECURITIES AND SINKING FUND PROVISIONS**

### **SECTION 3.1 REDEMPTION.**

The Company may redeem the Securities of any series issued hereunder on and after the dates and in accordance with the terms established for such series pursuant to Section 2.1 hereof. The provisions of this Article III may be modified, amended or replaced, in part or in their entirety, with Securities of any series, by an Officer's Certificate pursuant to a Board Resolution or one or more indentures supplemental hereto, in each case in accordance with Section 2.1 hereof.

### **SECTION 3.2 NOTICE OF REDEMPTION.**

(a) In case the Company shall desire to exercise such right to redeem all or, as the case may be, a portion of the Securities of any series in accordance with any right the Company reserved for itself to do so pursuant to Section 2.1 hereof, the Company shall, or shall cause the Trustee to, give notice of such redemption to holders of the Securities of such series to be redeemed by mailing, first class postage prepaid (or, in the case of Securities held in book-entry form, by electronic transmission), a notice of such redemption not less than 30 days and not more than 60 days (except in accordance with Articles XI and XII) before the date fixed for redemption of that series to such holders at their last addresses as they shall appear upon the Security Register, unless a shorter period is specified in the Securities to be redeemed. Any notice that is mailed in the manner herein provided shall be conclusively presumed to have been duly given, whether or not the registered holder receives the notice. In any case, failure duly to give such notice to the holder of any Security of any series designated for redemption in whole or in part, or any defect in the notice, shall not affect the validity of the proceedings for the redemption of any other Securities of such series or any other series. In the case of any redemption of Securities prior to the expiration of any restriction on such redemption provided in the terms of such Securities or elsewhere in this Indenture, the Company shall furnish the Trustee with an Officer's Certificate evidencing compliance with any such restriction.

Each such notice of redemption shall specify the date fixed for redemption and the redemption price at which Securities of that series are to be redeemed, and shall state that payment of the redemption price of such Securities to be redeemed will be made at the office or agency of the Paying Agent or as otherwise established in a Board Resolution or an indenture supplemental hereto, upon presentation and surrender of such Securities, that interest accrued to the date fixed for redemption will be paid as specified in said notice, that from and after said date interest will cease to accrue and that the redemption is from a sinking fund, if such is the case. If less than all the Securities of a series are to be redeemed, the notice to the holders of Securities of that series to be redeemed in part shall specify the particular Securities to be so redeemed.

In case any Security is to be redeemed in part only, the notice that relates to such Security shall state the portion of the principal amount thereof to be redeemed, and shall state that on and after the redemption date, upon surrender of such Security, a new Security or Securities of such series in principal amount equal to the unredeemed portion thereof will be issued.

(b) If less than all the Securities of a series are to be redeemed, the Company shall give the Trustee at least 45 days' notice (unless a shorter notice shall be satisfactory to the Trustee) in advance of the date fixed for redemption as to the aggregate principal amount of Securities of the series to be redeemed, and thereupon the Trustee shall select, (i) if the Securities are in the form of Global Securities, in accordance with the procedures of the Depositary, or (ii) if the Securities are not in the form of Global Securities, by lot, a portion or portions (equal to one thousand U.S. dollars (\$1,000) or any integral multiple thereof) of the principal amount of such Securities of a denomination larger than \$2,000, the Securities to be redeemed and shall thereafter promptly notify the Company in writing of the numbers of the Securities to be redeemed, in whole or in part. The Company may, if and whenever it shall so elect, by delivery of instructions signed on its behalf by an Authorized Officer, instruct the Trustee or any Paying Agent to call all or any part of the Securities of a particular series for redemption and to give notice of redemption in the manner set forth in this Section, such notice to be in the name of the Company or its own name as the Trustee or such Paying Agent may deem advisable. In any case in which notice of redemption is to be given by the Trustee or any such Paying Agent, the Company shall deliver or cause to be delivered to, or permit to remain with, the Trustee or such Paying Agent, as the case may be, such Security Register, transfer books or other records, or suitable copies or extracts therefrom, sufficient to enable the Trustee or such Paying Agent to give any notice by mail that may be required under the provisions of this Section.

### SECTION 3.3 PAYMENT UPON REDEMPTION.

(a) If the giving of notice of redemption shall have been completed as above provided, the Securities or portions of Securities of the series to be redeemed specified in such notice shall become due and payable on the date and at the place stated in such notice at the applicable redemption price, together with interest accrued to the date fixed for redemption and interest on such Securities or portions of Securities shall cease to accrue on and after the date fixed for redemption, unless the Company shall default in the payment of such redemption price and accrued interest with respect to any such Security or portion thereof. On presentation and surrender of such Securities on or after the date fixed for redemption at the place of payment specified in the notice, said Securities shall be paid and redeemed at the applicable redemption price for such series, together with interest accrued thereon to the date fixed for redemption (but if the date fixed for redemption is an interest payment date, the interest installment payable on such date shall be payable to the registered holder at the close of business on the applicable record date pursuant to Section 2.3).

(b) Upon presentation of any Security of such series that is to be redeemed in part only, the Company shall execute and the Trustee shall authenticate and the office or agency where the Security is presented shall deliver to the holder thereof, at the expense of the Company, a new Security of the same series of authorized denominations in principal amount equal to the unredeemed portion of the Security so presented.

### SECTION 3.4 SINKING FUND.

If Securities of a series provide for a sinking fund as contemplated by Section 2.1, the provisions of this Section 3.4 and Sections 3.5 and 3.6 shall be applicable to any sinking fund for the retirement of Securities of a series, except as otherwise specified as contemplated by Section 2.1 for Securities of such series.

The minimum amount of any sinking fund payment provided for by the terms of Securities of any series is herein referred to as a “**mandatory sinking fund payment**,” and any payment in excess of such minimum amount provided for by the terms of Securities of any series is herein referred to as an “**optional sinking fund payment**.” If provided for by the terms of Securities of any series, the cash amount of any sinking fund payment may be subject to reduction as provided in Section 3.5. Each sinking fund payment shall be applied to the redemption of Securities of any series as provided for by the terms of Securities of such series.

### **SECTION 3.5 SATISFACTION OF SINKING FUND PAYMENTS WITH SECURITIES.**

The Company (i) may deliver Outstanding Securities of a series and (ii) may apply as a credit Securities of a series that have been redeemed either at the election of the Company pursuant to the terms of such Securities or through the application of permitted optional sinking fund payments pursuant to the terms of such Securities, in each case in satisfaction of all or any part of any sinking fund payment with respect to the Securities of such series required to be made pursuant to the terms of such Securities as provided for by the terms of such series, provided that such Securities have not been previously so credited. Such Securities shall be received and credited for such purpose by the Trustee at the redemption price specified in such Securities for redemption through operation of the sinking fund and the amount of such sinking fund payment shall be reduced accordingly.

### **SECTION 3.6 REDEMPTION OF SECURITIES FOR SINKING FUND.**

Not less than 45 days prior to each sinking fund payment date for any series of Securities (unless a shorter period shall be satisfactory to the Trustee), the Company will deliver to the Trustee an Officer's Certificate specifying the amount of the next ensuing sinking fund payment for that series pursuant to the terms of the series, the portion thereof, if any, that is to be satisfied by delivering and crediting Securities of that series pursuant to Section 3.5 and the basis for such credit and will, together with such Officer's Certificate, deliver to the Trustee any Securities to be so delivered. Not less than 30 days before each such sinking fund payment date the Trustee shall select the Securities to be redeemed upon such sinking fund payment date in the manner specified in Section 3.2 and cause notice of the redemption thereof to be given in the name of and at the expense of the Company in the manner provided in Section 3.2. Such notice having been duly given, the redemption of such Securities shall be made upon the terms and in the manner stated in Section 3.3.

## **ARTICLE IV COVENANTS**

### **SECTION 4.1 PAYMENT OF PRINCIPAL, PREMIUM AND INTEREST.**

The Company will duly and punctually pay or cause to be paid the principal of (and premium, if any) and interest on the Securities of that series at the time and place and in the manner provided herein and established with respect to such Securities. Payments of principal on the Securities may be made at the time provided herein and established with respect to such Securities by U.S. dollar check drawn on and mailed to the address of the Securityholder entitled thereto as such address shall appear in the Security Register, or U.S. dollar wire transfer to, a U.S. dollar account (such a wire transfer to be made only to a Securityholder of an aggregate principal amount of Securities of the applicable series in excess of U.S. \$2,000,000 and only if such Securityholder shall have furnished wire instructions to the Trustee no later than 15 days prior to the relevant payment date). Payments of interest on the Securities may be made at the time provided herein and established with respect to such Securities by U.S. dollar check mailed to the address of the Securityholder entitled thereto as such address shall appear in the Security Register, or U.S. dollar wire transfer to, a U.S. dollar account (such a wire transfer to be made only to a Securityholder of an aggregate principal amount of Securities of the applicable series in excess of U.S. \$2,000,000 and only if such Securityholder shall have furnished wire instructions in writing to the Security Registrar and the Trustee no later than 15 days prior to the relevant payment date).

### **SECTION 4.2 PAYING AGENT AND SECURITY REGISTRAR.**

(a) So long as any series of the Securities remain Outstanding, the Company shall maintain an office or agency where Securities may be presented for registration of transfer or for exchange ("**Security Registrar**"), an office or agency where Securities may be presented for payment ("**Paying Agent**") and an office or agency where notices to or upon the Company in respect of the Securities and this Indenture may be served. The Security Registrar shall keep a register for the recordation of, and shall record, the names and addresses of holders of the Securities, the Securities held by each holder and the transfer and exchange of Securities (the "**Security Register**"). The entries in the Security Register shall be conclusive, and the parties may treat each Person whose name is recorded in the Security Register pursuant to the terms hereof as a holder hereunder for all purposes of this Indenture. The Company may have one or more co-Security Registrars and one or more additional Paying Agents.

The Company hereby initially designates the Trustee as Paying Agent and Security Registrar, and the Corporate Trust Office shall be considered as one such office or agency of the Company for each of the aforesaid purposes, such designation to continue with respect to such office or agency until the Company shall, by written notice signed by an Authorized Officer and delivered to the Trustee, designate some other office or agency for such purposes or any of them.

(b) The Company shall enter into an appropriate agency agreement with any Security Registrar, Paying Agent, or co-registrar not a party to this Indenture, which shall incorporate the terms of the Trust Indenture Act. The agreement shall implement the provisions of this Indenture that relate to such agent. The Company shall notify the Trustee in writing of the name and address of any such agent. If the Company fails to maintain a Security Registrar or Paying Agent, the Trustee shall act as such and shall be entitled to appropriate compensation therefor. The Company and any of its Subsidiaries may act as Paying Agent, Security Registrar or co-registrar.

(c) If the Company shall appoint one or more Paying Agents for all or any series of the Securities, other than the Trustee, the Company will cause each such Paying Agent to execute and deliver to the Trustee an instrument in which such agent shall agree with the Trustee, subject to the provisions of this Section:

(1) that it will hold all sums held by it as such agent for the payment of the principal of (and premium, if any) or interest on the Securities of that series (whether such sums have been paid to it by the Company or by any other obligor of such Securities) in trust for the benefit of the Persons entitled thereto;

(2) that it will give the Trustee notice of any failure by the Company (or by any other obligor of such Securities) to make any payment of the principal of (and premium, if any) or interest on the Securities of that series when the same shall be due and payable;

(3) that it will, at any time during the continuance of any failure referred to in the preceding paragraph (a)(2) above, upon the written request of the Trustee, forthwith pay to the Trustee all sums so held in trust by such Paying Agent; and

(4) that it will perform all other duties of Paying Agent as set forth in this Indenture.

(d) If the Company shall act as its own Paying Agent with respect to any series of the Securities, it will on or before each due date of the principal of (and premium, if any) or interest on Securities of that series, set aside, segregate and hold in trust for the benefit of the Persons entitled thereto a sum sufficient to pay such principal (and premium, if any) or interest so becoming due on Securities of that series until such sums shall be paid to such Persons or otherwise disposed of as herein provided and will promptly notify the Trustee of such action, or any failure (by it or any other obligor on such Securities) to take such action. Whenever the Company shall have one or more Paying Agents for any series of Securities, it will, prior to each due date of the principal of (and premium, if any) or interest on any Securities of that series, deposit with the Paying Agent a sum sufficient to pay the principal (and premium, if any) or interest so becoming due, such sum to be held in trust for the benefit of the Persons entitled to such principal, premium or interest, and (unless such Paying Agent is the Trustee) the Company will promptly notify the Trustee of this action or failure so to act.

(e) Notwithstanding anything in this Section to the contrary, the Company may at any time, for the purpose of obtaining the satisfaction and discharge of this Indenture or for any other purpose, pay, or direct any Paying Agent to pay, to the Trustee all sums held in trust by the Company or such Paying Agent, such sums to be held by the Trustee upon the same terms and conditions as those upon which such sums were held by the Company or such Paying Agent; and, upon such payment by the Company or any Paying Agent to the Trustee, the Company or such Paying Agent shall be released from all further liability with respect to such money.

#### **SECTION 4.3 APPOINTMENT TO FILL VACANCY IN OFFICE OF TRUSTEE.**

The Company, whenever necessary to avoid or fill a vacancy in the office of Trustee, will appoint, in the manner provided in Section 7.10, a Trustee, so that there shall at all times be a Trustee hereunder.

#### **SECTION 4.4 COMPLIANCE WITH CONSOLIDATION PROVISIONS.**

The Company will not, while any of the Securities remain Outstanding, consolidate with or merge into any other Person, in either case where the Company is not the survivor of such transaction, or sell or convey all or substantially all of its property to any other Person unless the provisions of Article X hereof are complied with.

### **ARTICLE V SECURITYHOLDERS' LISTS AND REPORTS BY THE COMPANY AND THE TRUSTEE**

#### **SECTION 5.1 COMPANY TO FURNISH TRUSTEE NAMES AND ADDRESSES OF SECURITYHOLDERS.**

The Company will furnish or cause to be furnished to the Trustee (a) on each regular record date (as defined in Section 2.3) a list, in such form as the Trustee may reasonably require, of the names and addresses of the holders of each series of Securities as of such regular record date, provided that the Company shall not be obligated to furnish or cause to furnish such list at any time that the list shall not differ in any respect from the most recent list furnished to the Trustee by the Company and (b) at such other times as the Trustee may request in writing within 30 days after the receipt by the Company of any such request, a list of similar form and content as of a date not more than 15 days prior to the time such list is furnished; provided, however, that, in either case, no such list need be furnished for any series for which the Trustee shall be the Security Registrar.

#### **SECTION 5.2 PRESERVATION OF INFORMATION; COMMUNICATIONS WITH SECURITYHOLDERS.**

(a) The Trustee shall preserve in as current a form as is reasonably practicable the most recent list available to it of the names and addresses of the Securityholders of each series of Securities and shall otherwise comply with Section 312(a) of the Trust Indenture Act. If the Trustee is not the Security Registrar, the Company shall furnish to the Trustee at least ten (10) days before each interest payment date with respect to any series of Securities and at such other times as the Trustee may request in writing a list, in such form and as of such date as the Trustee may reasonably require, of the names and addresses of the Securityholders of such series of Securities, which list may be conclusively relied upon by the Trustee.

(b) Securityholders of any series may communicate pursuant to Section 312(b) of the Trust Indenture Act with other Securityholders of that series or any other series with respect to their rights under this Indenture or the Securities of that series or any other series.

(c) The Company, the Trustee, the Security Registrar and any other Person shall have the protection of Section 312(c) of the Trust Indenture Act.

#### **SECTION 5.3 REPORTS BY THE COMPANY.**

(a) So long as any Security is Outstanding, the Company shall furnish a copy to the Trustee, within 15 days after the Company files the same with the Commission, copies of the annual reports and of the information, documents and other reports (or copies of such portions of any of the foregoing as the Commission may from time to time by rules and regulations prescribe) that the Company files with the Commission pursuant to Section 13 or Section 15(d) of the Exchange Act; provided, however, the Company shall not be required to deliver to the Trustee any materials for which the Company has sought and received confidential treatment by the Commission; and provided further, so long as such filings by the Company are available on the Commission's Electronic Data Gathering, Analysis and Retrieval System (EDGAR), such filings shall be deemed to have been furnished to the Trustee for purposes of this Section 5.3 without any further action required by the Company. The Trustee shall have no obligation whatsoever to determine whether or not such filings have been made.

(b) Delivery of such reports, information and documents to the Trustee shall be for informational purposes only and the Trustee's receipt of such shall not constitute constructive notice of any information contained therein or determinable from information contained therein, including the Company's compliance with any of the covenants contained in this Indenture (as to which the Trustee is entitled to conclusively rely upon an Officer's Certificate).

## SECTION 5.4 REPORTS BY THE TRUSTEE.

(a) The Trustee shall transmit to the Securityholders such reports concerning the Trustee and its actions under this Indenture as may be required pursuant to the Trust Indenture Act at the time and in the manner provided pursuant thereto. If required by Section 313(a) of the Trust Indenture Act, the Trustee shall, within 60 days after each May 15 following the date of this Indenture, deliver to holders a brief report, dated as of such May 15, which complies with the provisions of such Section 313(a).

(b) The Trustee shall comply with Section 313(b) and 313(c) of the Trust Indenture Act.

(c) A copy of each such report shall, at the time of such transmission to Securityholders, be filed by the Trustee with the Company, with each securities exchange upon which any Securities are listed (if so listed) and also with the Commission. The Company agrees to notify the Trustee when any Securities become listed on any securities exchange.

## ARTICLE VI REMEDIES OF THE TRUSTEE AND SECURITYHOLDERS ON EVENT OF DEFAULT

### SECTION 6.1 EVENTS OF DEFAULT.

(a) Whenever used herein with respect to Securities of a particular series, unless otherwise specified in a Board Resolution or in an indenture supplemental hereto, “**Event of Default**” means any one or more of the following events that has occurred and is continuing:

(1) the Company defaults in the payment of any installment of interest upon any of the Securities of that series, as and when the same shall become due and payable, and such default continues for a period of 30 days; provided, however, that a valid extension of an interest payment period by the Company in accordance with the terms of any Board Resolution or indenture supplemental hereto shall not constitute a default in the payment of interest for this purpose;

(2) the Company defaults in the payment of the principal of (or premium, if any, on) any of the Securities of that series as and when the same shall become due and payable whether at maturity, upon redemption, by declaration or otherwise, or in any payment required by any sinking or analogous fund established with respect to that series; provided, however, that a valid extension of the maturity of such Securities in accordance with the terms of any Board Resolution or indenture supplemental hereto shall not constitute a default in the payment of principal or premium, if any;

(3) the Company defaults in the performance or breach of its covenants or agreements with respect to that series contained in this Indenture or otherwise established with respect to that series of Securities pursuant to Section 2.1 hereof (other than a covenant or agreement that has been expressly included in this Indenture solely for the benefit of one or more series of Securities other than such series) for a period of 90 consecutive days after the date on which written notice of such failure, requiring the same to be remedied and stating that such notice is a “**Notice of Default**” hereunder, shall have been given to the Company by the Trustee, by registered or certified mail, or to the Company and the Trustee by the holders of at least 25% in principal amount of the Securities of that series at the time Outstanding;

(4) the Company pursuant to or within the meaning of any Bankruptcy Law (i) commences a voluntary case, (ii) consents to the entry of an order for relief against it in an involuntary case, (iii) consents to the appointment of a Custodian of it or for all or substantially all of its property or (iv) makes a general assignment for the benefit of its creditors;

(5) a court of competent jurisdiction enters an order under any Bankruptcy Law that (i) is for relief against the Company in an involuntary case, (ii) appoints a Custodian of the Company for all or substantially all of its property or (iii) orders the liquidation of the Company, and the order or decree remains unstayed and in effect for 60 consecutive days; or

(6) certain other specified events, as may be provided for in a Board Resolution or in a supplemental indenture.

(b) In each and every such case (other than an Event of Default specified in clause (4) or clause (5) above), unless the principal of all the Securities of that series shall have already become due and payable, either the Trustee or the holders of not less than 25% in aggregate principal amount of the Securities of that series then Outstanding hereunder, by notice in writing to the Company (and to the Trustee if given by such Securityholders), may, and the Trustee at the request of the holders of not less than 25% in aggregate principal amount of the Securities of that series then outstanding hereunder shall, declare the principal of (and premium, if any, on) and accrued and unpaid interest on all the Securities of that series to be due and payable immediately, and upon any such declaration the same shall become and shall be immediately due and payable. If an Event of Default specified in clause (4) or clause (5) above occurs, the principal of and accrued and unpaid interest on all the Securities of that series shall automatically be immediately due and payable without any declaration or other act on the part of the Trustee or the holders of the Securities.

(c) At any time after the principal of (and premium, if any, on) and accrued and unpaid interest on the Securities of that series shall have been so declared due and payable, and before any judgment or decree for the payment of the moneys due shall have been obtained or entered as hereinafter provided, the holders of a majority in aggregate principal amount of the Securities of that series then Outstanding hereunder, by written notice to the Company and the Trustee, may rescind and annul such declaration and its consequences if: (i) the Company has paid or deposited with the Trustee a sum sufficient to pay all matured installments of interest upon all the Securities of that series and the principal of (and premium, if any, on) any and all Securities of that series that shall have become due otherwise than by acceleration (with interest upon such principal and premium, if any, and, to the extent that such payment is enforceable under applicable law, upon overdue installments of interest, at the rate per annum expressed in the Securities of that series to the date of such payment or deposit) and the amount payable to the Trustee under Section 7.6, and (ii) any and all Events of Default under this Indenture with respect to such series, other than the nonpayment of principal of (and premium, if any, on) and accrued and unpaid interest on Securities of that series that shall not have become due by their terms, shall have been remedied or waived as provided in Section 6.6.

No such rescission and annulment shall extend to or shall affect any subsequent default or impair any right consequent thereon.

(d) In case the Trustee shall have proceeded to enforce any right with respect to Securities of that series under this Indenture and such proceedings shall have been discontinued or abandoned because of such rescission or annulment or for any other reason or shall have been determined adversely to the Trustee, then and in every such case, subject to any determination in such proceedings, the Company and the Trustee shall be restored respectively to their former positions and rights hereunder, and all rights, remedies and powers of the Company and the Trustee shall continue as though no such proceedings had been taken.

## **SECTION 6.2 COLLECTION OF INDEBTEDNESS AND SUITS FOR ENFORCEMENT BY TRUSTEE.**

(a) The Company covenants that (i) in case it shall default in the payment of any installment of interest on any of the Securities of a series, and such default shall have continued for a period of 30 days, or (ii) in case it shall default in the payment of the principal of (or premium, if any, on) any of the Securities of a series when the same shall have become due and payable, whether upon maturity of the Securities of a series or upon redemption or upon declaration or otherwise, or in any payment required by any sinking or analogous fund established with respect to that series as and when the same shall have become due and payable, then, upon demand of the Trustee, the Company will pay to the Trustee, for the benefit of the holders of the Securities of that series, the whole amount that then shall have been become due and payable on all such Securities for principal (and premium, if any) or interest, or both, as the case may be, with interest upon the overdue principal (and premium, if any) and (to the extent that payment of such interest is enforceable under applicable law) upon overdue installments of interest at the rate per annum expressed in the Securities of that series; and, in addition thereto, such further amount as shall be sufficient to cover the costs and expenses of collection, and the amount payable to the Trustee under Section 7.6.

(b) If the Company shall fail to pay such amounts forthwith upon such demand, the Trustee, in its own name and as trustee of an express trust, shall be entitled and empowered to institute any action or proceeding at law or in equity for the collection of the sums so due and unpaid, and may prosecute any such action or proceeding to judgment or final decree, and may enforce any such judgment or final decree against the Company or other obligor upon the Securities of that series and collect the moneys adjudged or decreed to be payable in the manner provided by law or equity out of the property of the Company or other obligor upon the Securities of that series, wherever situated.

(c) In case of any receivership, insolvency, liquidation, bankruptcy, reorganization, readjustment, arrangement, composition or judicial proceedings affecting the Company, or its creditors or property, the Trustee shall have power to intervene in such proceedings and take any action therein that may be permitted by the court and shall (except as may be otherwise provided by law) be entitled to file such proofs of claim and other papers and documents as may be necessary or advisable in order to have the claims of the Trustee and of the holders of Securities of such series allowed for the entire amount due and payable by the Company under this Indenture at the date of institution of such proceedings and for any additional amount that may become due and payable by the Company after such date, and to collect and receive any moneys or other property payable or deliverable on any such claim, and to distribute the same after the deduction of the amount payable to the Trustee under Section 7.6; and any receiver, assignee or trustee in bankruptcy or reorganization is hereby authorized by each of the holders of Securities of such series to make such payments to the Trustee, and, in the event that the Trustee shall consent to the making of such payments directly to such Securityholders, to pay to the Trustee any amount due it under Section 7.6.

(d) All rights of action and of asserting claims under this Indenture, or under any of the terms established with respect to Securities of that series, may be enforced by the Trustee without the possession of any of such Securities, or the production thereof at any trial or other proceeding relative thereto, and any such suit or proceeding instituted by the Trustee shall be brought in its own name as trustee of an express trust, and any recovery of judgment shall, after provision for payment to the Trustee of any amounts due under Section 7.6, be for the ratable benefit of the holders of the Securities of such series.

In case of an Event of Default hereunder, the Trustee may in its discretion proceed to protect and enforce the rights vested in it by this Indenture by such appropriate judicial proceedings as the Trustee shall deem most effectual to protect and enforce any of such rights, either at law or in equity or in bankruptcy or otherwise, whether for the specific enforcement of any covenant or agreement contained in this Indenture or in aid of the exercise of any power granted in this Indenture, or to enforce any other legal or equitable right vested in the Trustee by this Indenture or by law.

Nothing contained herein shall be deemed to authorize the Trustee to authorize or consent to or accept or adopt on behalf of any Securityholder any plan of reorganization, arrangement, adjustment or composition affecting the Securities of that series or the rights of any holder thereof or to authorize the Trustee to vote in respect of the claim of any Securityholder in any such proceeding.

### **SECTION 6.3 APPLICATION OF MONEYS COLLECTED.**

Any moneys collected by the Trustee pursuant to this Article VI with respect to a particular series of Securities shall be applied in the following order, at the date or dates fixed by the Trustee and, in case of the distribution of such moneys on account of principal (or premium, if any) or interest, upon presentation of the Securities of that series, and notation thereon of the payment, if only partially paid, and upon surrender thereof if fully paid:

FIRST: To the payment of reasonable costs and expenses of collection and of all amounts payable to the Trustee under Section 7.6;

SECOND: To the payment to holders of Securities of the amounts then due and unpaid upon Securities of such series for principal (and premium, if any), amounts payable upon redemption or repurchase of the Securities, and interest, in respect of which or for the benefit of which such money has been collected, ratably, without preference or priority of any kind, according to the amounts due and payable on such Securities for principal (and premium, if any) and interest, respectively; and

THIRD: To the payment of the remainder, if any, to the Company or any other Person lawfully entitled thereto.

The Trustee may fix a record date and payment date for any payment to holders pursuant to this Section 6.3. At least 15 days before such record date, the Company shall mail to each holder and the Trustee a notice that states the record date, the payment date and the amount to be paid.

#### **SECTION 6.4 LIMITATION ON SUITS.**

No holder of any Security of any series shall have any right by virtue or by availing of any provision of this Indenture to institute any suit, action or proceeding in equity or at law upon or under or with respect to this Indenture or for the appointment of a receiver or trustee, or for any other remedy hereunder, unless (i) such holder previously shall have given to the Trustee written notice of an Event of Default and of the continuance thereof with respect to the Securities of such series specifying such Event of Default, as hereinbefore provided; (ii) the holders of not less than 25% in aggregate principal amount of the Securities of such series then Outstanding shall have made written request upon the Trustee to institute such action, suit or proceeding in its own name as Trustee hereunder; (iii) such holder or holders shall have offered to the Trustee such indemnity reasonably satisfactory to it against the costs, losses, expenses and liabilities to be incurred therein or thereby; (iv) the Trustee for 60 days after its receipt of such notice, request and offer of indemnity, shall have failed to institute any such action, suit or proceeding and (v) during such 60 day period, the holders of a majority in principal amount of the Securities of that series do not give the Trustee a direction inconsistent with the request.

Notwithstanding anything contained herein to the contrary or any other provisions of this Indenture, the right of any holder of any Security to receive payment of the principal of (and premium, if any) and interest on such Security, as therein provided, on or after the respective due dates expressed in such Security (or in the case of redemption, on the redemption date), or to institute suit for the enforcement of any such payment on or after such respective dates or redemption date, shall not be impaired or affected without the consent of such holder and by accepting a Security hereunder it is expressly understood, intended and covenanted by the taker and holder of every Security of such series with every other such taker and holder and the Trustee, that no one or more holders of Securities of such series shall have any right in any manner whatsoever by virtue or by availing of any provision of this Indenture to affect, disturb or prejudice the rights of the holders of any other of such Securities, or to obtain or seek to obtain priority over or preference to any other such holder, or to enforce any right under this Indenture, except in the manner herein provided and for the equal, ratable and common benefit of all holders of Securities of such series (it being understood that the Trustee does not have an affirmative duty to ascertain whether or not such actions or forbearances are unduly prejudicial to such holders). For the protection and enforcement of the provisions of this Section, each and every Securityholder and the Trustee shall be entitled to such relief as can be given either at law or in equity.

#### **SECTION 6.5 RIGHTS AND REMEDIES CUMULATIVE; DELAY OR OMISSION NOT WAIVER.**

(a) Except as otherwise provided in Section 2.7, all powers and remedies given by this Article VI to the Trustee or to the Securityholders shall, to the extent permitted by law, be deemed cumulative and not exclusive of any other powers and remedies available to the Trustee or the holders of the Securities, by judicial proceedings or otherwise, to enforce the performance or observance of the covenants and agreements contained in this Indenture or otherwise established with respect to such Securities.

(b) No delay or omission of the Trustee or of any holder of any of the Securities to exercise any right or power accruing upon any Event of Default occurring and continuing as aforesaid shall impair any such right or power, or shall be construed to be a waiver of any such default or an acquiescence therein; and, subject to the provisions of Section 6.4, every power and remedy given by this Article VI or by law to the Trustee or the Securityholders may be exercised from time to time, and as often as shall be deemed expedient, by the Trustee or by the Securityholders.

#### **SECTION 6.6 CONTROL BY SECURITYHOLDERS.**

The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding, determined in accordance with Section 8.4, shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred on the Trustee with respect to such series; provided, however, that such direction shall not be in conflict with any rule of law or with this Indenture. Subject to the provisions of Section 7.1, the Trustee shall have the right to decline to follow any such direction if the Trustee in good faith shall, by a Trust Officer or officers of the Trustee, determine that the proceeding so directed, subject to the Trustee's duties under the Trust Indenture Act, would involve the Trustee in personal liability or might be unduly prejudicial to the Securityholders not involved in the proceeding. The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding affected thereby, determined in accordance with Section 8.4, may on behalf of the holders of all of the Securities of such series waive any past default in the performance of any of the covenants contained herein or established pursuant to Section 2.1 with respect to such series and its consequences, except a default in the payment of the principal of, or premium, if any, or interest on, any of the Securities of that series as and when the same shall become due by the terms of such Securities otherwise than by acceleration (unless such default has been cured and a sum sufficient to pay all matured installments of interest and principal and any premium has been deposited with the Trustee (in accordance with Section 6.1(c)), which requires the consent of each holder affected by such waiver. Upon any such waiver, the default covered thereby shall be deemed to be cured for all purposes of this Indenture and the Company, the Trustee and the holders of the Securities of such series shall be restored to their former positions and rights hereunder, respectively; but no such waiver shall extend to any subsequent or other default or impair any right consequent thereon.

## **SECTION 6.7 UNDERTAKING TO PAY COSTS.**

All parties to this Indenture agree, and each holder of any Securities by such holder's acceptance thereof shall be deemed to have agreed, that any court may in its discretion require, in any suit for the enforcement of any right or remedy under this Indenture, or in any suit against the Trustee for any action taken or omitted by it as Trustee, the filing by any party litigant in such suit of an undertaking to pay the costs of such suit, and that such court may in its discretion assess reasonable costs, including reasonable attorneys' fees, against any party litigant in such suit, having due regard to the merits and good faith of the claims or defenses made by such party litigant; but the provisions of this Section shall not apply to any suit instituted by the Trustee, to any suit instituted by any Securityholder, or group of Securityholders, holding more than 10% in aggregate principal amount of the Outstanding Securities of any series, or to any suit instituted by any Securityholder for the enforcement of the payment of the principal of (or premium, if any) or interest on any Security of such series, on or after the respective due dates expressed in such Security or established pursuant to this Indenture.

## **ARTICLE VII CONCERNING THE TRUSTEE**

### **SECTION 7.1 CERTAIN DUTIES AND RESPONSIBILITIES OF TRUSTEE.**

(a) The Trustee, prior to the occurrence of an Event of Default with respect to the Securities of a series and after the curing of all Events of Default with respect to the Securities of that series that may have occurred, shall undertake to perform with respect to the Securities of such series such duties and only such duties as are specifically set forth in this Indenture, and no implied covenants shall be read into this Indenture against the Trustee. In case an Event of Default with respect to the Securities of a series has occurred (that has not been cured or waived), the Trustee shall exercise with respect to Securities of that series such of the rights and powers vested in it by this Indenture, and use the same degree of care and skill in their exercise, as a prudent person would exercise or use under the circumstances in the conduct of his or her own affairs. Except during the continuance of an Event of Default with respect to the Securities of a series, in the absence of bad faith on its part, the Trustee may with respect to the Securities of such series conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon certificates or opinions furnished to the Trustee and conforming to the requirements of this Indenture; but in the case of any such certificates or opinions which by any provision hereof are specifically required to be furnished to the Trustee, the Trustee shall be under a duty to examine the same to determine whether or not they conform to the requirements of this Indenture (but need not confirm or investigate the accuracy of mathematical calculations or other facts stated therein).

(b) No provision of this Indenture shall be construed to relieve the Trustee from liability for its own negligent action, its own negligent failure to act, or its own willful misconduct, except that:

(i) this subsection (b) shall not be construed to limit the effect of subsection (a) of this Section;

(ii) the Trustee shall not be liable for any error of judgment made in good faith by a Trust Officer or Trust Officers of the Trustee, unless it shall be proved that the Trustee was negligent in ascertaining the pertinent facts;

(iii) the Trustee shall not be liable with respect to any action taken or omitted to be taken by it in good faith in accordance with the direction of the holders of not less than a majority in principal amount of the Securities of any series at the time Outstanding relating to the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee under this Indenture with respect to the Securities of that series; and

(iv) None of the provisions contained in this Indenture shall require the Trustee to expend or risk its own funds or otherwise incur personal financial liability in the performance of any of its duties or in the exercise of any of its rights or powers if there is reasonable ground for believing that the repayment of such funds or liability is not reasonably assured to it under the terms of this Indenture or adequate indemnity against such risk is not reasonably assured to it.

(c) Whether or not therein expressly so provided, every provision of this Indenture relating to the conduct or affecting the liability of or affording protection to the Trustee shall be subject to the provisions of this Section.

## **SECTION 7.2 CERTAIN RIGHTS OF TRUSTEE.**

Except as otherwise provided in Section 7.1:

(a) The Trustee may conclusively rely and shall be fully protected in acting or refraining from acting upon any resolution, certificate, statement, instrument, opinion, report, notice, request, consent, order, approval, bond, security or other paper or document believed by it to be genuine and to have been signed or presented by the proper party or parties;

(b) Any request, direction, order or demand of the Company mentioned herein shall be sufficiently evidenced by a Board Resolution or an instrument signed in the name of the Company by any authorized officer of the Company (unless other evidence in respect thereof is specifically prescribed herein);

(c) The Trustee may consult with counsel and the advice of such counsel or any Opinion of Counsel shall be full and complete authorization and protection in respect of any action taken or suffered or omitted hereunder in good faith and in reliance thereon;

(d) The Trustee shall be under no obligation to exercise any of the rights or powers vested in it by this Indenture at the request, order or direction of any of the Securityholders pursuant to the provisions of this Indenture, unless such Securityholders shall have offered to the Trustee security or indemnity reasonably satisfactory to it against the costs, losses, expenses and liabilities that may be incurred therein or thereby; nothing contained herein shall, however, relieve the Trustee of the obligation, upon the occurrence of an Event of Default with respect to a series of the Securities (that has not been cured or waived), to exercise with respect to Securities of that series such of the rights and powers vested in it by this Indenture, and to use the same degree of care and skill in their exercise, as a prudent person would exercise or use under the circumstances in the conduct of his or her own affairs;

(e) The Trustee shall not be liable for any action taken or omitted to be taken by it in good faith and believed by it to be authorized or within the discretion or rights or powers conferred upon it by this Indenture;

(f) The Trustee shall not be bound to make any investigation into the facts or matters stated in any resolution, certificate, statement, instrument, opinion, report, notice, request, consent, order, approval, bond, security, or other papers or documents, unless requested in writing so to do by the holders of not less than a majority in principal amount of the Outstanding Securities of the particular series affected thereby (determined as provided in Section 8.4), and, if so requested, except as otherwise prohibited by applicable law or as would reasonably be expected to violate or result in the loss or impairment of any attorney-client or work product privilege, the Trustee shall be entitled to examine the books, records, and premises of the Company, personally or by agent, or attorney, and it shall incur no liability or additional liability of any kind by reason of such inquiry or investigation; provided, however, that the Company shall not be required to provide access or furnish information in the event of any litigation involving this Indenture or the Securities except pursuant to applicable rules of discovery; and provided, further, that if the payment within a reasonable time to the Trustee of the costs, expenses or liabilities likely to be incurred by it in the making of such investigation is, in the opinion of the Trustee, not reasonably assured to the Trustee by the security afforded to it by the terms of this Indenture, the Trustee may require reasonable indemnity against such costs, expenses or liabilities as a condition to so proceeding. The reasonable expense of every such examination shall be paid by the Company or, if paid by the Trustee, shall be repaid by the Company upon demand;

(g) The Trustee may execute any of the trusts or powers hereunder or perform any duties hereunder either directly or by or through agents or attorneys and the Trustee shall not be responsible for any misconduct or negligence on the part of any agent or attorney appointed with due care by it hereunder;

(h) In no event shall the Trustee be responsible or liable for special, indirect, punitive or consequential loss or damage of any kind whatsoever (including, but not limited to, loss of profit) irrespective of whether the Trustee has been advised of the likelihood of such loss or damage and regardless of the form of action;

(i) The Trustee shall not be deemed to have notice of any Default or Event of Default unless a Trust Officer has actual knowledge thereof or unless written notice of any event which is in fact such a default is received by the Trustee at the Corporate Trust Office of the Trustee, and such notice references the Securities and this Indenture;

(j) The rights, privileges, protections, immunities and benefits given to the Trustee, including, without limitation, its right to be indemnified, are extended to, and shall be enforceable by, the Trustee in each of its capacities hereunder, and each agent, custodian and other Person employed to act hereunder;

(k) The Trustee shall not be required to give any bond or surety in respect of the performance of its powers and duties hereunder;

(l) The Trustee shall not be liable for the acts or omissions of any other agent of the Company, and may assume performance by any such agent of its duties, absent written notice or actual knowledge to the contrary; and

(m) The permissive right of the Trustee to take the actions permitted by this Indenture shall not be construed as an obligation or duty to do so.

### **SECTION 7.3 TRUSTEE NOT RESPONSIBLE FOR RECITALS OR ISSUANCE OR SECURITIES.**

(a) The recitals contained herein and in the Securities shall be taken as the statements of the Company, and the Trustee assumes no responsibility for the correctness of the same.

(b) The Trustee makes no representations as to the validity or sufficiency of this Indenture or of the Securities.

(c) The Trustee shall not be accountable for the use or application by the Company of any of the Securities or of the proceeds of such Securities, or for the use or application of any moneys paid over by the Trustee in accordance with any provision of this Indenture or established pursuant to Section 2.1, or for the use or application of any moneys received by any Paying Agent other than the Trustee.

### **SECTION 7.4 MAY HOLD SECURITIES AND OTHERWISE DEAL WITH THE COMPANY.**

Subject to the Trust Indenture Act, the Trustee, the Security Registrar, any Paying Agent or any other agent of the Company, in its individual or any other capacity, may buy, own, hold, sell and become the pledgee of any of the Securities or any other evidences of indebtedness or other securities, whether heretofore or hereafter created or issued, of the Company or any Subsidiary or Affiliate of the Company with the same rights it would have if it were not Trustee, Security Registrar, Paying Agent or such other agent; and the Trustee may engage or be interested in any financial or other transaction with the Company or any Subsidiary or Affiliate of the Company, including, without limitation, secured and unsecured loans to the Company or any Subsidiary or Affiliate of the Company; and may maintain any and all other general banking and business relations with the Company and any Subsidiary or Affiliate of the Company with like effect and in the same manner and to the same extent as if the Trustee were not a party to this Indenture; and no implied covenant shall be read into this Indenture against the Trustee in respect of any such matters.

## **SECTION 7.5 MONEYS HELD IN TRUST.**

Subject to the provisions of Sections 11.2, 12.5, 12.6 and 12.7, all moneys received by the Trustee shall, until used or applied as herein provided, be held in trust for the purposes for which they were received, but need not be segregated from other funds except to the extent required by law. The Trustee shall be under no liability for interest on any moneys received by it hereunder except such as it may agree with the Company to pay thereon.

## **SECTION 7.6 COMPENSATION AND REIMBURSEMENT.**

(a) The Company covenants and agrees to pay to the Trustee, and the Trustee shall be entitled to, such compensation (which shall not be limited by any provision of law in regard to the compensation of a trustee of an express trust) as the Company and the Trustee may from time to time agree in writing, for all services rendered by it in the execution of the trusts hereby created and in the exercise and performance of any of the powers and duties hereunder of the Trustee, and, except as otherwise expressly provided herein, the Company will pay or reimburse the Trustee upon its request for all reasonable expenses, disbursements and advances incurred or made by the Trustee in accordance with any of the provisions of this Indenture (including the reasonable compensation and the expenses and disbursements of its counsel and of all Persons not regularly in its employ), except any such expense, disbursement or advance as may arise from its negligence or willful misconduct and except as the Company and Trustee may from time to time agree in writing. The Company also covenants to indemnify the Trustee (and its officers, agents, directors and employees) for, and to hold it harmless against, any loss, costs, damages, liability or expense incurred without negligence or willful misconduct on the part of the Trustee (as determined by a court of competent jurisdiction in a final and non-appealable judgment) and arising out of or in connection with the acceptance or administration of this trust, including the reasonable costs and expenses of defending itself against any claim of liability in the premises.

(b) To secure the Company's payment obligations in this Section 7.6, the Trustee shall have a lien prior to the Securities of any series on all money or property held or collected by the Trustee, except that held in trust to pay principal of and interest on particular Securities of such series.

When the Trustee incurs expenses or renders services after an Event of Default specified in Section 6.1(a)(4) or 6.1(a)(5) occurs, the expenses and the compensation for the services are intended to constitute expenses of administration under any Bankruptcy Law.

The provisions of this Section 7.6 shall survive the resignation or removal of the Trustee and the termination or satisfaction of this Indenture.

## **SECTION 7.7 RELIANCE ON OFFICER'S CERTIFICATE.**

Except as otherwise provided in Section 7.1, whenever in the administration of the provisions of this Indenture the Trustee shall deem it reasonably necessary or desirable that a matter be proved or established prior to taking or suffering or omitting to take any action hereunder, such matter (unless other evidence in respect thereof be herein specifically prescribed) may, in the absence of negligence or willful misconduct on the part of the Trustee, be deemed to be conclusively proved and established by an Officer's Certificate delivered to the Trustee and such certificate, in the absence of negligence or willful misconduct on the part of the Trustee, shall be full warrant to the Trustee for any action taken, suffered or omitted to be taken by it under the provisions of this Indenture upon the faith thereof.

## **SECTION 7.8 DISQUALIFICATION; CONFLICTING INTERESTS.**

If the Trustee has or shall acquire any "conflicting interest" within the meaning of Section 310(b) of the Trust Indenture Act, the Trustee and the Company shall in all respects comply with the provisions of Section 310(b) of the Trust Indenture Act.

## **SECTION 7.9 CORPORATE TRUSTEE REQUIRED; ELIGIBILITY.**

There shall at all times be a Trustee with respect to the Securities issued hereunder which shall at all times be a corporation organized and doing business under the laws of the U.S. or any state or territory thereof or of the District of Columbia, or a corporation or other Person permitted to act as trustee by the Commission, authorized under such laws to exercise corporate trust powers, having (or, in the case of a subsidiary of a bank holding company, its bank holding company parent shall have) a combined capital and surplus of at least one hundred million U.S. dollars (\$100,000,000), and subject to supervision or examination by federal, state, territorial, or District of Columbia authority.

If such corporation or other Person publishes reports of condition at least annually, pursuant to law or to the requirements of the aforesaid supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such corporation or other Person shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. The Company may not, nor may any Person directly or indirectly controlling, controlled by, or under common control with the Company, serve as Trustee. In case at any time the Trustee shall cease to be eligible in accordance with the provisions of this Section, the Trustee shall resign immediately in the manner and with the effect specified in Section 7.10.

## **SECTION 7.10 RESIGNATION AND REMOVAL; APPOINTMENT OF SUCCESSOR.**

(a) The Trustee or any successor hereafter appointed may at any time resign with respect to the Securities of one or more series by giving written notice thereof to the Company and by transmitting notice of resignation by mail, first class postage prepaid (or, in the case of Securities held in book-entry form, by electronic transmission), to the Securityholders of such series, as their names and addresses appear upon the Security Register. Upon receiving such notice of resignation, the Company shall promptly appoint a successor trustee with respect to Securities of such series by written instrument, in duplicate, executed by order of the Board of Directors, one copy of which instrument shall be delivered to the resigning Trustee and one copy to the successor trustee. If no successor trustee shall have been so appointed and have accepted appointment within 30 days after the mailing of such notice of resignation, the resigning Trustee may at the expense of the Company, petition any court of competent jurisdiction for the appointment of a successor trustee with respect to Securities of such series, or the holders of at least 10% in the aggregate principal amount of Outstanding Securities may petition any such court for the appointment of a successor trustee. Such court may thereupon after such notice, if any, as it may deem proper and prescribe, appoint a successor trustee.

(b) In case at any time any one of the following shall occur:

(i) the Trustee shall fail to comply with the provisions of Section 7.8 after written request therefor by the Company or by any Securityholder who has been a bona fide holder of a Security or Securities for at least six months; or

(ii) the Trustee shall cease to be eligible in accordance with the provisions of Section 7.9 and shall fail to resign after written request therefor by the Company or by any such Securityholder; or

(iii) the Trustee shall become incapable of acting, or shall be adjudged a bankrupt or insolvent, or commence a voluntary bankruptcy proceeding, or a receiver of the Trustee or of its property shall be appointed or consented to, or any public officer shall take charge or control of the Trustee or of its property or affairs for the purpose of rehabilitation, conservation or liquidation;

then, in any such case, the Company may remove the Trustee with respect to all Securities and appoint a successor trustee by written instrument, in duplicate, executed by order of the Board of Directors, one copy of which instrument shall be delivered to the Trustee so removed and one copy to the successor trustee, or any Securityholder who has been a bona fide holder of a Security or Securities for at least six months may, on behalf of that holder and all others similarly situated, petition any court of competent jurisdiction for the removal of the Trustee and the appointment of a successor trustee. Such court may thereupon after such notice, if any, as it may deem proper and prescribe, remove the Trustee and appoint a successor trustee.

(c) The holders of a majority in aggregate principal amount of the Securities of any series at the time Outstanding may, upon 30 days' notice, remove the Trustee with respect to such series by so notifying the Trustee and the Company and may appoint a successor Trustee for such series with the consent of the Company.

(d) Any resignation or removal of the Trustee and appointment of a successor trustee with respect to the Securities of a series pursuant to any of the provisions of this Section shall become effective upon acceptance of appointment by the successor trustee as provided in Section 7.11.

(e) Any successor trustee appointed pursuant to this Section may be appointed with respect to the Securities of one or more series or all of such series, and at any time there shall be only one Trustee with respect to the Securities of any particular series.

#### **SECTION 7.11 ACCEPTANCE OF APPOINTMENT BY SUCCESSOR.**

(a) In case of the appointment hereunder of a successor trustee with respect to all Securities, every such successor trustee so appointed shall execute, acknowledge and deliver to the Company and to the retiring Trustee an instrument accepting such appointment, and thereupon the resignation or removal of the retiring Trustee shall become effective and such successor trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee; but, on the request of the Company or the successor trustee, such retiring Trustee shall, upon payment of its charges, execute and deliver an instrument transferring to such successor trustee all the rights, powers, and trusts of the retiring Trustee and shall duly assign, transfer and deliver to such successor trustee all property and money held by such retiring Trustee hereunder.

(b) In case of the appointment hereunder of a successor trustee with respect to the Securities of one or more (but not all) series, the Company, the retiring Trustee and each successor trustee with respect to the Securities of one or more series shall execute and deliver an indenture supplemental hereto wherein each successor trustee shall accept such appointment and which (i) shall contain such provisions as shall be necessary or desirable to transfer and confirm to, and to vest in, each successor trustee all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor trustee relates, (ii) shall contain such provisions as shall be deemed necessary or desirable to confirm that all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series as to which the retiring Trustee is not retiring shall continue to be vested in the retiring Trustee, and (iii) shall add to or change any of the provisions of this Indenture as shall be necessary to provide for or facilitate the administration of the trusts hereunder by more than one Trustee, it being understood that nothing herein or in such supplemental indenture shall constitute such Trustees co-trustees of the same trust, that each such Trustee shall be trustee of a trust or trusts hereunder separate and apart from any trust or trusts hereunder administered by any other such Trustee and that no Trustee shall be responsible for any act or failure to act on the part of any other Trustee hereunder; and upon the execution and delivery of such supplemental indenture the resignation or removal of the retiring Trustee shall become effective to the extent provided therein, such retiring Trustee shall with respect to the Securities of that or those series to which the appointment of such successor trustee relates have no further responsibility for the exercise of rights and powers or for the performance of the duties and obligations vested in the Trustee under this Indenture, and each such successor trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor trustee relates; but, on request of the Company or any successor trustee, such retiring Trustee shall duly assign, transfer and deliver to such successor trustee, to the extent contemplated by such supplemental indenture, the property and money held by such retiring Trustee hereunder with respect to the Securities of that or those series to which the appointment of such successor trustee relates.

(c) Upon request of any such successor trustee, the Company shall execute any and all instruments for more fully and certainly vesting in and confirming to such successor trustee all such rights, powers and trusts referred to in paragraph (a) or (b) of this Section, as the case may be.

(d) No successor trustee shall accept its appointment unless at the time of such acceptance such successor trustee shall be qualified and eligible under this Article VII.

(e) Upon acceptance of appointment by a successor trustee as provided in this Section, the Company shall transmit notice of the succession of such trustee hereunder by mail, first class postage prepaid, to the Securityholders, as their names and addresses appear upon the Security Register. If the Company fails to transmit such notice within ten days after acceptance of appointment by the successor trustee, the successor trustee shall cause such notice to be transmitted at the expense of the Company.

#### **SECTION 7.12 MERGER, CONVERSION, CONSOLIDATION OR SUCCESSION TO BUSINESS.**

Any corporation into which the Trustee may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion or consolidation to which the Trustee shall be a party, or any corporation succeeding to all or substantially all of the corporate trust business of the Trustee (including the administration of the trust created by this Indenture), shall be the successor of the Trustee hereunder, provided that such corporation shall be qualified under the provisions of Section 7.8 and eligible under the provisions of Section 7.9, without the execution or filing of any paper or any further act on the part of any of the parties hereto, anything herein to the contrary notwithstanding. In case any Securities shall have been authenticated, but not delivered, by the Trustee then in office, any successor by merger, conversion or consolidation to such authenticating Trustee may adopt such authentication and deliver the Securities so authenticated with the same effect as if such successor Trustee had itself authenticated such Securities.

#### **SECTION 7.13 PREFERENTIAL COLLECTION OF CLAIMS AGAINST THE COMPANY.**

The Trustee shall comply with Section 311(a) of the Trust Indenture Act, excluding any creditor relationship described in Section 311(b) of the Trust Indenture Act. A Trustee who has resigned or been removed shall be subject to Section 311(a) of the Trust Indenture Act to the extent included therein.

#### **SECTION 7.14 NOTICE OF DEFAULT.**

If any Default or any Event of Default occurs and is continuing and if the Trustee has notice of such Default or Event of Default, the Trustee shall mail to each Securityholder in the manner and to the extent provided in Section 313(c) of the Trust Indenture Act notice of the Default or Event of Default within 90 days after it occurs (or, the Trustee does not have notice of such Default or Event of Default until after that time, 15 days after the Trustee has notice of such Default or Event of Default), unless such Default or Event of Default has been cured; provided, however, that, except in the case of a default in the payment of the principal of (or premium, if any) or interest on any Security, the Trustee shall be protected in withholding such notice if and so long as the Trustee in good faith determines that the withholding of such notice is in the interest of the Securityholders.

#### **SECTION 7.15 LIMITATION OF LIABILITY**

The Trustee is entering into this Indenture and the other documents contemplated hereby and related hereto to which it is a party solely in its capacity as trustee under the Indenture and not in its individual capacity (except as expressly stated herein) and in no case shall the Trustee (or any Person acting as successor trustee under this Indenture) be personally liable for or on account of any of the statements, representations, warranties, covenants or obligations stated to be those of the Company hereunder or thereunder, all such liability, if any, being expressly waived by the parties hereto and any person claiming by, through or under such party.

### **ARTICLE VIII CONCERNING THE SECURITYHOLDERS**

#### **SECTION 8.1 EVIDENCE OF ACTION BY SECURITYHOLDERS.**

Whenever in this Indenture it is provided that the holders of a majority or specified percentage in aggregate principal amount of the Securities of a particular series may take any action (including the making of any demand or request, the giving of any notice, consent or waiver or the taking of any other action), the fact that at the time of taking any such action the holders of such majority or specified percentage of that series have joined therein may be evidenced by any instrument or any number of instruments of similar tenor executed by such holders of Securities of that series in person or by agent or proxy appointed in writing.

If the Company shall solicit from the Securityholders of any series any request, demand, authorization, direction, notice, consent, waiver or other action, the Company may, at its option, as evidenced by an Officer's Certificate, fix in advance a record date for such series for the determination of Securityholders entitled to give such request, demand, authorization, direction, notice, consent, waiver or other action, but the Company shall have no obligation to do so. If such a record date is fixed, such request, demand, authorization, direction, notice, consent, waiver or other action may be given before or after the record date, but only the Securityholders of record at the close of business on the record date shall be deemed to be Securityholders for the purposes of determining whether Securityholders of the requisite proportion of Outstanding Securities of that series have authorized or agreed or consented to such request, demand, authorization, direction, notice, consent, waiver or other action, and for that purpose the Outstanding Securities of that series shall be computed as of the record date; provided, however, that no such authorization, agreement or consent by such Securityholders on the record date shall be deemed effective unless it shall become effective pursuant to the provisions of this Indenture not later than six months after the record date.

## **SECTION 8.2 PROOF OF EXECUTION BY SECURITYHOLDERS.**

Subject to the provisions of Section 7.1, proof of the execution of any instrument by a Securityholder (such proof will not require notarization) or his agent or proxy and proof of the holding by any Person of any of the Securities shall be sufficient if made in the following manner:

- (a) The fact and date of the execution by any such Person of any instrument may be proved in any reasonable manner acceptable to the Trustee.
- (b) The ownership of Securities shall be proved by the Security Register of such Securities or by a certificate of the Security Registrar thereof.

The Trustee may require such additional proof of any matter referred to in this Section as it shall deem necessary.

## **SECTION 8.3 WHO MAY BE DEEMED OWNERS.**

Prior to the due presentment for registration of transfer of any Security, the Company, the Trustee, any Paying Agent and any Security Registrar may deem and treat the Person in whose name such Security shall be registered upon the books of the Security Registrar as the absolute owner of such Security (whether or not such Security shall be overdue and notwithstanding any notice of ownership or writing thereon made by anyone other than the Security Registrar) for the purpose of receiving payment of or on account of the principal of, premium, if any, and (subject to Section 2.3) interest on such Security and for all other purposes; and neither the Company nor the Trustee nor any Paying Agent nor any Security Registrar shall be affected by any notice to the contrary.

## **SECTION 8.4 CERTAIN SECURITIES OWNED BY COMPANY DISREGARDED.**

In determining whether the holders of the requisite aggregate principal amount of Securities of a particular series have concurred in any direction, consent or waiver under this Indenture, the Securities of that series that are owned by the Company or any other obligor on the Securities of that series or by any Person directly or indirectly controlling or controlled by or under common control with the Company or any other obligor on the Securities of that series shall be disregarded and deemed not to be Outstanding for the purpose of any such determination, except that for the purpose of determining whether the Trustee shall be protected in relying on any such direction, consent or waiver, only Securities of such series that the Trustee actually knows are so owned shall be so disregarded. The Securities so owned that have been pledged in good faith may be regarded as Outstanding for the purposes of this Section, if the pledgee shall establish to the satisfaction of the Trustee the pledgee's right so to act with respect to such Securities and that the pledgee is not a Person directly or indirectly controlling or controlled by or under direct or indirect common control with the Company or any such other obligor. In case of a dispute as to such right, any decision by the Trustee taken upon the advice of counsel shall be full protection to the Trustee.

## **SECTION 8.5 ACTIONS BINDING ON FUTURE SECURITYHOLDERS.**

At any time prior to (but not after) the evidencing to the Trustee, as provided in Section 8.1, of the taking of any action by the holders of the majority or percentage in aggregate principal amount of the Securities of a particular series specified in this Indenture in connection with such action, any holder of a Security of that series that is shown by the evidence to be included in the Securities the holders of which have consented to such action may, by filing written notice with the Trustee, and upon proof of holding as provided in Section 8.2, revoke such action so far as concerns such Security. Except as aforesaid any such action taken by the holder of any Security shall be conclusive and binding upon such holder and upon all future holders and owners of such Security, and of any Security issued in exchange therefor, on registration of transfer thereof or in place thereof, irrespective of whether or not any notation in regard thereto is made upon such Security. Any action taken by the holders of the majority or percentage in aggregate principal amount of the Securities of a particular series specified in this Indenture in connection with such action shall be conclusively binding upon the Company, the Trustee and the holders of all the Securities of that series.

## ARTICLE IX SUPPLEMENTAL INDENTURES

### SECTION 9.1 SUPPLEMENTAL INDENTURES WITHOUT THE CONSENT OF SECURITYHOLDERS.

In addition to any supplemental indenture otherwise authorized by this Indenture, the Company and the Trustee may from time to time and at any time enter into an indenture or indentures supplemental hereto (which shall comply with the provisions of the Trust Indenture Act as then in effect), without the consent of the Securityholders, for one or more of the following purposes:

- (a) to cure any ambiguity, defect, omission or inconsistency herein or in the Securities of any series (with such ambiguity, defect, omission or inconsistency being evidenced by an Officer's Certificate);
- (b) to comply with Article X, including to evidence the succession of another Person to the Company and the assumption by any such successor of the covenants of the Company herein and in the Securities contained or to provide for the assumption of a guarantor's obligations to holders of the Securities in the case of a merger or consolidation or sale of all or substantially all of the guarantor's assets;
- (c) to provide for uncertificated Securities in addition to or in place of certificated Securities; provided that the uncertificated Securities are issued in registered form for purposes of Section 163(f) of the Code;
- (d) to add to the covenants of the Company or any guarantor for the benefit of the holders of the Securities of any series or to surrender any right or power conferred upon the Company or any guarantor;
- (e) to provide for the issuance of additional Securities of any series in accordance with the terms of this Indenture;
- (f) to evidence and provide for the acceptance of appointment hereunder by a successor trustee;
- (g) to comply with any requirements of the Commission or any successor in connection with the qualification of this Indenture under the Trust Indenture Act;
- (h) to provide security for the Securities of any series or to provide for any guarantee of the Securities of any series or to confirm or evidence the release, termination or discharge of any guarantee of or lien securing the Securities of any series when such release, termination or discharge is permitted by this Indenture;
- (i) to make any change that would provide any additional rights or benefits to the holders of the Securities of any series or that does not adversely affect the legal rights under this Indenture of any holder;
- (j) to make any amendment to the provision of this Indenture relating to the transfer and legending of the Securities of any series; provided, however, that (1) compliance with this Indenture as so amended would not result in Securities of such series being transferred in violation of the Securities Act or any other applicable securities law and (2) such amendment does not materially and adversely affect the rights of holders to transfer Securities of such series; or

(k) to conform the text of this Indenture, any guarantee of the Securities of any series or the notes to any provision of the “Description of Debt Securities and Guarantees” included in the prospectus forming a part of the registration statement filed by the Company with the Commission on Form S-3 on August 4, 2016 or any subsequent description of Securities contained in any prospectus supplement, to the extent that such provision in that “Description of Debt Securities and Guarantees” or any subsequent description of Securities contained in any prospectus supplement was intended by the Company to be a verbatim recitation of a provision of this Indenture, any guarantee of the Securities of any series or the Securities, as applicable (with such intention being evidenced by an Officer’s Certificate).

The Trustee is hereby authorized to join with the Company in the execution of any such supplemental indenture, and to make any further appropriate agreements and stipulations that may be therein contained, but the Trustee shall not be obligated to enter into any such supplemental indenture that affects the Trustee’s own rights, duties or immunities under this Indenture or otherwise.

Any supplemental indenture authorized by the provisions of this Section may be executed by the Company and the Trustee without the consent of the holders of any of the Securities at the time Outstanding, notwithstanding any of the provisions of Section 9.2.

## **SECTION 9.2 SUPPLEMENTAL INDENTURES WITH THE CONSENT OF SECURITYHOLDERS.**

With the consent (evidenced as provided in Section 8.1) of the holders of not less than a majority in aggregate principal amount of the Securities of each series affected by such supplemental indenture or indentures at the time Outstanding (including consents obtained in connection with a tender offer or exchange offer for the Securities), the Company, when authorized by a Board Resolution, and the Trustee may from time to time and at any time enter into an indenture or indentures supplemental hereto (which shall comply with the provisions of the Trust Indenture Act as then in effect) for the purpose of adding any provisions to or changing in any manner or eliminating (or waiving any past default or compliance with) any of the provisions of this Indenture or of any supplemental indenture or of modifying in any manner not covered by Section 9.1 the rights of the holders of the Securities of such series under this Indenture; provided, however, that no such supplemental indenture shall, without the consent of the holders of each Security then Outstanding and affected thereby,

- (a) reduce the percentage or aggregate principal amount of Securities, the holders of which are required to consent to any modification, amendment, supplement or waiver;
- (b) reduce the principal amount of, or premium, if any, or rate of interest on, such Securities;
- (c) extend the fixed maturity of such Securities;
- (d) extend the time for payment of interest on such Securities;
- (e) reduce the redemption or repurchase price of such Securities or change the time at which the Securities may or must be redeemed or repurchased;
- (f) change the currency of payment of principal of, or premium, if any, or interest on, such Securities;
- (g) waive a default in the payment of principal of, premium, if any, or interest on such Securities (except as provided in Section 6.1(c));
- (h) voluntarily release a guarantor of such Securities other than in accordance with this Indenture;
- (i) reduce the percentage or aggregate principal amount of Outstanding Securities the consent of whose holders is necessary for waiver of compliance with certain provisions of this Indenture or for waiver of certain defaults; or

(j) impair the right to institute suit for the enforcement of any payment on or after the stated maturity (or, in the case of a redemption, on or after the redemption date) of such Securities.

It shall not be necessary for the consent of the Securityholders of any series affected thereby under this Section to approve the particular form of any proposed supplemental indenture, but it shall be sufficient if such consent shall approve the substance thereof.

### **SECTION 9.3 EFFECT OF SUPPLEMENTAL INDENTURES.**

Upon the execution of any supplemental indenture pursuant to the provisions of this Article IX or of Section 10.1, this Indenture shall, with respect to such series, be and be deemed to be modified and amended in accordance therewith and the respective rights, limitations of rights, obligations, duties and immunities under this Indenture of the Trustee, the Company and the holders of Securities of the series affected thereby shall thereafter be determined, exercised and enforced hereunder subject in all respects to such modifications and amendments, and all the terms and conditions of any such supplemental indenture shall be and be deemed to be part of the terms and conditions of this Indenture for any and all purposes.

### **SECTION 9.4 SECURITIES AFFECTED BY SUPPLEMENTAL INDENTURES.**

Securities of any series affected by a supplemental indenture, authenticated and delivered after the execution of such supplemental indenture pursuant to the provisions of this Article IX or of Section 10.1, may bear a notation in form approved by the Company, provided such form meets the requirements of any securities exchange upon which such series may be listed, as to any matter provided for in such supplemental indenture. If the Company shall so determine, new Securities of that series so modified as to conform, in the opinion of the Board of Directors, to any modification of this Indenture contained in any such supplemental indenture may be prepared by the Company, authenticated by the Trustee and delivered in exchange for the Securities of that series then Outstanding.

### **SECTION 9.5 EXECUTION OF SUPPLEMENTAL INDENTURES.**

Upon the request of the Company, accompanied by its Board Resolutions authorizing the execution of any such supplemental indenture, and upon the filing with the Trustee of evidence of the consent of Securityholders required to consent thereto as aforesaid, the Trustee shall join with the Company in the execution of such supplemental indenture unless such supplemental indenture affects the Trustee's own rights, duties or immunities under this Indenture or otherwise, in which case the Trustee may in its discretion but shall not be obligated to enter into such supplemental indenture. The Trustee shall receive, in addition to the documents required by Section 14.7(a), an Officer's Certificate and an Opinion of Counsel stating that and as conclusive evidence that any supplemental indenture executed pursuant to this Article IX is authorized or permitted by, and conforms to, the terms of this Article IX, constitutes the legal, valid and binding obligation of the Company, enforceable against it in accordance with its terms (subject to customary exceptions) and that it is proper for the Trustee under the provisions of this Article IX to join in the execution thereof.

Promptly after the execution by the Company and the Trustee of any supplemental indenture pursuant to the provisions of this Section, the Company shall transmit by mail, first class postage prepaid, a notice, setting forth in general terms the substance of such supplemental indenture, to the Securityholders of all series affected thereby as their names and addresses appear upon the Security Register. Any failure of the Company to mail such notice, or any defect therein, shall not, however, in any way impair or affect the validity of any such supplemental indenture.

## **ARTICLE X SUCCESSOR ENTITY**

### **SECTION 10.1 COMPANY MAY CONSOLIDATE, ETC.**

Except as provided pursuant to Section 2.1 pursuant to a Board Resolution, and set forth in an Officer's Certificate, or established in one or more indentures supplemental to this Indenture, nothing contained in this Indenture shall prevent any consolidation or merger of the Company with or into any other Person (whether or not affiliated with the Company) or successive consolidations or mergers in which the Company or its successor or successors shall be a party or parties, or shall prevent any sale, conveyance, transfer or other disposition of the property of the Company or its successor or successors as an entirety, or substantially as an entirety, to any other corporation (whether or not affiliated with the Company or its successor or successors) authorized to acquire and operate the same; provided, however, the Company hereby covenants and agrees that, upon any such consolidation or merger (in each case, if the Company is not the survivor of such transaction), sale, conveyance, transfer or other disposition, (a) the due and punctual payment of the principal of (premium, if any) and interest on all of the Securities of all series in accordance with the terms of each series, according to their tenor, and the due and punctual performance and observance of all the covenants and conditions of this Indenture with respect to each series or established with respect to such series pursuant to Section 2.1 to be kept or performed by the Company shall be expressly assumed, by supplemental indenture (which shall conform to the provisions of the Trust Indenture Act, as then in effect) executed and delivered to the Trustee by the entity formed by such consolidation, or into which the Company shall have been merged, or by the entity which shall have acquired such property and (b) in the event that the Securities of any series then Outstanding are convertible into or exchangeable for shares of common stock or other securities of the Company, such entity shall, by such supplemental indenture, make provision so that the Securityholders of Securities of that series shall thereafter be entitled to receive upon conversion or exchange of such Securities the number of securities or property to which a holder of the number of shares of common stock or other securities of the Company deliverable upon conversion or exchange of those Securities would have been entitled had such conversion or exchange occurred immediately prior to such consolidation, merger, sale, conveyance, transfer or other disposition.

**SECTION 10.2 SUCCESSOR ENTITY SUBSTITUTED.**

(a) In case of any such consolidation, merger, sale, conveyance, transfer or other disposition and upon the assumption by the successor entity by supplemental indenture, executed and delivered to the Trustee and satisfactory in form to the Trustee of the obligations set forth under Section 10.1 on all of the Securities of all series Outstanding, such successor entity shall succeed to and be substituted for the Company with the same effect as if it had been named as the Company herein, and thereupon the predecessor corporation shall be relieved of all obligations and covenants under this Indenture and the Securities.

(b) In case of any such consolidation, merger, sale, conveyance, transfer or other disposition, such changes in phraseology and form (but not in substance) may be made in the Securities thereafter to be issued as may be appropriate.

(c) Nothing contained in this Article X shall require any action by the Company in the case of a consolidation or merger of any Person into the Company where the Company is the survivor of such transaction, or the acquisition by the Company, by purchase or otherwise, of all or any part of the property of any other Person (whether or not affiliated with the Company).

**SECTION 10.3 EVIDENCE OF CONSOLIDATION, ETC. TO TRUSTEE.**

The Trustee, subject to the provisions of Section 7.1, shall receive an Officer's Certificate and an Opinion of Counsel stating that and as conclusive evidence that any such consolidation, merger, sale, conveyance, transfer or other disposition, and any such assumption, comply with the provisions of this Article X.

**ARTICLE XI  
SATISFACTION AND DISCHARGE**

**SECTION 11.1 SATISFACTION AND DISCHARGE OF INDENTURE.**

This Indenture shall upon Company Request cease to be of further effect with respect to any series of Securities (except as to any surviving rights of registration of transfer or exchange of Securities of such series herein expressly provided for or in the form of Security for such series and any right to receive additional amounts), and the Trustee, at the expense of the Company, shall execute proper instruments acknowledging satisfaction and discharge of this Indenture as to such series, when

(a) either

(i) all Securities of such series theretofore authenticated and delivered (other than (i) Securities which have been destroyed, lost or stolen and which have been replaced or paid as provided in Section 2.7 and (ii) Securities for whose payment cash, Governmental Obligations or a combination thereof has theretofore been deposited in trust or segregated and held in trust by the Company and thereafter repaid to the Company or discharged from such trust, as provided in Sections 12.5 and 12.6) have been delivered to the Trustee for cancellation; or

(ii) all such Securities of such series not theretofore delivered to the Trustee for cancellation, or

(A) have become due and payable by reason of the mailing of a notice of redemption or otherwise, or

(B) will become due and payable within one year,

and the Company, in the case of (A) or (B) above, has deposited or caused to be deposited with the Trustee as trust funds in trust specifically pledged as security for, and dedicated solely to, the benefit of the Securityholders of the Securities of that series, cash in U.S. dollars, Governmental Obligations or a combination thereof in such amount as will be sufficient, without consideration of any reinvestment of interest, to pay and discharge the entire indebtedness on such Securities not theretofore delivered to the Trustee for cancellation, for principal (and premium, if any) and interest, if any, to the date of such deposit (in the case of Securities which have become due and payable), or to the Stated Maturity or the Redemption Date, as the case may be;

(b) in respect of clause (a)(ii), no Event of Default has occurred and is continuing on the date of deposit (other than an Event of Default resulting from the borrowing of funds to be applied to such deposit and any similar deposit relating to other indebtedness and, in each case, the granting of certain liens to secure such borrowing);

(c) the Company or any guarantor has paid or caused to be paid all other sums payable hereunder by the Company with respect to such series; and

(d) the Company has delivered irrevocable instructions to the Trustee under this Indenture to apply the deposited money towards the payment of the notes at maturity or on the redemption date, as the case may be.

Notwithstanding the satisfaction and discharge of this Indenture with respect to such series, the obligations of the Company to the Trustee with respect to such series under this Section 11.1 and Sections 7.6 and 7.10, the obligations of the Company to any Authenticating Agent under Section 2.10, and, if cash, Governmental Obligations or a combination thereof shall have been deposited with the Trustee pursuant to subclause (ii) of clause (a) of this Section, the obligations of the Trustee under Section 11.2, shall survive.

## **SECTION 11.2 APPLICATION OF TRUST MONEY.**

Subject to the provisions of Section 12.6, all cash and Governmental Obligations deposited with the Trustee pursuant to Section 11.1 shall be held in trust and applied by the Trustee, in accordance with the provisions of the series of Securities and this Indenture, to the payment, either directly or through any Paying Agent (including the Company or any of its Subsidiaries acting as Paying Agent) as the Trustee may determine, to the Persons entitled thereto, of all sums due and to become due thereon in respect of the principal of (and premium, if any) and interest, if any, on the Securities for which payment of such cash and Governmental Obligations has been deposited with the Trustee.

If the Trustee or Paying Agent is unable to apply any cash or Governmental Obligations in accordance with this Article XI by reason of any legal proceeding or by reason of any order or judgment of any court or governmental authority enjoining, restraining or otherwise prohibiting such application, then the obligations of the Company under this Indenture and the Securities of such series shall be revived and reinstated as though no deposit had occurred pursuant to this Article XI until such time as the Trustee or Paying Agent is permitted to apply all such cash and Governmental Obligations in accordance with this Article XI; provided, however, that, if the Company has made any payment of principal, premium, if any, interest on or principal of any Securities because of the reinstatement of its obligations, the Company shall be subrogated to the rights of the holders of such Securities to receive such payment from the cash and Governmental Obligations held by the Trustee or Paying Agent.

**ARTICLE XII**  
**LEGAL DEFEASANCE AND COVENANT DEFEASANCE**

**SECTION 12.1 OPTION TO EFFECT LEGAL DEFEASANCE OR COVENANT DEFEASANCE.**

The Company may at any time, at the option of its Board of Directors evidenced by a Board Resolution set forth in an Officer's Certificate, elect to have either Section 12.2 or 12.3 hereof be applied to all outstanding Securities of a series upon compliance with the conditions set forth below in this Article XII.

**SECTION 12.2 LEGAL DEFEASANCE AND DISCHARGE.**

Upon the Company's exercise under Section 12.1 hereof of the option applicable to this Section 12.2 with respect to a series of Securities, the Company will, subject to the satisfaction of the conditions set forth in Section 12.4 hereof, be deemed to have been discharged from its obligations with respect to all outstanding Securities of such series on the date the conditions set forth below are satisfied (hereinafter, "**Legal Defeasance**"). For this purpose, Legal Defeasance means that the Company will be deemed to have paid and discharged the entire Indebtedness represented by the Outstanding Securities of such series, which will thereafter be deemed to be Outstanding only for the purposes of Section 12.5 hereof and the Articles and other Sections of this Indenture referred to in clauses (1) and (2) below, and to have satisfied all their other obligations under such Securities and this Indenture (and the Trustee, on demand of and at the expense of the Company, shall execute proper instruments acknowledging the same), except for the following provisions which will survive until otherwise terminated or discharged hereunder:

- (1) the rights of holders of Outstanding Securities of such series to receive payments in respect of the principal of, premium on, if any, or interest on such Securities when such payments are due from the trust referred to in Section 12.4 hereof;
- (2) the Issuers' obligations with respect to such Securities under Article 2 and Section 4.2 hereof;
- (3) the rights, powers, trusts, duties and immunities of the Trustee hereunder and the Company's obligations in connection therewith; and
- (4) this Article XII.

Subject to compliance with this Article XII, the Company may exercise its option under this Section 12.2 with respect to a series of Securities, notwithstanding the prior exercise of its option under Section 12.3 hereof with respect to such series of Securities.

**SECTION 12.3 COVENANT DEFEASANCE.**

Upon the Company's exercise under Section 12.1 hereof of the option applicable to this Section 12.3 with respect to a series of Securities, the Company will, subject to the satisfaction of the conditions set forth in Section 12.4 hereof, be released from its obligations under Section 5.3 and Article X and any additional covenants specified in any Board Resolution or indenture supplemental hereto with respect to the Outstanding Securities of such series on and after the date the conditions set forth in Section 12.4 hereof are satisfied (hereinafter, "**Covenant Defeasance**"), and the Securities of such series will thereafter be deemed not Outstanding for the purposes of any direction, waiver, consent or declaration or act of holders (and the consequences of any thereof) in connection with such covenants, but will continue to be deemed Outstanding for all other purposes hereunder (it being understood that such Securities will not be deemed Outstanding for accounting purposes). For this purpose, Covenant Defeasance means that, with respect to the Outstanding Securities of such series, the Company may omit to comply with and shall have no liability in respect of any term, condition or limitation set forth in Section 5.3 or Article X and any additional covenants specified in any Board Resolution or indenture supplemental hereto, whether directly or indirectly, by reason of any reference elsewhere herein to any such Section or Article or by reason of any reference in any such Section or Article to any other provision herein or in any other document and such omission to comply shall not constitute a Default or an Event of Default under Section 6.1 hereof with respect to Outstanding Securities of such series, but, except as specified above, the remainder of this Indenture and such Securities shall be unaffected thereby.

## **SECTION 12.4 CONDITIONS TO LEGAL OR COVENANT DEFEASANCE.**

In order to exercise either Legal Defeasance or Covenant Defeasance under either Section 12.2 or 12.3 hereof with respect to the Outstanding Securities of a particular series:

(1) the Company must irrevocably deposit with the Trustee, in trust, for the benefit of the Securityholders of the Securities of that series, cash in U.S. dollars, Governmental Obligations, or a combination thereof, in such amounts as will be sufficient, in the opinion of a nationally recognized investment bank, appraisal firm, or firm of independent public accountants, to pay the principal of, premium on, if any, and interest on, the Outstanding Securities of such series on the stated date for payment thereof or on the applicable redemption date, as the case may be, and the Company must specify whether the Securities of such series are being defeased to such stated date for payment or to a particular redemption date;

(2) in the case of an election under Section 12.2 hereof, the Company must deliver to the Trustee an Opinion of Counsel reasonably acceptable to the Trustee confirming that:

(A) the Company has received from, or there has been published by, the Internal Revenue Service a ruling; or

(B) since the date of this Indenture, there has been a change in the applicable federal income tax law,

in either case to the effect that, and based thereon such Opinion of Counsel shall confirm that, the holders of the Outstanding Securities of such series will not recognize income, gain or loss for federal income tax purposes as a result of such Legal Defeasance and will be subject to federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such Legal Defeasance had not occurred;

(3) in the case of an election under Section 12.3 hereof, the Company must deliver to the Trustee an Opinion of Counsel reasonably acceptable to the Trustee confirming that the holders of the Outstanding Securities of such series will not recognize income, gain or loss for federal income tax purposes as a result of such Covenant Defeasance and will be subject to federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such Covenant Defeasance had not occurred;

(4) no Default or Event of Default with respect to the Securities of such series shall have occurred and be continuing on the date of such deposit (other than a Default or Event of Default resulting from the borrowing of funds to be applied to such deposit (and any similar concurrent deposit relating to other Indebtedness), and the granting of liens to secure such borrowings);

(5) such Legal Defeasance or Covenant Defeasance will not result in a breach or violation of, or constitute a default under, any material agreement or instrument (other than this Indenture and the agreements governing any other Indebtedness being defeased, discharged or replaced) to which the Company is a party or by which the Company is bound; and

(6) the Company must deliver to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that all conditions precedent relating to the Legal Defeasance or the Covenant Defeasance have been complied with.

## **SECTION 12.5 DEPOSITED MONEY AND GOVERNMENT SECURITIES TO BE HELD IN TRUST; OTHER MISCELLANEOUS PROVISIONS.**

Subject to Section 12.6 hereof, all cash and Governmental Obligations (including the proceeds thereof) deposited with the Trustee pursuant to Section 12.4 hereof in respect of the Outstanding Securities of a particular series shall be held in trust and applied by the Trustee, in accordance with the provisions of such Securities and this Indenture, to the payment, either directly or through any Paying Agent (including the Company acting as Paying Agent) as the Trustee may determine, to the holders of such Securities of all sums due and to become due thereon in respect of principal, premium, if any, and interest, but such money need not be segregated from other funds except to the extent required by law.

The Company will pay and indemnify the Trustee against any tax, fee or other charge imposed on or assessed against the cash or Governmental Obligations deposited pursuant to Section 12.4 hereof or the principal and interest received in respect thereof other than any such tax, fee or other charge which by law is for the account of the holders of the Outstanding Securities of the applicable series.

Notwithstanding anything in this Article XII to the contrary, the Trustee shall deliver or pay to the Company from time to time upon Company Request any cash or Governmental Obligations held by it as provided in Section 12.4 hereof which, in the opinion of a nationally recognized firm of independent public accountants expressed in a written certification thereof delivered to the Trustee (which may be the opinion delivered under Section 12.4(1) hereof), are in excess of the amount thereof that would then be required to be deposited to effect an equivalent Legal Defeasance or Covenant Defeasance.

#### **SECTION 12.6 REPAYMENT TO COMPANY.**

Any money deposited with the Trustee or any Paying Agent, or then held by the Company, in trust for the payment of the principal of, premium on, if any, or interest on any Security and remaining unclaimed for two years after such principal, premium, if any, or interest, has become due and payable shall, unless otherwise required by mandatory provisions of applicable escheat or abandoned or unclaimed property law, be paid to the Company on its request or (if then held by the Company) will be discharged from such trust; and the holder of such Security will thereafter, as an unsecured general creditor, be permitted to look only to the Company for payment thereof, and all liability of the Trustee or such Paying Agent with respect to such trust money, and all liability of the Company as trustee thereof, will thereupon cease; *provided, however*, that the Trustee or such Paying Agent, before being required to make any such repayment, may give written notice to the holder of such Security, at such holder's address as it appears upon the Security Register, that such money remains unclaimed and that, after a date specified therein, which will not be less than 30 days from the date of such notification, any unclaimed balance of such money then remaining will, unless otherwise required by mandatory provisions of applicable escheat or abandoned or unclaimed property law, be repaid to the Company.

#### **SECTION 12.7 REINSTATEMENT.**

If the Trustee or Paying Agent is unable to apply any cash or Governmental Obligations in accordance with Section 12.2 or 12.3 hereof, as the case may be, by reason of any order or judgment of any court or governmental authority enjoining, restraining or otherwise prohibiting such application, then the Company's obligations under this Indenture and the Securities of the particular series shall be revived and reinstated as though no deposit had occurred pursuant to Section 12.2 or 12.3 hereof until such time as the Trustee or Paying Agent is permitted to apply all such cash or Governmental Obligations in accordance with Section 12.2 or 12.3 hereof, as the case may be; *provided, however*, that, if the Company makes any payment of principal of, premium on, if any, or interest on, any Security of the particular series following the reinstatement of its obligations, the Company shall be subrogated to the rights of the holders of such Securities to receive such payment from the cash or Governmental Obligations held by the Trustee or Paying Agent.

### **ARTICLE XIII IMMUNITY OF INCORPORATORS, STOCKHOLDERS, OFFICERS AND DIRECTORS**

#### **SECTION 13.1 NO RECOURSE.**

No recourse under or upon any obligation, covenant or agreement of this Indenture, or of any Security, or for any claim based thereon or otherwise in respect thereof, shall be had against any incorporator, stockholder, officer or director, past, present or future as such, of the Company or of any predecessor or successor corporation, either directly or through the Company or any such predecessor or successor corporation, whether by virtue of any constitution, statute or rule of law, or by the enforcement of any assessment or penalty or otherwise; it being expressly understood that this Indenture and the obligations issued hereunder are solely corporate obligations, and that no such personal liability whatever shall attach to, or is or shall be incurred by, the incorporators, stockholders, officers or directors as such, of the Company or of any predecessor or successor corporation, or any of them, because of the creation of the indebtedness hereby authorized, or under or by reason of the obligations, covenants or agreements contained in this Indenture or in any of the Securities or implied therefrom; and that any and all such personal liability of every name and nature, either at common law or in equity or by constitution or statute, of, and any and all such rights and claims against, every such incorporator, stockholder, officer or director as such, because of the creation of the indebtedness hereby authorized, or under or by reason of the obligations, covenants or agreements contained in this Indenture or in any of the Securities or implied therefrom, are hereby expressly waived and released as a condition of, and as a consideration for, the execution of this Indenture and the issuance of such Securities.

**ARTICLE XIV  
MISCELLANEOUS PROVISIONS**

**SECTION 14.1 EFFECT ON SUCCESSORS AND ASSIGNS.**

All the covenants, stipulations, promises and agreements in this Indenture made by or on behalf of the Company shall bind its successors and assigns, whether so expressed or not. All the covenants, stipulations, promises and agreements in this Indenture made by or on behalf of the Trustee shall bind its successors and assigns, whether so expressed or not.

**SECTION 14.2 ACTIONS BY SUCCESSOR.**

Any act or proceeding by any provision of this Indenture authorized or required to be done or performed by any board, committee or officer of the Company shall and may be done and performed with like force and effect by the corresponding board, committee or officer of any corporation that shall at the time be the lawful successor of the Company.

**SECTION 14.3 SURRENDER OF COMPANY POWERS.**

The Company by instrument in writing executed by authority of its Board of Directors and delivered to the Trustee may surrender any of the powers reserved to the Company, and thereupon such power so surrendered shall terminate both as to the Company and as to any successor corporation.

**SECTION 14.4 NOTICES.**

Except as otherwise expressly provided herein, any notice, request or demand that by any provision of this Indenture is required or permitted to be given, made or served by the Trustee or by the holders of Securities or by any other Person pursuant to this Indenture to or on the Company may be given or served by being deposited in first class mail, postage prepaid, addressed, as follows: BioTime, Inc., 1010 Atlantic Avenue, Suite 102, California 94501, Attention: Secretary. Any notice, election, request or demand by the Company or any Securityholder or by any other Person pursuant to this Indenture to or upon the Trustee shall be deemed to have been sufficiently given or made, for all purposes, if given or made in writing at the Corporate Trust Office of the Trustee.

**SECTION 14.5 GOVERNING LAW/WAIVER OF JURY TRIAL.**

This Indenture and each Security shall be deemed to be a contract made under the internal laws of the State of New York, and for all purposes shall be construed in accordance with the laws of said State, except to the extent that the Trust Indenture Act is applicable. EACH PARTY HERETO HEREBY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY LITIGATION DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT.

**SECTION 14.6 TREATMENT OF SECURITIES AS DEBT.**

It is intended that the Securities will be treated as indebtedness and not as equity for federal income tax purposes. The provisions of this Indenture shall be interpreted to further this intention.

**SECTION 14.7 COMPLIANCE CERTIFICATES AND OPINIONS.**

(a) Upon any application or demand by the Company to the Trustee to take any action under any of the provisions of this Indenture, the Company shall furnish to the Trustee an Officer's Certificate stating that all conditions precedent provided for in this Indenture relating to the proposed action have been complied with and an Opinion of Counsel stating that in the opinion of such counsel all such conditions precedent have been complied with, except that in the case of any such application or demand as to which the furnishing of such documents is specifically required by any provision of this Indenture relating to such particular application or demand, no additional certificate or opinion need be furnished.

(b) Each certificate or opinion provided for in this Indenture and delivered to the Trustee with respect to compliance with a condition or covenant in this Indenture shall include (i) a statement that the Person making such certificate or opinion has read such covenant or condition; (ii) a brief statement as to the nature and scope of the examination or investigation upon which the statements or opinions contained in such certificate or opinion are based; (iii) a statement that, in the opinion of such Person, he has made such examination or investigation as is reasonably necessary to enable him to express an informed opinion as to whether or not such covenant or condition has been complied with; and (iv) a statement as to whether or not, in the opinion of such Person, such condition or covenant has been complied with.

#### **SECTION 14.8 PAYMENTS ON BUSINESS DAYS.**

Except as provided pursuant to Section 2.1 pursuant to a Board Resolution, and set forth in an Officer's Certificate, or established in one or more indentures supplemental to this Indenture, in any case where the date of maturity of interest or principal of any Security or the date of redemption of any Security shall not be a Business Day, then payment of interest or principal (and premium, if any) may be made on the next succeeding Business Day with the same force and effect as if made on the nominal date of maturity or redemption, and no interest shall accrue for the period after such nominal date.

#### **SECTION 14.9 CONFLICT WITH TRUST INDENTURE ACT.**

If and to the extent that any provision of this Indenture limits, qualifies or conflicts with any provision of the Trust Indenture Act, such Trust Indenture Act provision shall control.

#### **SECTION 14.10 COUNTERPARTS.**

This Indenture may be executed in any number of counterparts, each of which shall be deemed an original, but such counterparts shall together constitute but one and the same instrument.

#### **SECTION 14.11 SEVERABILITY.**

In case any one or more of the provisions contained in this Indenture or in the Securities of any series shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Indenture or of such Securities, but this Indenture and such Securities shall be construed as if such invalid or illegal or unenforceable provision had never been contained herein or therein.

#### **SECTION 14.12 COMPLIANCE CERTIFICATES.**

The Company shall deliver to the Trustee, within 120 days after the end of each fiscal year during which any Securities of any series were outstanding, an Officer's Certificate stating whether or not the signers know of any Default or Event of Default that occurred during such fiscal year. Such certificate shall contain a certification from the principal executive officer, principal financial officer or principal accounting officer of the Company that a review has been conducted of the activities of the Company and the Company's performance under this Indenture and that the Company has complied with all conditions and covenants under this Indenture. For purposes of this Section 14.12, such compliance shall be determined without regard to any period of grace or requirement of notice provided under this Indenture. If any of the officers of the Company signing such certificate has knowledge of such a Default or Event of Default, the certificate shall describe any such Default or Event of Default and its status.

#### **SECTION 14.13 USA PATRIOT ACT**

The parties hereto acknowledge that, in accordance with Section 326 of the USA Patriot Act (Title III of Pub. L. 107-56 (signed into law October 26, 2001)) (as amended, modified or supplemented from time to time, the “**USA Patriot Act**”), the Trustee, like all financial institutions, is required to obtain, verify, and record information that identifies each Person or legal entity that opens an account. The parties to this Indenture agree that they will provide the Trustee with such information as the Trustee may request in order for the Trustee to satisfy the requirements of the USA Patriot Act.

#### **SECTION 14.14 CONSENT TO JURISDICTION AND SERVICE**

To the fullest extent permitted by applicable law, each party hereby irrevocably submits to the non-exclusive jurisdiction of any Federal or State court located in the Borough of Manhattan in The City of New York, New York in any suit, action or proceeding based on or arising out of or relating to this Indenture or any Securities and irrevocably agrees that all claims in respect of such suit or proceeding may be determined in any such court. Each party irrevocably waives, to the fullest extent permitted by law, any objection which it may have to the laying of the venue of any such suit, action or proceeding brought in an inconvenient forum. Each party agrees that final judgment in any such suit, action or proceeding brought in such a court shall be conclusive and binding upon such party, and may be enforced in any courts to the jurisdiction of which such party is subject by a suit upon such judgment, provided, that service of process is effected upon such party in the manner specified herein or as otherwise permitted by law.

#### **SECTION 14.15 FORCE MAJEURE**

In no event shall the Trustee be responsible or liable for any failure or delay in the performance of its obligations hereunder arising out of or caused by, directly or indirectly, forces beyond its control, including, without limitation, strikes, work stoppages, accidents, acts of war or terrorism, civil or military disturbances, nuclear or natural catastrophes or acts of God, and interruptions, loss or malfunctions of utilities, communications or computer (software and hardware) services; it being understood that the Trustee shall use reasonable efforts which are consistent with accepted practices in the banking industry to resume performance as soon as practicable under the circumstances.

*[Signature page follows]*

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed all as of the day and year first above written.

BIOTIME, INC.

By: \_\_\_\_\_

Name:

Title:

, as Trustee

By: \_\_\_\_\_

Name:

Title:

---



**K&L GATES LLP**  
 1 PARK PLAZA  
 TWELFTH FLOOR  
 IRVINE, CA 92614  
 T 949.253.0900 F 949.253.0902  
 klgates.com

April 6, 2017

BioTime, Inc.  
 1010 Atlantic Avenue, Suite 102  
 Alameda, California 94501

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to BioTime, Inc., a California corporation (the "Company"), in connection with the preparation and filing of a Registration Statement on Form S-3 (the "Registration Statement") with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), relating to the registration under the Securities Act and the proposed issuance and sale from time to time by the Company of up to an aggregate initial offering amount of \$75,000,000 of the following securities (each a "Company Security," and collectively, or in any combination, the "Company Securities"):

- (i) shares of the Company's common stock, no par value per share (the "Common Stock");
- (ii) one or more classes or series of shares of the Company's preferred stock, no par value per share (the "Preferred Stock");
- (iii) one or more series of debt securities, which may be senior or subordinated debt or senior or subordinated convertible debt (the "Debt Securities");
- (iv) warrants representing the rights to purchase shares of Common Stock, Preferred Stock, or Debt Securities (the "Warrants");
- (v) subscription rights to purchase shares of Common Stock, Preferred Stock or Debt Securities (the "Subscription Rights"); and
- (vi) units comprised of one or more of the Company Securities in one or more series and in any combination (the "Units").

This opinion letter is being furnished to you in accordance with the requirements of Item 601(b)(5) of Regulation S-K.

The Company Securities may be issued and sold by the Company from time to time on a delayed or continuous basis pursuant to applicable provisions of Rule 415 under the Securities Act, in amounts, at prices and on terms to be determined in light of market conditions at the time of sale, and as set forth in the Registration Statement, any amendment thereto, the prospectus contained therein (the "Base Prospectus") and any supplements to the Prospectus (each, together with the Base Prospectus, a "Prospectus"). This opinion letter is limited to the laws, including the rules and regulations, as in effect on the date hereof. We are basing this opinion on our understanding that, prior to issuing any Company Securities in connection with the Registration Statement, the Company will advise us in writing of the terms thereof and other information material thereto, will afford us an opportunity to review the operative documents pursuant to which such Company Securities are to be issued (including the Registration Statement, the Prospectus and the applicable supplement to the Prospectus, as then in effect) and will file such supplement or amendment to this opinion letter (if any) as we may reasonably consider necessary or appropriate with respect to such Company Securities. However, we undertake no responsibility to monitor the Company's future compliance with applicable laws, rules or regulations of the Commission or other governmental body.

For purposes of rendering the opinions expressed below, we have examined the Registration Statement, the Indenture (as hereinafter defined), the Company's Articles of Incorporation, as amended to date (the "Articles of Incorporation"), and the Company's Bylaws (the "Bylaws"), and we have made such investigation of law as we have deemed appropriate. We have examined and relied upon certificates of public officials and, as to certain matters of fact that are material to our opinions, we have also relied on a certificate of an officer of the Company. For purposes of this opinion letter, we have assumed that (i) each document submitted to us is accurate and complete; (ii) each such document that is an original is authentic; (iii) each such document that is a copy conforms to an authentic original; and (iv) all signatures on each such document are genuine. We have further assumed the legal capacity of natural persons, and we have assumed that each party to the documents we have examined or relied on has the legal capacity or authority and has satisfied all legal requirements that are applicable to that party to the extent necessary to make such documents enforceable against that party. We have not verified any of these assumptions.

Unless otherwise provided in any Prospectus relating to a particular series of Debt Securities, the Debt Securities will be issued pursuant to an indenture (the "Indenture") between the Company and a trustee to be named in the applicable supplement to the Prospectus (the "Trustee"), substantially in the form that is included as an exhibit to the Registration Statement. Any Debt Securities may be convertible into shares of Common Stock or other Company Securities. The Company Securities are to be sold pursuant to a purchase, underwriting or similar agreement in substantially the form to be filed under a Current Report on Form 8-K. The Warrants will be issued under one or more warrant agreements (each, a "Warrant Agreement"). The Subscription Rights will be issued under one or more subscription rights agreements (each a "Subscription Rights Agreement"). The Units will be issued under one or more unit purchase agreements (each a "Unit Purchase Agreement")

The opinions expressed in this opinion letter are limited to (i) the California Corporations Code (the "CCC"), and (ii) with respect to opinion paragraphs 3 through 6, the laws of the State of New York. We are not opining on, and we assume no responsibility for, the applicability to or effect on any of the matters covered herein of (a) any other laws; (b) the laws of any other jurisdiction; or (c) the laws of any county, municipality or other political subdivision or local governmental agency or authority.

Based upon and subject to the foregoing and in reliance thereon, and subject to the assumptions, qualifications, limitations and exceptions set forth below, we are of the opinion that:

- (1) With respect to shares of Common Stock, when all necessary corporate action of the Company has been taken to approve an issuance of shares of Common Stock, and certificates representing the shares of Common Stock have been duly executed, countersigned, registered and delivered (or non-certificated shares of Common Stock shall have been properly issued), either (i) in accordance with the applicable definitive purchase, underwriting or similar agreement approved by the Board of Directors of the Company (the "Board of Directors"), upon payment of the consideration therefor (which consideration shall not be less than the par value of the Common Stock) provided for in such definitive purchase, underwriting or similar agreement, as applicable, or (ii) upon conversion, exchange or exercise of any other Company Security in accordance with the terms of such Company Security or the instrument governing such Company Security providing for the conversion, exchange or exercise as approved by the Board of Directors, for the consideration therefor set forth in the applicable agreement and approved by the Board of Directors, which consideration shall not be less than the par value of the Common Stock, such shares of Common Stock, including the shares of Common Stock that form a part of any Units, will be validly issued, fully paid and non-assessable.
-

(2) With respect to shares of any series of Preferred Stock, when all necessary corporate action of the Company has been taken to approve an issuance of shares of Preferred Stock and the terms of the shares of such series, including the adoption of a certificate of designation or amendment to the Articles of Incorporation fixing and determining the terms of such Preferred Stock conforming to the CCC, the filing of a certificate or amendment, as applicable, with the Secretary of State of the State of California, the payment in full of any filing fees attendant thereto, and the due reservation of any Common Stock and Preferred Stock for issuance, and certificates representing the shares of the series of Preferred Stock have been duly executed, countersigned, registered and delivered, either (i) in accordance with the applicable definitive purchase, underwriting or similar agreement approved by the Board of Directors, upon payment of the consideration therefor (which consideration shall not be less than the par value of the Preferred Stock) provided for in such definitive purchase, underwriting or similar agreement, as applicable, or (ii) upon conversion, exchange or exercise of any other Company Security in accordance with the terms of such Company Security or the instrument governing such Company Security providing for the conversion, exchange or exercise as approved by the Board of Directors, for the consideration approved by the Board of Directors, which consideration shall not be less than the par value of the Preferred Stock, the shares of such series of Preferred Stock, including the shares of Preferred Stock that form a part of any Units, will be validly issued, fully paid and non-assessable.

(3) With respect to any series of Debt Securities, when (a) the Indenture and the applicable supplement, if any, to the Indenture have been duly authorized and validly executed and delivered by the Company and any Trustee named in the Prospectus relating to such series, (b) the Indenture, as then and theretofore amended or supplemented, has been duly qualified under the Trust Indenture Act of 1939, as amended (the "TIA"), (c) the Company has taken all necessary corporate action to authorize and approve the issuance and terms of such series of Debt Securities, (d) the terms of such Debt Securities and of their issuance and sale have been duly established in conformity with the applicable Indenture, and (e) such Debt Securities have been duly executed, authenticated, issued and delivered in accordance with the provisions of the Indenture and the applicable supplement, the Debt Securities of such series, including the Debt Securities that form a part of any Units, will constitute valid and binding obligations of the Company, enforceable against the Company in accordance with their terms.

(4) With respect to Warrants to be issued under a Warrant Agreement, when all necessary corporate action of the Company has been taken to approve the issuance and terms of such Warrants, the terms of the offering thereof and related matters, the Warrant Agreement has been duly executed and delivered by the Company, and such Warrants have been duly executed, issued and delivered in accordance with the terms of the Warrant Agreement and the applicable definitive purchase, underwriting or similar agreement approved by the Board of Directors, upon payment (or delivery) of the consideration therefor provided for therein, such Warrants, including the Warrants that form a part of any Units, will constitute valid and binding obligations of the Company, enforceable against the Company in accordance with their terms.

(5) With respect to Subscription Rights to be issued under a Subscription Rights Agreement, when all necessary corporate action of the Company has been taken to approve the issuance and terms of such Subscription Rights, the terms of the offering thereof and related matters, the Subscription Rights Agreement has been duly executed and delivered by the Company, and such Subscription Rights have been duly executed, issued and delivered in accordance with the terms of the Subscription Rights Agreement and the applicable definitive purchase, underwriting or similar agreement approved by the Board of Directors of the Company, upon payment (or delivery) of the consideration therefor provided for therein, such Subscription Rights, including the Subscription Rights that form a part of any Units, will constitute valid and binding obligations of the Company, enforceable against the Company in accordance with their terms.

(6) With respect to the Units, when all necessary corporate action of the Company has been taken to approve and establish the terms of the Units and to authorize and approve the issuance of the Company Securities comprising the Units, the terms of the offering and related matters, the Unit Purchase Agreement has been duly authorized, validly executed and delivered by the parties thereto, and the Units and/or the Company Securities comprising the Units have been duly executed and delivered in accordance with the applicable definitive purchase, underwriting or similar agreement approved by the board of directors of the Company, upon payment of the consideration provided therefor in the definitive purchase, underwriting or similar agreement as applicable and approved by the Board of Directors, which consideration shall not be less than the aggregate par value of any Common Stock and/or Preferred Stock included in the Units, the Units will constitute valid and binding obligations of the Company, enforceable against the Company in accordance with their terms.

---

The opinions set forth above are subject to the following additional assumptions:

(a) The Registration Statement and any amendment thereto (including any post-effective amendment) will have become effective under the Securities Act, and such effectiveness will not have been terminated, suspended or rescinded;

(b) A supplement to the Prospectus will have been prepared and filed with the Commission describing the securities offered thereby and will comply with all applicable laws;

(c) All Company Securities offered pursuant to the Registration Statement will be issued and sold (i) in compliance with all applicable federal and state securities laws, rules and regulations and solely in the manner provided in the Registration Statement or any supplement to the Prospectus and (ii) only upon payment of the consideration fixed therefor in accordance with the terms and conditions of any applicable definitive underwriting, purchase, agency or similar agreement relating to the particular offering, including any amendment or supplement thereto (each a "Purchase Agreement"), and any other applicable agreement relating to the particular offering (including the Indenture, any certificate of designation or amendment to the Articles of Incorporation, Warrant Agreement, Subscription Rights Agreement, Unit Purchase Agreement or other agreement pursuant to which any Company Securities offered pursuant to the Registration Statement are to be issued or governed, including any amendment or supplement to any of the foregoing), and there will not have occurred any change in law or fact affecting the validity of any of the opinions rendered herein with respect thereto;

(d) In the case of the Indenture pursuant to which any Debt Securities offered pursuant to the Registration Statement are to be issued or governed, there will have been no addition, deletion or modification of the terms or provisions contained in the form of Indenture included as Exhibit 4.4 of the Registration Statement that would affect the validity of any of the opinions rendered herein;

(e) A definitive Purchase Agreement, any other applicable agreement relating to the particular offering (including any Indenture, certificate of designation or amendment to the Articles of Incorporation, Warrant Agreement, Subscription Rights Agreement, Unit Purchase Agreement or other agreement pursuant to which any Company Securities offered pursuant to the Registration Statement are to be issued or governed, including any amendment or supplement to any of the foregoing) will have been duly authorized and validly executed and delivered by the Company and each of the other parties thereto;

(f) In the case of any definitive Purchase Agreement, the Indenture, any certificate of designation or amendment to the Articles of Incorporation, Warrant Agreement, Subscription Rights Agreement, Unit Purchase Agreement or other agreement pursuant to which any Company Securities offered pursuant to the Registration Statement are to be issued or governed, including any amendment or supplement to any of the foregoing, there will be no terms or provisions contained therein which would affect the validity of any of the opinions rendered herein;

(g) The final terms of any Company Securities offered pursuant to the Registration Statement, and, when issued, the issuance, sale and delivery thereof, and the incurrence and performance of the obligations thereunder or in respect thereof in accordance with the terms thereof, and any consideration to be received for any such issuance, sale and delivery, (i) will comply with, and will not violate, (A) the Articles of Incorporation and the Bylaws, as they may be amended or supplemented hereafter, or (B) any applicable law, rule or regulation; (ii) will not result in a default under or breach of any agreement or instrument binding upon the Company; (iii) will comply with any requirement or restriction imposed by any court or governmental body having jurisdiction over the Company, or to which the issuance, sale and delivery of such Securities or the incurrence and performance of such obligations may be subject; and (iv) will not violate any applicable public policy or be subject to any defense in law or equity;

---

(h) Any Company Securities issuable upon conversion, exchange or exercise of any Company Security being offered or issued will be duly authorized, created, and, if appropriate, reserved for issuance upon such conversion, exchange or exercise;

(i) Any Warrant Agreement, Subscription Rights Agreement, or purchase contract for the Units will be governed by the laws of the State of New York, and the choice of law selected by the parties to any Purchase Agreement, the Indenture, any Warrant Agreement, Subscription Rights Agreement, Unit Purchase Agreement or other agreement pursuant to which any Company Securities offered pursuant to the Registration Statement are to be issued or governed, including any amendment or supplement to any of the foregoing, is a valid and legal provision; and

(j) That the Company will continue to be validly existing under the laws of the State of California.

To the extent that the obligations of the Company under any offered Debt Securities and the Indenture may be dependent upon such matters, we assume for purposes of this opinion letter that (i) the Trustee will be duly organized, validly existing and in good standing under the laws of its jurisdictions of organization; (ii) the Trustee will be duly qualified to engage in the activities contemplated by the Indenture, as it may be amended or supplemented; (iii) the Indenture and any amendment or supplement thereto will have been duly authorized, executed and delivered by the Trustee and will constitute the valid and binding obligation of the Trustee, enforceable against the Trustee in accordance with its terms; (iv) the Trustee will be in compliance, with respect to acting as a trustee under the Indenture and any amendment or supplement thereto, with all applicable laws and regulations; (v) the Trustee will have the requisite organizational and legal power and authority to perform its obligations under the Indenture and any amendment or supplement thereto; and (vi) the Trustee will have been qualified under the TIA, and an appropriate Form T-1 with respect to the Trustee will have been properly filed in accordance with the TIA.

To the extent that the obligations of the Company under any Warrant Agreement, Subscription Rights Agreement, Unit Purchase Agreement or other agreement pursuant to which any Company Securities offered pursuant to the Registration Statement are to be issued or governed, including any amendment or supplement thereto, may be dependent upon such matters, we assume for purposes of this opinion letter that (i) each party to any such agreement other than the Company (including any applicable warrant agent, purchase contract agent or other party acting in a similar capacity with respect to any Company Securities) will be duly organized, validly existing and in good standing under the laws of its jurisdiction of organization; that each such other party will be duly qualified to engage in the activities contemplated thereby; (ii) each such agreement and the applicable Company Securities will have been duly authorized, executed and delivered by each such other party and will constitute the valid and binding obligations of each such other party, enforceable against each such other party in accordance with their terms; (iii) each such other party will be in compliance, with respect to acting in any capacity contemplated by any such agreement, with all applicable laws and regulations; and (iv) each such other party will have the requisite organizational and legal power and authority to perform its obligations under each such agreement.

The opinions set forth above are subject to the following additional qualifications:

A. The opinions in paragraphs 3 through 6 above are subject to the effects of (i) bankruptcy, insolvency, fraudulent conveyance, fraudulent transfer, reorganization, receivership, moratorium and other similar laws relating to or affecting creditors' rights or remedies generally, (ii) general principles of equity, whether such principles are considered in a proceeding at law or in equity, and (iii) an implied covenant of good faith, reasonableness and fair dealing and standards of materiality.

---

B. We express no opinions concerning (i) any provisions that purport to waive or not give effect to rights to notices, defenses, subrogation or other rights or benefits that cannot be effectively waived under applicable law, (ii) any indemnification, exculpation or contribution provisions to the extent that such provisions may be held unenforceable as contrary to public policy or federal or state securities laws, (iii) any waiver of the right to jury trial or forum non conveniens; (iv) any provisions relating to choice of governing law to the extent that the enforceability of any such provision is to be determined by any court other than a court of the State of New York or may be subject to constitutional limitations; (v) (a) consents to or restrictions upon judicial relief, (b) waivers of rights or defenses with respect to stay, extension or usury laws or waivers of broadly or vaguely stated rights, (c) grants of set-off rights or (d) proxies, powers and trusts; (vi) any provisions that purport to require that amendments or waivers to any agreement must be in writing to be effective; (vii) any provisions that provide for liquidated damages, make-whole or other prepayment premiums or similar payments or other economic remedies to the extent a court were to determine that any such economic remedy constitutes a penalty; or (viii) any provisions that relate to judgments in currencies other than U.S. dollars. We also express no opinion concerning whether a U.S. federal court would accept jurisdiction in any dispute, action, suit or proceeding arising out of or relating to any agreement or the transactions contemplated hereby or the net impact or result of any conflict of laws between or among laws of competing jurisdictions and the applicability of the law of any jurisdiction in such instance.

We assume no obligation to update or supplement any of our opinions to reflect any changes of law or fact that may occur after the date hereof.

We hereby consent to the filing of this opinion letter as an exhibit to the Registration Statement and to the reference to this firm in the Prospectus under the caption "Legal Matters." In giving our consent, we do not hereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations thereunder.

Yours truly,

/s/ K&L Gates LLP

K&L Gates LLP

---

The logo for K&L GATES, featuring the text "K&L GATES" in a white, sans-serif font on a dark grey rectangular background.

**K&L GATES LLP**  
1 PARK PLAZA  
TWELFTH FLOOR  
IRVINE, CA 92614  
T 949.253.0900 F 949.253.0902  
klgates.com

April 6, 2017

BioTime, Inc.  
1010 Atlantic Avenue, Suite 102  
Alameda, California 94501

Ladies and Gentlemen:

We have acted as counsel to BioTime, Inc., a California corporation (the "Company"), in connection with the proposed offering and sale from time to time by the Company of the Company's Common Stock, no par value per share, having an aggregate offering price of up to \$25,000,000 (the "Shares"), pursuant to the Registration Statement on Form S-3 (the "Registration Statement"), filed with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), by the Company on April 6, 2017, the related base prospectus (the "Base Prospectus") and the prospectus relating to the Shares (together with the Base Prospectus, the "Prospectus").

You have requested our opinion as to the matters set forth below in connection with the Registration Statement, the Prospectus and the offering of the Shares thereunder. For purposes of rendering such opinion, we have examined the Prospectus, the Registration Statement, the Company's Articles of Incorporation, as amended, the Company's Bylaws, as amended, and the corporate action of the Company that provides for the issuance of the Shares, and we have made such other investigation as we have deemed appropriate. We have examined and relied upon certificates of public officials and, as to certain matters of fact that are material to our opinion, we have also relied on a certificate of an officer of the Company. In rendering our opinion, we have made the assumptions that are customary in opinion letters of this kind. We have not verified any of those assumptions.

Our opinion set forth below is limited to the California Corporations Code, including the applicable provisions of the California Constitution and reported judicial decisions interpreting those laws.

Based upon and subject to the foregoing, it is our opinion that the Shares are duly authorized for issuance by the Company and, when issued and paid for as described in the Prospectus, will be validly issued, fully paid and nonassessable.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement and to the reference to this firm in the related prospectus supplement under the caption "Legal Matters." In giving our consent, we do not hereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations thereunder.

Yours truly,

/s/ K&L Gates LLP

K&L Gates LLP

---

## BIOTIME, INC. AND SUBSIDIARIES

## STATEMENT REGARDING COMPUTATION OF RATIO OF EARNINGS TO FIXED CHARGES AND RATIO OF EARNINGS TO COMBINED FIXED CHARGES AND PREFERRED STOCK DIVIDENDS

The following table sets forth the computation of our ratio of earnings to fixed charges and our ratio of earnings to combined fixed charges and preferred stock dividends for the periods presented. As the ratio of earnings to fixed charges and earnings to combined fixed charges and preferred stock dividends indicate less than one-to-one coverage for each of the periods presented, we have provided the coverage deficiency amounts for these periods. Earnings are the sum of (i) pretax loss before adjustment for net loss attributable to noncontrolling interests in consolidated subsidiaries and before gain or loss from equity method investees and (ii) fixed charges.

	Years Ended December 31,				
	2016	2015	2014	2013	2012
<b>Computation of Earnings:</b>					
Pretax loss before equity method investees	\$ (11,069)	\$ (62,615)	\$ (51,155)	\$ (56,190)	\$ (25,306)
<b>Add:</b>					
Interest expense	1,043	377	64	3	-
Amortization of debt discount	448	264	56	-	-
Estimated interest component of rent expense <sup>(1)</sup>	508	693	654	516	378
Earnings as adjusted	<u>\$ (9,070)</u>	<u>\$ (61,281)</u>	<u>\$ (50,381)</u>	<u>\$ (55,671)</u>	<u>\$ (24,928)</u>
<b>Computation of fixed charges:</b>					
Interest expense	\$ 1,043	\$ 377	\$ 64	\$ 3	\$ -
Amortization of debt discount	448	264	56	-	-
Estimated interest component of rent expense	508	693	654	516	378
Total fixed charges	<u>\$ 1,999</u>	<u>\$ 1,334</u>	<u>\$ 774</u>	<u>\$ 519</u>	<u>\$ 378</u>
Dividends on preferred shares	\$ -	\$ 415	\$ 87	\$ -	\$ -
Combined fixed charges and preferred stock dividends	\$ 1,999	\$ 1,749	\$ 861	\$ 519	\$ 378
Deficiency in earnings required to cover fixed charges	\$ (11,069)	\$ (62,615)	\$ (51,155)	\$ (56,190)	\$ (25,306)
Ratio of earnings to fixed charges <sup>(2)</sup>	-	-	-	-	-
Deficiency in earnings required to cover combined fixed charges and preferred stock dividends	\$ (11,069)	\$ (63,030)	\$ (51,242)	\$ (56,190)	\$ (25,306)
Ratio of earnings to fixed changes and preferred dividends <sup>(3)</sup>	-	-	-	-	-

(1) One third of rent expense was included in the calculation as it is a reasonable approximation of the interest component.

(2) Our earnings were inadequate to cover fixed charges for the years ended December 31, 2016, 2015, 2014, 2013, and 2012 by \$11.1 million, \$62.6 million, \$51.2 million, \$56.2 million and \$25.3 million, respectively.

(3) Our earnings were inadequate to cover fixed charges and preferred stock dividends for the years ended December 31, 2016, 2015, 2014, 2013, and 2012 by \$11.1 million, \$63.0 million, \$51.2 million, \$56.2 million and \$25.3 million, respectively.

**CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

We hereby consent to the incorporation by reference, in the Prospectus constituting a part of this Registration Statement on Form S-3 of BioTime, Inc., of our reports dated March 16, 2017, relating to the consolidated financial statements and the effectiveness of BioTime, Inc. and Subsidiaries' internal control over financial reporting, which appear in the Annual Report on Form 10-K of BioTime, Inc. for the year ended December 31, 2016.

We also consent to the reference to us under the caption "Experts" in the Prospectus.

/s/ OUM & CO. LLP

San Francisco, California  
April 5, 2017

---