

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

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

ARCTURUS THERAPEUTICS HOLDINGS INC.

(Exact Name of Registrant as Specified in its Charter)

Delaware
(State or Other Jurisdiction of
Incorporation)

32-0595345
(I.R.S. Employer
Identification Number)

10628 Science Center Drive, Suite 250
San Diego, California 92121
(858) 900-2660

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

Joseph E. Payne
Chief Executive Officer
Arcturus Therapeutics Holdings Inc.
10628 Science Center Drive, Suite 250
San Diego, California 92121
(858) 900-2660

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

Copies to:
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Ilan Katz, Esq.
Dentons US LLP
1221 Avenue of the Americas
New York, New York 10020

Approximate date of commencement of proposed sale to public: From time to time or at one time after this registration statement becomes effective in light of market conditions and other factors.

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, as amended (the "Securities Act"), 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.

Large accelerated filer Accelerated filer
Non-accelerated filer Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

EXPLANATORY NOTE

This registration statement contains two prospectuses:

- a base prospectus (the “Base Prospectus”), which covers the offering, issuance and sale by us of up to a maximum aggregate offering price of \$500,000,000 of shares of our common stock and preferred stock, various series of debt securities and/or warrants to purchase any of such securities. We may also issue units comprised of one or more shares of common stock, shares of preferred stock, debt securities, warrants and/or rights in any 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; and
- a prospectus (the “ATM Prospectus”) for an “at the market offering” by us of up to \$200,000,000 of our common stock that may be offered and sold under a Controlled Equity OfferingSM Agreement (the “Sales Agreement”) between us, and Cantor Fitzgerald & Co. and Wells Fargo Securities, LLC, as agents. The common stock that may be offered and sold by us under the ATM Prospectus is included in the \$500,000,000 of securities that may be offered and sold by us under the Base Prospectus. Upon termination of the “at the market” offering, any portion of the \$200,000,000 included in the ATM Prospectus that is not sold pursuant thereto will be available for sale in other offerings pursuant to the Base Prospectus.

The Base Prospectus immediately follows this explanatory note. The ATM Prospectus immediately follows the Base Prospectus.

The information in this prospectus is not complete and may be changed. The Registrant 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 an offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED DECEMBER 23, 2022

PROSPECTUS

\$500,000,000



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

From time to time, we may offer and sell up to an aggregate of \$500,000,000 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. We may also issue units comprised of one or more shares of common stock, shares of preferred stock, debt securities, warrants and/or rights in any combination.

When we decide to sell particular securities, we will provide you with the specific terms and the offering price of the securities we are then offering in one or more prospectus supplements to this prospectus. The prospectus supplement may add to, change or update information contained in this prospectus. The prospectus supplement may also contain important information about U.S. federal income tax consequences. You should carefully read this prospectus, together with any prospectus supplements and information incorporated by reference in this prospectus and any prospectus supplements, before you decide to invest. **This prospectus may not be used to offer or sell any securities unless accompanied by a prospectus supplement.**

Our common stock is quoted on The Nasdaq Global Market under the trading symbol "ARCT." Any common stock sold pursuant to this prospectus or any prospectus supplement will be listed on that exchange, subject to official notice of issuance. Each prospectus supplement to this prospectus will contain information, where applicable, as to any other listing on any national securities exchange of the securities covered by the prospectus supplement. On December 19, 2022, the last reported sale price of our common stock was \$16.76 per share.

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. **Investing in our securities involves significant risks. See "Risk Factors" beginning on page 5.**

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

The date of this prospectus is _____, 2022.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the U.S. Securities and Exchange Commission (the “SEC”) using a “shelf” registration process. Under this shelf registration process, we may, from time to time, offer and sell common stock, preferred stock, debt securities, warrants for debt and equity securities, rights to purchase common stock, preferred stock, or warrants in one or more series, and units consisting of the foregoing in one or more transactions.

This prospectus only provides you with a general description of the securities we may sell in these transactions. Each time we sell any securities under this prospectus, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement also may add, update or change information contained in this prospectus. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. This prospectus does not contain all of the information included in the registration statement we filed with the SEC. For further information about us or the securities offered hereby, you should carefully read this prospectus, any applicable prospectus supplement, any related free writing prospectuses, the information and documents incorporated herein by reference and the additional information under the heading “Where You Can Find Additional Information” before making an investment decision.

You should rely only on the information contained or incorporated by reference in this prospectus, any applicable prospectus supplement and any related free writing prospectuses that we may authorize to be provided to you. We have 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. This prospectus and the accompanying supplement to this prospectus are not an offer to sell these securities and it is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus, any applicable prospectus supplement or any related free writing prospectuses, as well as information we have previously filed with the SEC and incorporated by reference, is accurate only as of the date on the cover of those documents. 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.

This prospectus may not be used to consummate sales of any of these securities unless it is accompanied by a prospectus supplement. To the extent there are inconsistencies between any prospectus supplement, this prospectus and/or any documents incorporated by reference, the document with the most recent date will control.

In this prospectus and any prospectus supplement, unless otherwise stated or the context otherwise indicates, references to “ARCT,” “Arcturus,” “the Company,” “we,” “us,” “our” and similar references refer to Arcturus Therapeutics Holdings Inc., a Delaware corporation.

TRADEMARKS

The Arcturus logo and other trademarks of Arcturus appearing in this prospectus are the property of Arcturus. All other trademarks, service marks and trade names in this prospectus are the property of their respective owners. Solely for convenience, trademarks and trade names referred to in this report may appear without the ® or ™ symbols.

PROSPECTUS SUMMARY

Arcturus Therapeutics Holdings Inc.

This summary highlights selected information appearing elsewhere in this prospectus or incorporated by reference in this prospectus, and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus, the applicable prospectus supplement and any related free writing prospectus, including the risks of investing in our securities discussed under the heading “Risk Factors” contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus. You should also carefully read the information incorporated by reference into this prospectus, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part. Unless otherwise indicated or the context otherwise requires, the terms the “Company,” “Arcturus Therapeutics,” “we,” “us” and “our” refer to Arcturus Therapeutics Holdings Inc., a Delaware corporation, and its predecessors and consolidated subsidiaries.

Business Overview

Arcturus is a global late-stage clinical messenger RNA medicines company focused on the development of infectious disease vaccines and significant opportunities within liver and respiratory rare diseases. In addition to our messenger RNA (“mRNA”) platform, our proprietary lipid nanoparticle delivery system, LUNAR[®], has the potential to enable multiple nucleic acid medicines, and our proprietary self-amplifying mRNA technology (Self-Transcribing and Replicating RNA or STARR[™]) technology has the potential to provide longer-lasting RNA and sustained protein expression at lower dose levels.

We are leveraging our proprietary platform relating to LUNAR[®] and our nucleic acid technologies to develop and advance a pipeline of mRNA-based vaccines and therapeutics for the prevention of infectious diseases and treatment of rare genetic disorders with significant unmet medical needs. We continue to expand this platform with innovative delivery solutions that allow us to expand our discovery efforts. Our proprietary LUNAR[®] technology is intended to address major hurdles in RNA drug development, such as the effective and safe delivery of RNA therapeutics to disease-relevant target tissues and for RNA vaccines the mitigation of challenges associated with cold chain storage and distribution via lyophilization. We believe the versatility of our platform to target multiple tissues, its compatibility with various nucleic acid therapeutics, and our expertise in developing scalable manufacturing processes will allow us to deliver on the next generation of nucleic acid medicines.

Corporate Information

Our company was founded in 2013 as Arcturus Therapeutics, Inc., and we have maintained our principal executive offices in San Diego, California since that time. In November 2017, Alcobra Ltd., an Israeli limited company, merged with our company, changed its name to Arcturus Therapeutics Ltd. and commenced trading on Nasdaq under the symbol “ARCT.” On June 17, 2019, we redomiciled to the United States and changed our name to Arcturus Therapeutics Holdings Inc.

Our principal executive offices are located at 10628 Science Center Drive, Suite 250, San Diego, California 92121, and our telephone number is (858) 900-2660. Our website is located at <https://arcturusrx.com>. We do not incorporate by reference into this prospectus the information on, or accessible through, our website. Our common stock trades on The Nasdaq Global Market under the symbol “ARCT”.

Securities We May Offer Under This Prospectus

We may offer shares of our common stock and preferred stock, various series of debt securities and/or warrants to purchase any of such securities, either individually or in combination, up to a total dollar amount of \$500,000,000, from time to time under this prospectus, together with the applicable prospectus supplement and any related free writing prospectus, at prices and on terms to be determined by market conditions at the time of any offering. We may also offer common stock, preferred stock and/or debt securities upon the exercise of warrants, and we may offer common stock or preferred stock upon the conversion of preferred stock or debt securities. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities under this prospectus, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities, including, to the extent applicable:

- designation or classification;
- aggregate principal amount or aggregate offering price;
- maturity date, if applicable;
- original issue discount, if any;
- rates and times of payment of interest or dividends, if any;
- redemption, conversion, exercise, exchange or sinking fund terms, if any;
- conversion or exchange prices or rates, if any, and, if applicable, any provisions for changes to or adjustments in the conversion or exchange prices or rates and in the securities or other property receivable upon conversion or exchange;
- ranking;
- restrictive covenants, if any;
- voting or other rights, if any; and
- material or special U.S. federal income tax considerations, if any.

The applicable prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change any of the information contained in this prospectus or in the documents we have incorporated by reference. However, no prospectus supplement or free writing prospectus will offer a security that is not registered and described in this prospectus at the time of the effectiveness of the registration statement of which this prospectus is a part.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and certain information incorporated herein by reference contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those discussed in the forward-looking statements. The statements contained in this prospectus that are not purely historical are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”), and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Forward-looking statements are often identified by the use of words such as, but not limited to, “anticipate,” “believe,” “can,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “project,” “seek,” “should,” “strategy,” “target,” “will,” “would” and similar expressions or variations intended to identify forward-looking statements. These statements are based on the beliefs and assumptions of our management based on information currently available to management. Such forward-looking statements are subject to risks, uncertainties and other important factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by such forward-looking statements.

Factors that might cause these differences include the following:

- our compliance, and ability to remain in compliance, with the stringent requirements of our current and potential government contracts, including our arrangements with the Biomedical Advanced Research and Development Authority, a division of the Office of the Assistant Secretary for Preparedness and Response within the U.S. Department of Health and Human Services and the Department of Defense;
- the status, success and benefits of our arrangements with private and governmental entities, some of which are subject to termination for convenience by our counterparties;
- regulatory filings, submissions and notices related to our commercial arrangements, including those made to the U.S. Federal Trade Commission and Department of Justice pursuant to the Hart-Scott-Rodino Antitrust Improvements Act of 1976;
- the potential effects and benefits of our technologies and product candidates on their own and in comparison to technologies, drugs or courses of treatment currently available or that may be developed by competitors;
- the likelihood that clinical data will be sufficient for regulatory approval;
- the anticipated timing for receipt of data or results of a study or clinical trial, including the anticipated data for our ARCT-810 trial;
- the likelihood or timing of any regulatory approval;
- the potential administration regimen or dosage, or ability to administer multiple doses of, any of our product candidates;
- our plans to research, develop and commercialize our product candidates;
- our ability to obtain and maintain regulatory approval of our product candidates, and any related restrictions, limitations, and/or warnings in the label of an approved product candidate;
- our ability to successfully commercialize, and our expectations regarding future therapeutic and commercial potential with respect to, our product candidates;
- the rate and degree of market acceptance of our product candidates;
- the success of competing therapies that are or may become available;
- our ability to obtain and maintain intellectual property protection for our product candidates;
- interactions with regulatory authorities in the United States and foreign countries;
- our ability to attract and retain experienced and seasoned scientific and management professionals to lead the Company;
- our strategic alliance partners’ election to pursue development and commercialization of any programs or product candidates that are subject to our collaboration and license agreements with such partners;
- the anticipated benefits and success of our collaboration agreement with CSL Seqirus related to the licensure of our STARR™ mRNA technology and LUNAR® lipid-mediated delivery, including our timely receipt of potential royalty and other payments thereunder;
- our ability to attract collaborators with relevant development, regulatory and commercialization expertise;
- future activities to be undertaken by our strategic alliance partners, collaborators and other third parties;
- our ability to develop sales and marketing capabilities, whether alone or with potential future collaborators;

- our ability to avoid, settle or be victorious at costly litigation with shareholders, former executives or others, should these situations arise;
- our ability to obtain and deploy funding for our operations and to efficiently use our financial and other resources;
- our ability to continue as a going concern;
- the accuracy of our estimates regarding future expenses, future revenues, capital requirements and need for additional financing; and
- such other factors (i) included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, (ii) contained in our other SEC reports described under “Risk Factors,” (iii) described elsewhere in this prospectus, and (iv) that we may publicly disclose from time to time.

We urge you to consider these factors carefully in evaluating the forward-looking statements contained in this prospectus and any prospectus supplement. All subsequent written or oral forward-looking statements attributable to our company or persons acting on our behalf are expressly qualified in their entirety by these cautionary statements. The forward-looking statements included in this prospectus are made only as of the date of this prospectus. We undertake no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise, except to the extent that we are required to do so by law.

RISK FACTORS

Before you invest in any of the company’s securities, in addition to the other information in this prospectus and the applicable prospectus supplement, you should carefully consider (i) the risk factors contained in the Company’s most recent annual report on Form 10-K and in our most recent quarterly reports on Form 10-Q, which are incorporated by reference into this prospectus, (ii) all of the other information included or incorporated by reference in this prospectus, and (iii) the applicable prospectus supplement, as the same may be updated from time to time by the Company’s future filings under the Exchange Act.

The risks and uncertainties described herein are not the only ones facing the Company. Additional risks and uncertainties not presently known to the Company or that the Company currently deems immaterial may also impair its business or operations. Any adverse effect on the Company’s business, financial condition or operating results could result in a decline in the value of the securities and the loss of all or part of your investment. The prospectus supplement applicable to each series of securities the Company offers may contain a discussion of additional risks applicable to an investment in the Company and the securities the Company is offering under that prospectus supplement.

USE OF PROCEEDS

Unless otherwise indicated in the prospectus supplement, we will use the net proceeds from the sale of securities offered by this prospectus for sales and marketing, working capital, and general corporate purposes. In addition, we believe opportunities may exist from time to time to expand our current business through acquisitions or in-licenses of, or investments in, complementary companies, medicines, intellectual property or technologies. While we have no current agreements or commitments for any specific acquisitions, in-licenses or investments at this time, we may use a portion of the net proceeds for these purposes. As of the date of this prospectus, we have not identified any specific and material proposed uses of the anticipated proceeds.

Our expected use of net proceeds from the sale of any securities offered pursuant to the applicable prospectus supplement for such offering will vary depending on our then current intentions based upon our plans and business condition. As of the date of this prospectus, we cannot predict with certainty all of the particular uses for the net proceeds to be received upon the completion of any offering or the amounts that we will actually spend on any specific uses set forth above. The amounts and timing of our actual use of the net proceeds will vary depending on numerous factors, including the factors described under or referenced under the heading "Risk Factors" in this prospectus. As a result, unless otherwise specified in the prospectus supplement, our management will have broad discretion in its application of the net proceeds, and investors will be relying on our judgment in such application.

Pending use of net proceeds from the sale of securities offered by this prospectus and the applicable prospectus supplement for such sale, we may invest in short-term and intermediate-term interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.

RATIO OF EARNINGS TO FIXED CHARGES

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

DESCRIPTION OF CAPITAL STOCK WE MAY OFFER

The following description summarizes important terms of our capital stock. For a complete description, you should refer to our certificate of incorporation, as amended, and bylaws, which are incorporated by reference as exhibits to the registration statement of which this prospectus is a part, as well as the relevant portions of the Delaware General Corporation Law (the "DGCL").

General

Our authorized capital stock consists of 60,000,000 shares of common stock, par value \$0.001 per share, and 10,000,000 shares of preferred stock, par value \$0.001 per share.

The following description of our common stock and preferred stock, together with the additional information included in any applicable prospectus supplements or related free writing prospectuses, summarizes the material terms and provisions of these types of securities, but it is not complete. For the complete terms of our common stock and preferred stock, please refer to our certificate of incorporation, as amended, and our bylaws that are incorporated by reference into the registration statement which includes this prospectus and, with respect to preferred stock, any certificate of designation that we may file with the SEC for a series of preferred stock we may designate, if any.

We will describe in a prospectus supplement or related free writing prospectuses, the specific terms of any common stock or preferred stock we may offer pursuant to this prospectus. If indicated in a prospectus supplement, the terms of such common stock or preferred stock may differ from the terms described below.

Common Stock

As of December 23, 2022, there were 26,555,483 shares of common stock outstanding. The holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders. The holders of common stock are not entitled to cumulative voting rights with respect to the election of directors and, as a consequence, minority stockholders will not be able to elect directors on the basis of their votes alone.

Subject to preferences that may be applicable to any then outstanding shares of preferred stock, holders of common stock are entitled to receive ratably such dividends as may be declared by the board of directors out of funds legally available therefor. In the event of a liquidation, dissolution or winding up of us, holders of the common stock are entitled to share ratably in all assets remaining after payment of liabilities and the liquidation preferences of any then outstanding shares of preferred stock. Holders of common stock have no preemptive rights and no right to convert their common stock into any other securities. There are no redemption or sinking fund provisions applicable to our common stock. All outstanding shares of common stock are, and all shares of common stock to be issued under this prospectus will be, fully paid and non-assessable. The rights, preferences and privileges of holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any of our outstanding preferred stock.

Listing

Our common stock is listed under the symbol "ARCT" on the Nasdaq Global Market.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Continental Stock Transfer & Trust Company.

Dividends

We have not declared any cash dividends on our common stock since inception and we do not anticipate paying any cash dividends on our common stock in the foreseeable future.

Preferred Stock

We are authorized to issue a total of 10,000,000 shares of preferred stock. As of December 23, 2022, there were no shares of preferred stock issued and outstanding.

Preferred stock may be issued from time to time, in one or more series, as authorized by the board of directors, without stockholder approval. The prospectus supplement relating to the preferred shares offered thereby will include specific terms of any preferred shares offered, including, if applicable:

- the title of the shares of preferred stock;
- the number of shares of preferred stock offered, the liquidation preference per share and the offering price of the shares of preferred stock;
- the dividend rate(s), period(s) and/or payment date(s) or method(s) of calculation thereof applicable to the shares of preferred stock;
- whether the shares of preferred stock are cumulative or not and, if cumulative, the date from which dividends on the shares of preferred stock shall accumulate;
- the procedures for any auction and remarketing, if any, for the shares of preferred stock;
- the provision for a sinking fund, if any, for the shares of preferred stock;

- the provision for redemption or repurchase, if applicable, and any restrictions on our ability to exercise those redemption and repurchase rights of the shares of preferred stock;
- any listing of the shares of preferred stock on any securities exchange;
- the terms and conditions, if applicable, upon which the shares of preferred stock will be convertible into common shares, including the conversion price (or manner of calculation thereof);
- discussion of federal income tax considerations applicable to the shares of preferred stock;
- the relative ranking and preferences of the shares of preferred stock as to dividend rights and rights upon liquidation, dissolution or winding up of our affairs;
- any limitations on issuance of any series or class of shares of preferred stock ranking senior to or on a parity with such series or class of shares of preferred stock as to dividend rights and rights upon liquidation, dissolution or winding up of our affairs;
- any other specific terms, preferences, rights, limitations or restrictions of the shares of preferred stock; and
- any voting rights of such preferred stock.

The transfer agent and registrar for any series or class of preferred stock will be set forth in the applicable prospectus supplement.

Possible Anti-Takeover Effects of Delaware Law and our Charter Documents

Provisions of the Delaware General Corporation Law, or DGCL, our certificate of incorporation, as amended, and our bylaws, could make it more difficult to acquire us by means of a tender offer, a proxy contest or otherwise, or to remove incumbent officers and directors. These provisions, summarized below, are expected to discourage certain types of coercive takeover practices and takeover bids that our board of directors may consider inadequate and 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 of our ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging takeover or acquisition proposals because, among other things, negotiation of these proposals could result in an improvement of their terms.

Delaware Anti-Takeover Statute

We are subject to Section 203 of the DGCL, an anti-takeover statute. In general, Section 203 of the DGCL prohibits a publicly held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years following the time the person became an interested stockholder, unless the business combination or the acquisition of shares that resulted in a stockholder becoming an interested stockholder is approved in a prescribed manner. Generally, a “business combination” includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. Generally, an “interested stockholder” is a person who, together with affiliates and associates, owns (or within three years prior to the determination of interested stockholder status did own) 15% or more of a corporation’s voting stock. The existence of this provision would be expected to have an anti-takeover effect with respect to transactions not approved in advance by our board of directors, including discouraging attempts that might result in a premium over the market price for the shares of common stock held by our stockholders.

Election and Removal of Directors

Our board of directors is elected annually by all holders of our capital stock. The stockholders may nominate one or more persons for election as directors at an annual meeting of stockholders, but only if written notice of such stockholder’s intent to make such nomination or nominations has been received by the Secretary of the Company not less than forty-five (45) nor more than seventy-five (75) days prior to the first anniversary of the preceding year’s annual meeting of stockholders. Any vacancy on the board of directors resulting from death, resignation, removal or otherwise or newly created directorships may be filled by the vote of the majority of directors then in office, although less than a quorum, or by a sole remaining director.

Amendment

The affirmative vote of a majority of the entire board of directors may amend and repeal the bylaws. The bylaws may be altered, amended or repealed, and new bylaws may be adopted, at any annual meeting of the stockholders (or at any special meeting thereof duly called for that purpose) by 66 and 2/3% of the combined voting power of the then outstanding shares of capital stock of all classes and series of the Company entitled to vote generally in the election of directors, voting as a single class, provided that, in the notice of any such special meeting, notice of such purpose shall be given.

Size of Board and Vacancies

Pursuant to our certificate of incorporation, as amended, and our bylaws, the number of directors constituting the board shall be at least one and no more than nine and our board of directors has the exclusive right to fix the size of the board and to fill any vacancies resulting from death, resignation, disqualification or removal as well as any newly created directorships arising from an increase in the size of the board.

Special Stockholder Meetings

Our bylaws provide that special meetings of stockholders can be called only by the board of directors, the chairman of the board of directors or the chief executive officer. Stockholders are not permitted to call a special meeting and cannot require the board of directors to call a special meeting. There is no right of stockholders to act by written consent without a meeting.

Requirements for Advance Notification of Stockholder Nominations and Proposals

Our bylaws establish advance notice procedures with respect to stockholder proposals and nomination of candidates for election as directors other than nominations made by or at the direction of our board of directors or a committee of our board of directors.

No Cumulative Voting

The DGCL provides that stockholders are denied the right to cumulate votes in the election of directors unless our certificate of incorporation, as amended, provides otherwise. Our certificate of incorporation, as amended, does not provide for cumulative voting.

Authorized but Unissued Shares

Our authorized but unissued shares of common stock and preferred stock will be available for future issuance without stockholder approval. We may use additional shares for a variety of purposes, including future public offerings to raise additional capital, to fund acquisitions and as employee compensation. The existence of authorized but unissued shares of undesignated preferred stock may enable our board of directors to render more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise. For example, if in the due exercise of its fiduciary obligations, our board of directors were to determine that a takeover proposal is not in the best interests of us or our stockholders, our board of directors could cause shares of preferred stock to be issued without stockholder approval in one or more private offerings or other transactions that might dilute the voting or other rights of the proposed acquirer, stockholder or stockholder group. The rights of holders of our common stock described above will be subject to, and may be adversely affected by, the rights of holders of any preferred stock that we may designate and issue in the future. The issuance of shares of preferred stock could decrease the amount of earnings and assets available for distribution to holders of shares of common stock. The issuance may also adversely affect the rights and powers, including voting rights, of these holders and may have the effect of delaying, deterring or preventing a change in control of us.

Director Liability

Our certificate of incorporation, as amended, and our bylaws limit the extent to which our directors are personally liable to us and our stockholders, to the fullest extent permitted by the DGCL. The inclusion of this provision in our bylaws may reduce the likelihood of derivative litigation against directors and may discourage or deter stockholders or management from bringing a lawsuit against directors for breach of their duty of care.

DESCRIPTION OF DEBT SECURITIES WE MAY OFFER

The following description, together with the additional information we include in any applicable prospectus supplements or free writing prospectuses, summarizes the material terms and provisions of the debt securities that we may offer under this prospectus. We may issue debt securities, 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 future debt securities we may offer under this prospectus, we will describe the particular terms of any debt securities that we may offer in more detail in the applicable prospectus supplement or free writing prospectus. The terms of any debt securities we offer under a prospectus supplement may differ from the terms we describe below. Unless the context requires otherwise, whenever we refer to the “indentures,” we also are referring to any supplemental indentures that specify the terms of a particular series of debt securities.

We will issue any senior debt securities under the senior indenture that we will enter into with the trustee named in the senior indenture. We will issue any subordinated debt securities under the subordinated indenture and any supplemental indentures that we will enter into with the trustee named in the subordinated indenture. We have filed forms of these documents as exhibits 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 SEC.

The indentures will be qualified under the Trust Indenture Act of 1939, as amended, or the Trust Indenture Act. We use the term “trustee” to refer to either the trustee under the senior indenture or the trustee under the subordinated indenture, as applicable.

The following summaries of material provisions of the senior debt securities, the subordinated debt securities and the indentures are subject to, and qualified in their entirety by reference to, all of the provisions of the indenture and any supplemental indentures applicable to a particular series of debt securities. We urge you to read the 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. Except as we may otherwise indicate, the terms of the senior indenture and the subordinated indenture are identical.

General

The terms of each series of debt securities will be established by or pursuant to a resolution of our board of directors and set forth or determined in the manner provided in an officers’ certificate or by a supplemental indenture. Debt securities may be issued in separate series without limitation as to aggregate principal amount. We may specify a maximum aggregate principal amount for the debt securities of any series. We will describe in the applicable prospectus supplement the terms of the series of debt securities being offered, including:

- the title;
- the principal amount being offered and, if a series, the total amount authorized and the total amount outstanding;
- any limit on the amount that may be issued;
- whether or not we will issue the series of debt securities in global form, and, if so, the terms and who the depository will be;

- the maturity date;
- whether and under what circumstances, if any, we will pay additional amounts on any debt securities held by a person who is not a U.S. person for tax purposes, and whether we can redeem the debt securities if we have to pay such additional amounts;
- the annual interest rate, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;
- whether or not the debt securities will be secured or unsecured, and the terms of any secured debt;
- the terms of the subordination of any series of subordinated debt;
- the place where payments will be payable;
- restrictions on transfer, sale or other assignment, if any;
- our right, if any, to defer payment of interest and the maximum length of any such deferral period;
- the date, if any, after which, and the price at which, we may, at our option, redeem the series of debt securities pursuant to any optional or provisional redemption provisions and the terms of those redemption provisions;
- provisions for a sinking fund purchase or other analogous fund, if any, including the date, if any, on which, and the price at which we are obligated, pursuant thereto or otherwise, to redeem, or at the holder's option, to purchase, the series of debt securities and the currency or currency unit in which the debt securities are payable;
- provisions relating to modification of the terms of the security or the rights of the security holder;
- whether the indenture will restrict our ability or the ability of our subsidiaries to:
 - incur additional indebtedness;
 - issue additional securities;
 - create liens;
 - pay dividends or make distributions in respect of our capital stock or the capital stock of our subsidiaries;
 - redeem capital stock;
 - place restrictions on our subsidiaries' ability to pay dividends, make distributions or transfer assets;
 - make investments or other restricted payments;
 - sell, transfer or otherwise dispose of assets;
 - enter into sale-leaseback transactions;
 - engage in transactions with stockholders or affiliates;
 - issue or sell stock of our subsidiaries; or

- effect a consolidation or merger;
- whether the indenture will require us to maintain any interest coverage, fixed charge, cash flow-based, asset-based or other financial ratios;
- information describing any book-entry features;
- the applicability of the provisions in the indenture on discharge;
- whether the debt securities are to be offered at a price such that they will be deemed to be offered at an “original issue discount” as defined in paragraph (a) of Section 1273 of the Internal Revenue Code of 1986, as amended;
- 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 currency of payment of debt securities if other than U.S. dollars and the manner of determining the equivalent amount in U.S. dollars; and
- any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities, including any additional events of default or covenants provided with respect to the debt securities, and any terms that may be required by us or advisable under applicable laws or regulations.

U.S. federal income tax consequences applicable to debt securities sold at an original issue discount will be described in the applicable prospectus supplement. In addition, U.S. federal income tax or other consequences applicable to any debt securities which are denominated in a currency or currency unit other than U.S. dollars may be described in the applicable prospectus supplement.

Conversion or Exchange Rights

We will set forth in the applicable prospectus supplement the terms under which a series of debt securities may be convertible into or exchangeable for our common stock, our preferred stock or other securities (including securities of a third party). We will include provisions as to 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, our preferred stock or other securities (including securities of a third party) that the holders of the series of debt securities receive would be subject to adjustment.

Consolidation, Merger or Sale

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, the indentures will not contain any covenant that restricts our ability to merge or consolidate, or sell, convey, transfer or otherwise dispose of all or substantially all of our assets. However, any successor to or acquiror of such assets must assume all of our obligations under the indentures or the debt securities, as appropriate. If the debt securities are convertible into or exchangeable for our other securities or securities of other entities, the person with whom we consolidate or merge or to whom we sell all of our property must make provisions for the conversion of the debt securities into securities that the holders of the debt securities would have received if they had converted the debt securities before the consolidation, merger or sale.

Events of Default under the Indenture

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, the following are events of default under the indentures with respect to any series of debt securities that we may issue:

- if we fail to pay interest when due and payable and our failure continues for 90 days and the time for payment has not been extended;

- if we fail to pay the principal, premium or sinking fund payment, if any, when due and payable and the time for payment has not been extended;
- if we fail to observe or perform any other covenant contained in the debt securities or the indentures, other than a covenant specifically relating to another series of debt securities, and our failure continues for 90 days after we receive notice from the trustee or we and the trustee receive notice from the holders of at least 25% in aggregate principal amount of the outstanding debt securities of the applicable series; and
- if specified events of bankruptcy, insolvency or reorganization occur.

We will describe in each applicable prospectus supplement any additional events of default relating to the relevant series of debt securities. If an event of default with respect to debt securities of any series occurs and is continuing, other than an event of default specified in the last bullet point above, the trustee or the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series, by notice to us in writing, and to the trustee if notice is given by such holders, may declare the unpaid principal, premium, if any, and accrued interest, if any, due and payable immediately. If an event of default arises due to the occurrence of certain specified bankruptcy, insolvency or reorganization events, the unpaid principal, premium, if any, and accrued interest, if any, of each issue of debt securities then outstanding shall be due and payable without any notice or other action on the part of the trustee or any holder.

The holders of a majority in principal amount of the outstanding debt securities of an affected series may waive any default or event of default with respect to the series and its consequences, except defaults or events of default regarding payment of principal, premium, if any, or interest, unless we have cured the default or event of default in accordance with the indenture. Any such waiver shall cure the default or event of default.

Subject to the terms of the applicable indenture, if an event of default under an indenture shall occur and be continuing, the trustee will be under no obligation to exercise any of its rights or powers under such indenture at the request or direction of any of the holders of the applicable series of debt securities, unless such holders have offered the trustee reasonable indemnity or security satisfactory to it against any loss, liability or expense. 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, provided that:

- the direction so given by the holders is not in conflict with any law or the applicable indenture; and
- subject to its duties under the Trust Indenture Act, the trustee need not take any action that might involve it in personal liability or might be unduly prejudicial to the holders not involved in the proceeding.

The indentures provide that if an event of default has occurred and is continuing, the trustee will be required in the exercise of its powers to use the degree of care that a prudent person would use in the conduct of its own affairs. The trustee, however, may refuse to follow any direction that conflicts with law or the indenture, or that the trustee determines is unduly prejudicial to the rights of any other holder of the relevant series of debt securities, or that would involve the trustee in personal liability. Prior to taking any action under the indentures, the trustee will be entitled to indemnification against all costs, expenses and liabilities that would be incurred by taking or not taking such action.

A holder of the debt securities of any series will have the right to institute a proceeding under the indentures or to appoint a receiver or trustee, or to seek other remedies only if:

- the holder has given written notice to the trustee of a continuing event of default with respect to that series;
- the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series have made a written request and such holders have offered reasonable indemnity to the trustee or security satisfactory to it against any loss, liability or expense to be incurred in compliance with instituting the proceeding as trustee; and

- the trustee does not institute the proceeding, and does not receive from the holders of a majority in aggregate principal amount of the outstanding debt securities of that series other conflicting directions within 60 days after the notice, request and offer.

These limitations do not apply to a suit instituted by a holder of debt securities if we default in the payment of the principal, premium, if any, or interest on, the debt securities.

We will periodically file statements with the trustee regarding our compliance with specified covenants in the indentures.

The indentures provide that if a default occurs and is continuing and is actually known to a responsible officer of the trustee, the trustee must mail to each holder notice of the default within 45 days after it occurs, unless such default has been cured. Except in the case of a default in the payment of principal or premium of, or interest on, any debt security or certain other defaults specified in an indenture, the trustee shall be protected in withholding such notice if and so long as the board of directors, the executive committee or a trust committee of directors, or responsible officers of the trustee, in good faith determine that withholding notice is in the best interests of holders of the relevant series of debt securities.

Modification of Indenture; Waiver

Subject to the terms of the indenture for any series of debt securities that we may issue, we and the trustee may change an indenture without the consent of any holders with respect to the following specific matters:

- to fix any ambiguity, defect or inconsistency in the indenture;
- to comply with the provisions described above under “Consolidation, Merger or Sale”;
- to comply with any requirements of the SEC in connection with the qualification of any indenture under the Trust Indenture Act;
- to add to, delete from or revise the conditions, limitations and restrictions on the authorized amount, terms or purposes of issue, authentication and delivery of debt securities, as set forth in such indenture;
- to provide for the issuance of, and establish the form and terms and conditions of, the debt securities of any series as provided under “General,” to establish the form of any certifications required to be furnished pursuant to the terms of the indenture or any series of debt securities, or to add to the rights of the holders of any series of debt securities;
- to evidence and provide for the acceptance of appointment hereunder by a successor trustee;
- to provide for uncertificated debt securities in addition to or in place of certificated debt securities and to make all appropriate changes for such purpose;
- to add such new covenants, restrictions, conditions or provisions for the protection of the holders, and to make the occurrence, or the occurrence and the continuance, of a default in any such additional covenants, restrictions, conditions or provisions an event of default or to surrender any right or power conferred to us in the indenture; or
- to change anything that does not materially adversely affect the interests of any holder of debt securities of any series in any material respect; provided that any amendment made solely to conform the provisions of the indenture to the corresponding description of the debt securities contained in the applicable prospectus or prospectus supplement shall be deemed not to adversely affect the interests of the holders of such debt securities; provided further, that in connection with any such amendment we will provide the trustee with an officers’ certificate certifying that such amendment will not adversely affect the rights or interests of the holders of such debt securities.

In addition, under the indentures, the rights of holders of a series of debt securities may be changed by us and the trustee with the written consent of the holders of at least a majority in aggregate principal amount of the outstanding debt securities of each series that is affected. However, unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, we and the trustee may only make the following changes with the consent of each holder of any outstanding debt securities affected:

- extending the fixed maturity of the series of debt securities;
- reducing the principal amount, reducing the rate of or extending the time of payment of interest, or reducing any premium payable upon the redemption of any debt securities;
- reducing the percentage of debt securities, the holders of which are required to consent to any amendment, supplement, modification or waiver;
- changing any of our obligations to pay additional amounts;
- reducing the amount of principal of an original issue discount security or any other note payable upon acceleration of the maturity thereof;
- changing the currency in which any note or any premium or interest is payable;
- impairing the right to enforce any payment on or with respect to any note;
- adversely changing the right to convert or exchange, including decreasing the conversion rate or increasing the conversion price of, such note, if applicable;
- in the case of the subordinated indenture, modifying the subordination provisions in a manner adverse to the holders of the subordinated debt securities;
- if the debt securities are secured, changing the terms and conditions pursuant to which the debt securities are secured in a manner adverse to the holders of the secured debt securities;
- reducing the requirements contained in the applicable indenture for quorum or voting;
- changing any of our obligations to maintain an office or agency in the places and for the purposes required by the indentures; or
- modifying any of the above provisions set forth in this paragraph.

Discharge

Each indenture provides that, subject to the terms of the indenture and any limitation otherwise provided in the prospectus supplement applicable to a particular series of debt securities, we may elect to be discharged from our obligations with respect to one or more series of debt securities, except for specified obligations, including obligations to:

- register the transfer or exchange of debt securities of the series;
- replace stolen, lost or mutilated debt securities of the series;
- maintain paying agencies;
- hold monies for payment in trust;

- recover excess money held by the trustee;
- compensate and indemnify the trustee; and
- appoint any successor trustee.

In order to exercise our rights to be discharged, we must deposit with the trustee money or government obligations sufficient to pay all the principal of, and any premium and interest on, the debt securities of the series on the dates payments are due.

Form, Exchange and Transfer

We will issue the debt securities of each series only in fully registered form without coupons and, unless we otherwise specify in the applicable prospectus supplement, in denominations of \$1,000 and any integral multiple thereof. The indentures provide that we may issue debt securities of a series in temporary or permanent global form and as book-entry securities that will be deposited with, or on behalf of, The Depository Trust Company or another depository named by us and identified in a prospectus supplement with respect to that series.

At the option of the holder, subject to the terms of the indentures and the limitations applicable to global securities described in the applicable prospectus supplement, the holder of the debt securities of any series can exchange the debt securities for other debt securities of the same series, in any authorized denomination and of like tenor and aggregate principal amount.

Subject to the terms of the indentures and the limitations applicable to global securities set forth in the applicable prospectus supplement, holders of the debt securities may present the debt securities for exchange or for registration of transfer, duly endorsed or with the form of transfer endorsed thereon duly executed if so required by us or the security registrar, at the office of the security registrar or at the office of any transfer agent designated by us for this purpose. Unless otherwise provided in the debt securities that the holder presents for transfer or exchange, we will impose no service charge for any registration of transfer or exchange, but we may require payment of any taxes or other governmental charges.

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.

If we elect to redeem the debt securities of any series, we will not be required to:

- issue, register the transfer of, or exchange any debt securities of that series during a period beginning at the opening of business 15 days before the day of mailing of a notice of redemption of any debt securities that may be selected for redemption and ending at the close of business on the day of the mailing; or
- register the transfer of or exchange any debt securities so selected for redemption, in whole or in part, except the unredeemed portion of any debt securities we are redeeming in part.

Information Concerning the Trustee

The trustee, other than during the occurrence and continuance of an event of default under an indenture, undertakes to perform only those duties as are specifically set forth in the applicable indenture and is under no obligation to exercise any of the powers given it by the indentures at the request of any holder of debt securities unless it is offered reasonable security and indemnity against the costs, expenses and liabilities that it might incur. However, upon an event of default under an indenture, the trustee must use the same degree of care as a prudent person would exercise or use in the conduct of his or her own affairs.

Payment and Paying Agents

Unless we otherwise indicate in the 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 payment.

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 the applicable prospectus supplement, we will designate the corporate trust office of the trustee in the City of New York as our sole paying agent for payments with respect to debt securities of each series. We will name in the 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 indentures and the debt securities will be governed by and construed in accordance with the laws of the State of New York, except to the extent that the Trust Indenture Act is applicable.

Ranking Debt Securities

The subordinated debt securities will be unsecured and will be subordinate and junior in priority of payment to certain of our other indebtedness to the extent described in a prospectus supplement. The subordinated indenture does not limit the amount of subordinated debt securities that we may issue. It also does not limit us from issuing any other secured or unsecured debt.

The senior debt securities will be unsecured and will rank equally in right of payment to all our other senior unsecured debt. The senior indenture does not limit the amount of senior debt securities that we may issue. It also does not limit us from issuing any other secured or unsecured debt.

DESCRIPTION OF WARRANTS WE MAY OFFER

As of December 23, 2022, we had no warrants to purchase shares of our common stock outstanding. We typically issue warrants to purchase shares of our common stock to investors as part of a financing transaction, or in connection with services rendered by placement agents and outside consultants.

We may issue warrants to purchase debt securities, preferred stock, common stock or any combination of the foregoing. We may issue warrants independently or together with any other securities we offer under a prospectus supplement. The warrants may be attached to or separate from the securities. We will issue each series of warrants under a separate warrant agreement to be entered into between a warrant agent and us. The warrant agent will act solely as our agent in connection with the warrants and will not have any obligations or relationship of agency or trust for or with holders or beneficial owners of warrants. The following outlines some of the general terms and provisions of the warrants that we may issue from time to time. When we issue warrants, we will provide the specific terms of the warrants and the applicable warrant agreement in a prospectus supplement and any related free writing prospectuses and such terms may differ from those described below. To the extent the information contained in the prospectus supplement differs from this summary description, you should rely on the information in the prospectus supplement. The following description, and any description of the warrants included in a prospectus supplement, may not be complete and is subject to and qualified in its entirety by reference to the terms and provisions of the applicable warrant agreement.

Equity Warrants

We will describe in the applicable prospectus supplement and any related free writing prospectuses the terms of the preferred stock warrants or common stock warrants being offered, the warrant agreement relating to the preferred stock warrants or common stock warrants and the warrant certificates representing the preferred stock warrants or common stock warrants, including, as applicable:

- the title of the warrants;
- the securities for which the warrants are exercisable;
- the price or prices at which the warrants will be issued;
- if applicable, the number of warrants issued with each share of preferred stock or share of common stock;
- if applicable, the date on and after which the warrants and the related preferred stock or common stock will be separately transferable;
- the date on which the right to exercise the warrants will commence, and the date on which the right will expire;
- the maximum or minimum number of warrants which may be exercised at any time;
- 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;
- a discussion of the material U.S. federal income tax considerations applicable to exercise of the warrants; and
- any other terms of the warrants, including terms, procedures and limitations relating to the exchange and exercise of the warrants.

Unless otherwise provided in the applicable warrant agreement and corresponding prospectus supplement or any related free writing prospectuses, holders of equity warrants will not be entitled, by virtue of being such holders, to vote, consent, receive dividends, receive notice as stockholders with respect to any meeting of stockholders for the election of our directors or any other matter, or to exercise any rights whatsoever as stockholders.

Except as provided in the applicable warrant agreement and corresponding prospectus supplement or any related free writing prospectuses, the exercise price payable and the number of shares of common stock or preferred stock purchasable upon the exercise of each warrant will be subject to adjustment in certain events, including the issuance of a stock dividend to holders of common stock or preferred stock or a stock split, reverse stock split, combination, subdivision or reclassification of common stock or preferred stock. In lieu of adjusting the number of shares of common stock or preferred stock purchasable upon exercise of each warrant, we may elect to adjust the number of warrants. Unless otherwise provided in the applicable warrant agreement and corresponding prospectus supplement or any related free writing prospectuses, no adjustments in the number of shares purchasable upon exercise of the warrants will be required until all cumulative adjustments require an adjustment of at least 1% thereof. No fractional shares will be issued upon exercise of warrants, but we will pay the cash value of any fractional shares otherwise issuable. Notwithstanding the foregoing, except as otherwise provided in the applicable warrant agreement and corresponding prospectus supplement or any related free writing prospectuses, in case of any consolidation, merger, or sale or conveyance of our property as an entirety or substantially as an entirety, the holder of each outstanding warrant will have the right to the kind and amount of shares of stock and other securities and property, including cash, receivable by a holder of the number of shares of common stock or preferred stock into which each warrant was exercisable immediately prior to the particular triggering event.

Debt Warrants

We will describe in the applicable prospectus supplement and any related free writing prospectuses the terms of the debt warrants being offered, the warrant agreement relating to the debt warrants and the debt warrant certificates representing the debt warrants, including, as applicable:

- the title of the debt warrants;
- the aggregate number of the debt warrants;
- the price or prices at which the debt warrants will be issued;
- the designation, aggregate principal amount and terms of the debt securities purchasable upon exercise of the debt warrants, and the procedures and conditions relating to the exercise of the debt warrants;
- the designation and terms of any related debt securities with which the debt warrants are issued, and the number of the debt warrants issued with each security;
- the date, if any, on and after which the debt warrants and the related debt securities will be separately transferable;
- the principal amount of debt securities purchasable upon exercise of each debt warrant, and the price at which the principal amount of the debt securities may be purchased upon exercise;
- the date on which the right to exercise the debt warrants will commence, and the date on which the right will expire;
- the maximum or minimum number of the debt warrants that may be exercised at any time;
- information with respect to book-entry procedures, if any;
- changes to or adjustments in the exercise price of the debt warrants;
- a discussion of the material U.S. federal income tax considerations applicable to the exercise of the debt warrants; and
- any other terms of the debt warrants and terms, procedures and limitations relating to the exercise of the debt warrants.

As may be permitted under the warrant agreement, holders may exchange debt warrant certificates for new debt warrant certificates of different denominations, and may exercise debt warrants at the corporate trust office of the warrant agent or any other office indicated in the applicable prospectus supplement and any related free writing prospectuses. Prior to the exercise of their debt warrants, holders of debt warrants will not have any of the rights of holders of the securities purchasable upon the exercise, and will not be entitled to payments of principal, premium or interest on the securities purchasable upon the exercise, of debt warrants.

Exercise of Warrants

Each warrant will entitle the holder of the warrant to purchase for cash at the exercise price provided in the applicable warrant agreement and corresponding prospectus supplement or any related free writing prospectuses the principal amount of debt securities or shares of preferred stock or shares of common stock being offered. Holders may exercise warrants at any time up to the close of business on the expiration date provided in the applicable warrant agreement and corresponding prospectus supplement or any related free writing prospectuses. After the close of business on the expiration date, unexercised warrants are void.

Holders may exercise warrants as described in the applicable warrant agreement and corresponding prospectus supplement or any free writing prospectuses relating to the warrants being offered. Upon receipt of payment and the warrant certificate properly completed and duly executed at the corporate trust office of the warrant agent or any other office indicated in the applicable warrant agreement and corresponding prospectus supplement or any related free writing prospectuses, we will, as soon as practicable, forward the debt securities, shares of preferred stock or shares of common stock purchasable upon the exercise of the warrant. If less than all of the warrants represented by the warrant certificate are exercised, we will issue a new warrant certificate for the remaining warrants.

DESCRIPTION OF RIGHTS WE MAY OFFER

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 stockholders, 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 stockholders, we will distribute certificates evidencing the rights and an applicable prospectus supplement to our stockholders 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 limits relating to the exchange or exercise of the rights.

Each right will entitle the holder to purchase an amount of securities for cash, 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 are not required to, permit the exercise of rights through the delivery of a notice of guaranteed delivery from a bank, a trust company, or a Nasdaq member guaranteeing delivery of (i) payment of the exercise price for the securities for which the rights are being exercised, and (ii) 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 upon the exercise of the rights. We may determine to offer any unsubscribed offered securities directly to persons other than stockholders, 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 WE MAY OFFER

The following description, together with the additional information we may include in any applicable prospectus supplements and free writing prospectuses, 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 the applicable prospectus supplement. The terms of any units offered under a 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 a current report on Form 8-K 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 shares of common stock, shares of preferred stock, debt securities, warrants and/or rights 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 the 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 Preferred 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 or warrant included in each unit, respectively.

Issuance in Series

We may issue units in such 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.

We, the unit agents 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 purpose and as the person entitled to exercise the rights attaching to the units so registered, despite any notice to the contrary.

PLAN OF DISTRIBUTION

We may sell the securities being offered by us in this prospectus pursuant to underwritten public offerings, negotiated transactions, block trades or any combination of such methods. We may sell the securities to or through underwriters, dealers, agents or directly to one or more purchasers. We and our agents reserve the right to accept and to reject, in whole or in part, any proposed purchase of securities. A prospectus supplement or post-effective amendment, which we will file each time we effect an offering of any securities, will provide the names of any underwriters, dealers or agents, if any, involved in the sale of such securities, and any applicable fees, commissions, or discounts to which such persons shall be entitled to in connection with such offering.

We and our agents, dealers and underwriters, as applicable, may sell the securities being offered by us in this prospectus from time to time in one or more transactions at:

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

We may determine the price or other terms of the securities offered under this prospectus by use of an electronic auction. We will describe how any auction will determine the price or any other terms, how potential investors may participate in the auction and the nature of the underwriters' obligations, in the applicable prospectus supplement or amendment.

We may solicit directly offers to purchase securities. We may also designate agents from time to time to solicit offers to purchase securities. Any agent that we designate, who may be deemed to be an underwriter as such term is defined in the Securities Act, may then resell such securities to the public at varying prices to be determined by such agent at the time of resale.

We may engage in at the market offerings of the Company's common stock as defined in Rule 415(a)(4) under the Securities Act. An at the market offering is an offering of our common stock at other than a fixed price, and is conducted to or through a market maker. We shall name any underwriter or agent that the Company engages for an at the market offering in a post-effective amendment to the registration statement containing this prospectus. In the related prospectus supplement, we shall also describe any additional details of the Company's arrangement with such underwriter or agent, including commissions or fees paid or discounts offered by the Company, and whether such underwriter is acting as principal or agent.

If we use underwriters to sell securities, we will enter into an underwriting agreement with the underwriters at the time of the sale to them, which agreement shall be filed as an exhibit to the related prospectus supplement. Underwriters may also receive commissions from purchasers of the securities. Underwriters may also use dealers to sell securities. In such an event, the dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters and/or commissions from the purchasers for whom they may act as agents.

Under agreements that they may enter into with us, underwriters, dealers, agents and other persons may be entitled to (i) indemnification by the Company against certain civil liabilities, including liabilities under the Securities Act or (ii) contribution with respect to payments which they may be required to make in respect of such liabilities. Underwriters and agents may engage in transactions with, or perform services for, us in the ordinary course of business.

If so indicated in the applicable prospectus supplement, we may authorize underwriters, dealers or other persons to solicit offers by certain institutions to purchase the securities offered by us under this prospectus pursuant to contracts providing for payment and delivery on a future date or dates. The obligations of any purchaser under these contracts will be subject only to those conditions described in the applicable prospectus supplement, and the prospectus supplement will set forth the price to be paid for securities pursuant to those contracts and the commissions payable for solicitation of the contracts.

Any underwriter may engage in over-allotment, stabilizing and syndicate short covering transactions and penalty bids in accordance with Regulation M of the Exchange Act. Over-allotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions involve bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Syndicate short covering transactions involve purchases of 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 selling concessions from dealers when the securities originally sold by such dealers are purchased in covering transactions to cover syndicate short positions. These transactions may cause the price of the securities sold in an offering to be higher than it would otherwise be. These transactions, if commenced, may be discontinued by the underwriters at any time without notice.

Our common stock is quoted on The Nasdaq Global Market under the trading symbol "ARCT" The other securities are not listed on any securities exchange or other stock market and, unless the Company states otherwise in the applicable prospectus supplement, the Company does not intend to apply for listing of the other securities on any securities exchange or other stock market. Any underwriters to whom we sell securities for public offering and sale may make a market in the securities that they purchase, but the underwriters will not be obligated to do so and may discontinue any market making at any time without notice. Accordingly, the Company gives you no assurance as to the development or liquidity of any trading market for the securities.

The anticipated date of delivery of the securities offered hereby will be set forth in the applicable prospectus supplement relating to each offering.

In order to comply with certain state securities laws, if applicable, the securities may be sold in such jurisdictions only through registered or licensed brokers or dealers. In certain states, the securities may not be sold unless the securities have been registered or qualified for sale in such state or an exemption from regulation or qualification is available and is complied with. Sales of securities must also be made by the Company in compliance with all other applicable state securities laws and regulations.

We shall pay all expenses of the registration of the securities.

EXPERTS

The consolidated financial statements of Arcturus Therapeutics Holdings Inc. and its Subsidiaries appearing in Arcturus Therapeutics Holdings Inc.'s Annual Report (Form 10-K) for the year ended December 31, 2021, and the effectiveness of Arcturus Therapeutics Holdings Inc. and its Subsidiaries' internal control over financial reporting as of December 31, 2021 have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their reports thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such reports given on the authority of such firm as experts in accounting and auditing.

LEGAL MATTERS

If and when the securities being registered hereunder are issued, the validity of such issuance will be passed upon for the Company by Dentons US LLP, New York, New York.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and periodic reports, proxy statements and other information with the SEC. You may read and copy any materials that we file with the 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. Our SEC filings are also available to the public from the SEC's Website at www.sec.gov. We make available free of charge its annual, quarterly and current reports, proxy statements and other information upon request. To request such materials, please contact the Corporate Secretary at the following address or telephone number: Arcturus Therapeutics Holdings Inc., 10628 Science Center Drive, Suite 250, San Diego, California 92121, Attention: Investor Relations; (858) 900-2660. Exhibits to the documents will not be sent, unless those exhibits have specifically been incorporated by reference in this prospectus.

We maintain our website at <https://arcturusrx.com>. Our website and the information contained therein or connected thereto are not incorporated into this Registration Statement.

We have filed with the SEC a registration statement on Form S-3 under the Securities Act relating to the securities we are offering by this prospectus. This prospectus does not contain all of the information set forth in the registration statement and the exhibits and schedules to the registration statement. Please refer to the registration statement and its exhibits and schedules for further information with respect to the Company and our securities. Statements contained in this prospectus as to the contents of any contract or other document are not necessarily complete and, in each instance, we refer you to the copy of that contract or document filed as an exhibit to, or incorporated by reference into, the registration statement. You may read and obtain a copy of the registration statement and its exhibits and schedules from the SEC, as described in the preceding paragraph.

INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to "incorporate by reference" the information we file with them, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus, and information that we file later with the SEC will automatically update and supersede this information. We incorporate by reference the documents filed with SEC listed below:

- Our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, filed with the SEC on March 1, 2022;
- Our Quarterly Reports on Form 10-Q for the periods ended March 31, 2022, June 30, 2022 and September 30, 2022, filed with the SEC on May 9, 2022, August 9, 2022 and November 9, 2022, respectively.
- Our information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2021 from our Definitive Proxy Statement on Schedule 14A, filed with the SEC on May 2, 2022;

· The Current Reports on Form 8-K filed with the SEC on February 11, 2022, February 17, 2022, April 20, 2022, June 24, 2022, September 1, 2022, November 2, 2022, November 4, 2022, and December 13, 2022, respectively (in each case, except for information contained therein which is furnished rather than filed); and

· The description of our common stock in our Current Report on Form 8-K12B filed with the SEC on June 14, 2019.

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act, prior to the termination of this offering, 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 furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus and deemed to be part of this prospectus from the date of the filing of such reports and documents.

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

You may request a copy of the filings incorporated herein by reference, including exhibits to such documents that are specifically incorporated by reference, at no cost, by writing or calling us at the following address or telephone number:

Arcturus Therapeutics Holdings Inc.
10628 Science Center Drive, Suite 250
San Diego, California 92121
Telephone: (858) 900-2660
Attention: Investor Relations

Statements contained in this prospectus as to the contents of any contract or other documents are not necessarily complete, and in each instance investors are referred to the copy of the contract or other document filed as an exhibit to the registration statement or to a document incorporated by reference, each such statement being qualified in all respects by such reference and the exhibits and schedules thereto.

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

SUBJECT TO COMPLETION, DATED DECEMBER 23, 2022

PROSPECTUS

**Up to \$200,000,000
Common Stock**



We have entered into a Controlled Equity OfferingSM Sales Agreement (the “Sales Agreement”) with Cantor Fitzgerald & Co. (“Cantor”) and Wells Fargo Securities, LLC (“Wells Fargo”), relating to shares of our common stock, par value \$0.001 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 \$200,000,000 from time to time through Cantor or Wells Fargo, each acting as our sales agent.

Our common stock is traded on the Nasdaq Global Market under the symbol “ARCT.” On December 19, 2022, the last reported sale price of our common stock was \$16.76 per share.

Sales of our common stock, if any, under this prospectus may be made in sales deemed to be “at the market offerings” as defined in Rule 415(a)(4) under the Securities Act of 1933, as amended (the “Securities Act”). Cantor and Wells Fargo are not required to sell any specific number or dollar amount of securities, but will act as sales agents using commercially reasonable efforts consistent with their normal trading and sales practices, on mutually agreed terms between Cantor, Wells Fargo and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

The compensation to the sales agents for sales of common stock sold pursuant to the Sales Agreement will be equal to 3% of the gross proceeds of any shares of common stock sold under the Sales Agreement. In connection with the sale of the common stock on our behalf, the sales agents will be deemed to be “underwriters” within the meaning of the Securities Act and the compensation of the sales agents will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to the sales agents with respect to certain liabilities, including liabilities under the Securities Act or the Securities Exchange Act of 1934, as amended (the “Exchange Act”). See “Plan of Distribution” beginning on page S-10 for additional information regarding compensation payable to the sales agents.

INVESTING IN OUR COMMON STOCK INVOLVES SIGNIFICANT RISKS. YOU SHOULD REVIEW CAREFULLY THE “RISK FACTORS” ON PAGE S-5 OF THIS PROSPECTUS, AND IN THE DOCUMENTS INCORPORATED BY REFERENCE IN THIS PROSPECTUS AND ACCOMPANYING BASE PROSPECTUS BEFORE INVESTING IN OUR COMMON STOCK.

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.

Cantor

Wells Fargo Securities

The date of this prospectus is _____, 2022.

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BASE PROSPECTUS

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ABOUT THIS PROSPECTUS

This prospectus and the accompanying base prospectus are part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission (the “SEC”) utilizing a “shelf” registration process. Under this shelf registration process, we may from time to time offer shares of our common stock having an aggregate offering price of up to \$200,000,000 under this prospectus at prices and on terms to be determined by market conditions at the time of each such offering.

We are providing information to you about this offering of our common stock in two parts. The second part is this prospectus, which provides you with specific information regarding the terms of this offering and our common stock, and also adds to and updates information contained in the accompanying base prospectus and the documents incorporated by reference in this prospectus and the accompanying base prospectus. The first part is the accompanying base prospectus, which provides more general information, some of which does not apply to this offering of our common stock.

Before buying any of the common stock that we are offering, we urge you to carefully read this prospectus and all of the information incorporated by reference herein, as well as the additional information described under the headings “*Where You Can Find More Information*” and “*Information Incorporated by Reference*.” These documents contain important information that you should consider when making your investment decision.

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 that was filed with the SEC before the date of 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.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference herein were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreement, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

We have not, and Cantor and Wells Fargo have not, authorized anyone to provide you with any information other than that contained or incorporated by reference in this prospectus and in the accompanying base prospectus or in any related free writing prospectus that we authorize for use in connection with this offering and to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. You should assume that the information appearing in this prospectus, the documents incorporated by reference and the accompanying base prospectus or free writing prospectus is accurate only as of their respective dates. Our business, financial condition, results of operations and prospects may have changed materially since those dates.

This prospectus does not constitute an offer to sell or the solicitation of an offer to buy any securities other than the securities described in this prospectus or an offer to sell or the solicitation of an offer to buy such securities in any circumstances in which such offer or solicitation is unlawful.

In this prospectus and the accompanying prospectus, unless otherwise stated or the context otherwise indicates, references to “ARCT,” “Arcturus,” “the Company,” “we,” “us,” “our” and similar references refer to Arcturus Therapeutics Holdings Inc., a Delaware corporation, and its predecessors and consolidated subsidiaries..

TRADEMARKS

The Arcturus logo and other trademarks of Arcturus appearing in this prospectus and the accompanying prospectus are the property of Arcturus. All other trademarks, service marks and trade names in this prospectus and the accompanying prospectus are the property of their respective owners. Solely for convenience, trademarks and trade names referred to in this prospectus and the accompanying base prospectus may appear without the ® or ™ symbols.

PROSPECTUS SUMMARY

Arcturus Therapeutics Holdings Inc.

This summary highlights selected information appearing elsewhere in this prospectus or accompany prospectus, or incorporated by reference in herein or therein, and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus and accompanying base prospectus and any related free writing prospectus, including the risks of investing in our securities discussed under the heading “Risk Factors” herein and therein, and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus or accompanying base prospectus. You should also carefully read the information incorporated by reference into this prospectus and accompanying base prospectus, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part.

Business Overview

Arcturus is a global late-stage clinical messenger RNA medicines company focused on the development of infectious disease vaccines and significant opportunities within liver and respiratory rare diseases. In addition to our messenger RNA (“mRNA”) platform, our proprietary lipid nanoparticle delivery system, LUNAR[®], has the potential to enable multiple nucleic acid medicines, and our proprietary self-amplifying mRNA technology (Self-Transcribing and Replicating RNA or STARR[™]) technology has the potential to provide longer-lasting RNA and sustained protein expression at lower dose levels.

We are leveraging our proprietary platform relating to LUNAR[®] and our nucleic acid technologies to develop and advance a pipeline of mRNA-based vaccines and therapeutics for the prevention of infectious diseases and treatment of rare genetic disorders with significant unmet medical needs. We continue to expand this platform with innovative delivery solutions that allow us to expand our discovery efforts. Our proprietary LUNAR[®] technology is intended to address major hurdles in RNA drug development, such as the effective and safe delivery of RNA therapeutics to disease-relevant target tissues and for RNA vaccines the mitigation of challenges associated with cold chain storage and distribution via lyophilization. We believe the versatility of our platform to target multiple tissues, its compatibility with various nucleic acid therapeutics, and our expertise in developing scalable manufacturing processes will allow us to deliver on the next generation of nucleic acid medicines.

Corporate Information

Our company was founded in 2013 as Arcturus Therapeutics, Inc., and we have maintained our principal executive offices in San Diego, California since that time. In November 2017, Alcobra Ltd., an Israeli limited company, merged with our company, changed its name to Arcturus Therapeutics Ltd. and commenced trading on Nasdaq under the symbol “ARCT.” On June 17, 2019, we redomiciled to the United States and changed our name to Arcturus Therapeutics Holdings Inc.

Our principal executive offices are located at 10628 Science Center Drive, Suite 250, San Diego, California 92121, and our telephone number is (858) 900-2660. Our website is located at <https://arcturusrx.com>. We do not incorporate by reference into this prospectus or the accompanying base prospectus the information on, or accessible through, our website. Our common stock trades on The Nasdaq Global Market under the symbol “ARCT”.

THE OFFERING

Common Stock Offered by Us	Shares of our common stock having an aggregate offering price of up to \$200 million.
Plan of Distribution	This is an “at-the-market” offering that may be made from time to time through our sales agents, Cantor and Wells Fargo. See “Plan of Distribution” on page S-10 of this prospectus.
Use of Proceeds	We currently intend to use the net proceeds, if any, from the sale of shares of our common stock for general corporate purposes, working capital and other general corporate purposes. See “Use of Proceeds” on page S-7 of this prospectus.
Risk Factors	Investing in our securities involves a high degree of risk. See the information contained in or incorporated by reference under the heading “Risk Factors” beginning on page S-5 of this prospectus, and under similar headings in the documents incorporated by reference into this prospectus.
Nasdaq Global Market Symbol	“ARCT”

The number of shares of our common stock outstanding after this offering is based on 26,555,483 shares of our common stock outstanding as of December 19, 2022, and excludes:

- 5,024,481 shares issuable upon exercise of our issued and outstanding stock options;
- 29,576,357 shares reserved for issuance, but not subject to outstanding options or restricted stock awards, under our incentive equity plan; and
- 565,106 shares reserved for issuance under our employee stock purchase plan.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and certain information incorporated herein by reference contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those discussed in the forward-looking statements. The statements contained in this prospectus that are not purely historical are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”), and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Forward-looking statements are often identified by the use of words such as, but not limited to, “anticipate,” “believe,” “can,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “project,” “seek,” “should,” “strategy,” “target,” “will,” “would” and similar expressions or variations intended to identify forward-looking statements. These statements are based on the beliefs and assumptions of our management based on information currently available to management. Such forward-looking statements are subject to risks, uncertainties and other important factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by such forward-looking statements.

Factors that might cause these differences include the following:

- our compliance, and ability to remain in compliance, with the stringent requirements of our current and potential government contracts, including our arrangements with the Biomedical Advanced Research and Development Authority, a division of the Office of the Assistant Secretary for Preparedness and Response within the U.S. Department of Health and Human Services and the Department of Defense;
- the status, success and benefits of our arrangements with private and governmental entities, some of which are subject to termination for convenience by our counterparties;
- regulatory filings, submissions and notices related to our commercial arrangements, including those made to the U.S. Federal Trade Commission and Department of Justice pursuant to the Hart-Scott-Rodino Antitrust Improvements Act of 1976;
- the potential effects and benefits of our technologies and product candidates on their own and in comparison to technologies, drugs or courses of treatment currently available or that may be developed by competitors;
- the likelihood that clinical data will be sufficient for regulatory approval;
- the anticipated timing for receipt of data or results of a study or clinical trial, including the anticipated data for our ARCT-810 trial;
- the likelihood or timing of any regulatory approval;
- the potential administration regimen or dosage, or ability to administer multiple doses of, any of our product candidates;
- our plans to research, develop and commercialize our product candidates;
- our ability to obtain and maintain regulatory approval of our product candidates, and any related restrictions, limitations, and/or warnings in the label of an approved product candidate;
- our ability to successfully commercialize, and our expectations regarding future therapeutic and commercial potential with respect to, our product candidates;
- the rate and degree of market acceptance of our product candidates;
- the success of competing therapies that are or may become available;
- our ability to obtain and maintain intellectual property protection for our product candidates;
- interactions with regulatory authorities in the United States and foreign countries;
- our ability to attract and retain experienced and seasoned scientific and management professionals to lead the Company;
- our strategic alliance partners’ election to pursue development and commercialization of any programs or product candidates that are subject to our collaboration and license agreements with such partners;
- the anticipated benefits and success of our collaboration agreement with CSL Seqirus related to the licensure of our STARR™ mRNA technology and LUNAR® lipid-mediated delivery, including our timely receipt of potential royalty and other payments thereunder;
- our ability to attract collaborators with relevant development, regulatory and commercialization expertise;
- future activities to be undertaken by our strategic alliance partners, collaborators and other third parties;
- our ability to develop sales and marketing capabilities, whether alone or with potential future collaborators;

- our ability to avoid, settle or be victorious at costly litigation with shareholders, former executives or others, should these situations arise;
- our ability to obtain and deploy funding for our operations and to efficiently use our financial and other resources;
- our ability to continue as a going concern;
- our use of any proceeds from this offering;
- the accuracy of our estimates regarding future expenses, future revenues, capital requirements and need for additional financing; and
- such other factors (i) included in our annual report on Form 10-K for the fiscal year ended December 31, 2021, (ii) contained in our other SEC reports described under “Risk Factors,” (iii) described elsewhere in this prospectus, and (iv) that we may publicly disclose from time to time.

We urge you to consider these factors carefully in evaluating the forward-looking statements contained in this prospectus and accompanying prospectus. All subsequent written or oral forward-looking statements attributable to our company or persons acting on our behalf are expressly qualified in their entirety by these cautionary statements. The forward-looking statements included in this prospectus are made only as of the date of this prospectus. We undertake no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise, except to the extent that we are required to do so by law.

RISK FACTORS

Investing in our securities involves a high degree of risk. Before making a decision to invest in our securities, in addition to carefully considering the other information contained in this prospectus, in the accompanying base prospectus and incorporated by reference herein or therein, you should carefully consider the risks described under the caption “Risk Factors” contained in the accompanying base prospectus, and any related free writing prospectus, and the risks discussed under the caption “Risk Factors” contained in our most recent annual report on Form 10-K and in our most recent quarterly reports on Form 10-Q, as well as any amendments thereto, which are incorporated by reference into this prospectus in their entirety, together with other information in this prospectus, the documents incorporated by reference, and any free writing prospectus that we may authorize for use in connection with a specific offering. See “Where You Can Find More Information” and “Incorporation by Reference.”

Risks Related to this Offering

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

The offering price per share in this offering may exceed the net tangible book value per share of our common stock outstanding prior to this offering. Assuming that an aggregate 11,933,174 shares of our common stock are sold in this offering at an assumed offering price of \$16.76 per share, which was the last reported sale price of our common stock on the Nasdaq Global Market on December 19, 2022, for aggregate gross proceeds of \$200,000,000, and after deducting commissions and estimated aggregate offering expenses payable by us, you would experience immediate dilution of \$8.08 per share, representing the difference between our net tangible book value per share as of September 30, 2022, on an unaudited as adjusted basis after giving effect to this offering. Because the offering price per share will vary based on the market for our common stock and our net tangible book value per share will change over the course of the offering, the actual dilution experienced by you may be more or less than this amount.

Issuances by the Company or sales by stockholders of a substantial number of shares of our common stock in the public market could cause our stock price to fall.

Sales of a substantial number of shares of our common stock in the public market could occur at any time. As of December 19, 2022, we had 26,555,483 shares of our common stock outstanding. If our stockholders sell, or the market perceives that our stockholders intend to sell, substantial amount of our common stock in the public market, the market price of our common stock could decline significantly.

Shares issued upon the exercise of stock options outstanding under our equity incentive plans or pursuant to future awards granted under those plans will become available for sale in the public market to the extent permitted by the provisions of applicable vesting schedules and Rule 144 and Rule 701 under the Securities Act.

Our management team will have broad discretion to use the net proceeds from this offering and its investment of these proceeds may not yield a favorable return.

Our management team will have broad discretion in the application of the net proceeds from this offering and could spend or invest the proceeds in ways that may not yield a favorable return or enhance the value of our common stock. Accordingly, investors will need to rely on our management team’s judgment with respect to the use of these proceeds. We intend to use the proceeds from this offering in the manner described in the section titled “Use of Proceeds.” The failure by management to apply these funds effectively could negatively affect our ability to operate and grow our business. We cannot specify with certainty all of the particular uses for the net proceeds to be received upon the completion of this offering, and the uses will depend on how much of the maximum \$200 million of shares are actually sold in this offering. In addition, the amount, allocation and timing of our actual expenditures will depend upon numerous factors, including any milestone payments received from our collaboration with CSL Seqirus and any future strategic partnerships. Accordingly, we will have broad discretion in using these proceeds. Until the net proceeds are used, they may be placed in investments that do not produce significant income or that may lose value.

We do not anticipate paying cash dividends and, accordingly, stockholders must rely on share appreciation for any return on their investment.

We have never paid any dividends on our capital stock. We currently intend to retain our future earnings, if any, to fund the development and growth of our businesses and do not anticipate that we will declare or pay any cash dividends on our capital stock in the foreseeable future. As a result, capital appreciation, if any, of our common stock will be your sole source of gain on your investment for the foreseeable future. Investors seeking cash dividends should not invest in our common stock.

Raising additional capital may cause dilution to our stockholders, including purchasers of our common stock in this offering, restrict our operations or require us to relinquish substantial rights.

To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these new securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing, if available, may involve fixed payment obligations or agreements that include covenants limiting or restricting our ability to take specific actions such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional funds through partnerships, collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, product candidates or future revenue streams, or grant licenses on terms that are not favorable to us. We cannot assure you that we will be able to obtain additional funding if and when necessary. If we are unable to obtain adequate financing on a timely basis, we could be required to delay, scale back or eliminate one or more of our clinical or discovery programs or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans.

The common stock offered hereby will be sold in “at the market offerings,” and investors who buy shares at different times will likely pay different prices.

Investors who purchase shares in this offering at different times will likely pay different prices, and accordingly may experience different levels of dilution and different outcomes in their investment results. We will have discretion, subject to market demand and the terms of the Sales Agreement, to vary the timing, prices and number of shares sold in this offering. In addition, subject to the final determination by our board of directors or any restrictions we may place in any applicable placement notice, there is no minimum or maximum sales price for shares to be sold in this offering. Investors may experience a decline in the value of the shares they purchase in this offering as a result of sales made at prices lower than the prices they paid.

USE OF PROCEEDS

We may issue and sell shares of our common stock having aggregate sales proceeds of up to \$200,000,000 from time to time. Because there is no minimum offering amount required as a condition to any sales in this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. There can be no assurance that we will sell any shares under or fully utilize the Sales Agreement with Cantor and Wells Fargo as a source of financing.

We intend to use the net proceeds, if any, from the sale of our common stock in this offering for working capital and general corporate purposes. We have not identified the amounts we will spend on any specific purpose. The amounts actually expended for any purpose may vary significantly depending upon numerous factors, including assessments of potential market opportunities, the results of clinical trials and regulatory developments. In the event any net proceeds are not immediately applied, we may temporarily deposit them in our bank accounts as cash and cash equivalents or purchase short-term investments.

DILUTION

If you invest in our shares, your ownership interest will be diluted to the extent of the difference between the price you paid per share of common stock in this offering and the net tangible book value per share of our common stock after this offering. Net tangible book value per share represents total tangible assets less total liabilities, divided by the number of shares of our common stock outstanding.

Our net tangible book value as of September 30, 2022 was approximately \$145.7 million, or approximately \$5.50 per share of our common stock issued and outstanding, on an unaudited historical actual basis as of such date.

Our net tangible book value as of September 30, 2022 would have been approximately \$333.5 million, or approximately \$8.68 per share of our common stock issued and outstanding, on an unaudited as adjusted basis as of such date, after giving effect to the sale by us of 11,933,174 shares of our common stock in this offering at an assumed offering price of \$16.76 per share, which was the last reported sale price of our common stock on the Nasdaq Global Market on December 19, 2022, for aggregate gross proceeds of \$200.0 million, and after deducting commissions and estimated aggregate offering expenses payable by us. This represents an immediate increase in net tangible book value of \$3.18 per share of our common stock to existing stockholders and an immediate dilution of \$8.08 per share of our common stock to new investors purchasing shares of our common stock in this offering at the assumed offering price.

The following table illustrates the dilution on a per share of common stock basis for investors purchasing shares of our common stock in this offering:

Assumed public offering price per share		\$	16.76
Net tangible book value per share as of September 30, 2022	\$	5.50	
Increase in net tangible book value attributable to this offering	\$	3.18	
As adjusted net tangible book value per share as of September 30, 2022		\$	8.68
Dilution in net tangible book value per share to new investors		\$	8.08

The per share calculations above are based on the number of shares of our common stock issued and outstanding as of September 30, 2022, as follows: 26,492,324 shares on an unaudited historical actual basis and 38,425,498 shares on an unaudited as adjusted basis (in each case, excluding 5,024,481 shares issuable upon exercise of options issued under our equity and stock incentive plans).

The table above assumes, for illustrative purposes, that an aggregate of 11,933,174 shares of our common stock are sold at an offering price of \$16.76 per share, the last reported sale price of our common stock on the Nasdaq Global Market on December 19, 2022, for aggregate gross proceeds of \$200.0 million. However, the shares sold in this offering, if any, will be sold from time to time at various prices. Presented below, solely for illustrative purposes only, is the effect of each of an increase and a decrease of the assumed offering price by \$1.00 per share.

Assuming that an aggregate of 11,261,261 shares of our common stock are sold at an offering price of \$17.76 per share, representing an increase of \$1.00 per share from the assumed offering price above, for aggregate gross proceeds of \$200.0 million, after deducting commissions and estimated aggregate offering expenses payable by us, our net tangible book value per share on an as adjusted basis would be \$8.83 per share and the dilution in net tangible book value per share to new investors would be \$8.93 per share.

Assuming that an aggregate of 12,690,355 shares of our common stock are sold at an offering price of \$15.76 per share, representing a decrease of \$1.00 per share from the assumed offering price above, for aggregate gross proceeds of \$200.0 million, after deducting commissions and estimated aggregate offering expenses payable by us, our net tangible book value per share on an unaudited as adjusted basis would be \$8.51 per share and the dilution in net tangible book value per share to new investors would be \$7.25 per share.

The foregoing information does not take into account (i) the exercise of our outstanding options or the issuance of shares under our equity plans or other arrangements, as set forth in “*Prospectus Summary – The Offering*” or (ii) the receipt from CSL Seqirus of an aggregate of \$200.0 million in December 2022. To the extent that 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 investors in this offering.

PLAN OF DISTRIBUTION

We have entered into the Sales Agreement with Cantor and Wells Fargo relating to the sale of our common stock offered by this prospectus and the accompanying base prospectus. In accordance with the terms of the Sales Agreement, from time to time, we may offer and sell shares of our common stock having an aggregate gross sales price of up to \$200,000,000 to or through Cantor or Wells Fargo, acting as sales agent or principal. The Sales Agreement has been filed as an exhibit to the registration statement of which this prospectus forms a part.

Each time that we wish to issue and sell shares, we will notify Cantor or Wells Fargo as to the number of shares to be issued, the time period during which sales are requested to be made, any limitation on the number of shares that may be sold in any one day and any minimum price below which sales may not be made. Cantor or Wells Fargo may decline to accept any such notice for any reason.

Following the delivery and acceptance of such a notice, and subject to the terms and conditions of the Sales Agreement and applicable laws, rules and regulations, Cantor or Wells Fargo (as applicable) will use commercially reasonable efforts consistent with its normal trading and sales practices to sell shares in an amount and otherwise on terms specified by us from time to time and accepted by Cantor or Wells Fargo. Sales of our common stock by Cantor and Wells Fargo, if any, under this prospectus and the accompanying base prospectus may be made by any method permitted by law and deemed to be an “at the market offering” as defined in Rule 415(a)(4) promulgated under the Securities Act. Cantor and Wells Fargo are not required to sell or purchase any specific number or dollar amounts of securities. There is no arrangement for funds to be received in any escrow, trust or similar arrangement. We, Cantor or Wells Fargo may suspend the offering of common stock upon notice and subject to other conditions.

We will pay Cantor or Wells Fargo commissions, in cash, for services in acting as agent in the sale of our common stock. Pursuant to the Sales Agreement, we will furnish to Cantor or Wells Fargo a “placement notice” and the recipient of such notice will be deemed the “designated agent” for such placement. Cantor or Wells Fargo, as designated agent, will be entitled to compensation at a commission rate of 3.0% of the gross sales price per share sold in any such placement. 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 to reimburse Cantor and Wells Fargo for certain specified fees and documented expenses, including the fees and documented expenses of its legal counsel in an aggregate amount not to exceed \$75,000 and certain on-going expenses. We estimate that the total expenses for the offering, excluding commissions and reimbursements payable to Cantor and Wells Fargo under the terms of the Sales Agreement, will be approximately \$0.1 million.

Settlement for sales of common stock will occur on the second trading day following the date on which any sales are made, or on some other date that is agreed upon by us and Cantor or Wells Fargo (as applicable) 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, Cantor and Wells Fargo may agree upon. In connection with the sale of the common stock on our behalf, Cantor and Wells Fargo will be deemed to be “underwriters” within the meaning of the Securities Act and the compensation of Cantor and Wells Fargo will be deemed to be underwriting commissions or discounts. We have agreed to provide indemnification and contribution to Cantor and Wells Fargo against certain civil liabilities, including liabilities under the Securities Act.

The offering of our common stock pursuant to the sales agreement will terminate as permitted therein. We, Cantor and Wells Fargo may each terminate the Sales Agreement at any time upon five days’ prior notice.

Cantor, Wells Fargo, and their respective affiliates may in the future provide various investment banking, commercial banking and other financial services for us and our affiliates, for which services they may in the future receive customary fees. To the extent required by Regulation M, Cantor and Wells Fargo 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 and Wells Fargo, and each may distribute this prospectus electronically.

Our common stock is listed on The Nasdaq Global Market under the trading symbol “ARCT.”

The transfer agent for our common stock to be issued in this offering is Continental Stock Transfer & Trust Company, located at 1 State Street, 30th Floor, New York, NY 10004.

EXPERTS

The consolidated financial statements of Arcturus Therapeutics Holdings Inc. and its Subsidiaries appearing in Arcturus Therapeutics Holdings Inc.'s Annual Report (Form 10-K) for the year ended December 31, 2021, and the effectiveness of Arcturus Therapeutics Holdings Inc. and its Subsidiaries' internal control over financial reporting as of December 31, 2021 have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their reports thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such reports given on the authority of such firm as experts in accounting and auditing.

LEGAL MATTERS

The validity of the securities offered hereby will be passed upon for us by Dentons US LLP, New York, New York. Certain legal matters in connection with this offering will be passed upon for the agent by Goodwin Proctor LLP, New York, New York.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and periodic reports, proxy statements and other information with the SEC. You may read and copy any materials that we file with the 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. Our SEC filings are also available to the public from the SEC's Website at www.sec.gov. We make available free of charge its annual, quarterly and current reports, proxy statements and other information upon request. To request such materials, please contact the Corporate Secretary at the following address or telephone number: Arcturus Therapeutics Holdings Inc., 10628 Science Center Drive, Suite 250, San Diego, California 92121, Attention: Investor Relations; (858) 900-2660. Exhibits to the documents will not be sent, unless those exhibits have specifically been incorporated by reference in this prospectus.

We maintain our website at <https://arcturusrx.com>. Our website and the information contained therein or connected thereto are not incorporated into this Registration Statement.

We have filed with the SEC a registration statement on Form S-3 under the Securities Act relating to the securities we are offering by this prospectus and the accompanying base prospectus. This prospectus and accompanying base prospectus do not contain all of the information set forth in the registration statement and the exhibits and schedules to the registration statement. Please refer to the registration statement and its exhibits and schedules for further information with respect to the Company and its securities. Statements contained in this prospectus and accompanying base prospectus as to the contents of any contract or other document are not necessarily complete and, in each instance, we refer you to the copy of that contract or document filed as an exhibit to the registration statement or to a document incorporated by reference therein. You may read and obtain a copy of the registration statement and its exhibits and schedules from the SEC, as described in the preceding paragraph.

INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to "incorporate by reference" the information we file with them, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus, and information that we file later with the SEC will automatically update and supersede this information. We incorporate by reference the documents filed with SEC listed below:

- Our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, filed with the SEC on March 1, 2022;
- Our Quarterly Reports on Form 10-Q for the periods ended March 31, 2022, June 30, 2022 and September 30, 2022, filed with the SEC on May 9, 2022, August 9, 2022 and November 9, 2022, respectively;
- Our information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2021 from our Definitive Proxy Statement on Schedule 14A, filed with the SEC on May 2, 2022;
- Our Current Reports on Form 8-K filed with the SEC on February 11, 2022, February 17, 2022, April 20, 2022, June 24, 2022, September 1, 2022, November 2, 2022, November 4, 2022, and December 13, 2022, respectively (in each case, except for information contained therein which is furnished rather than filed); and
- The description of our common stock in our Form 8-K12B filed with the SEC on June 14, 2019.

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act, prior to the termination of this offering, 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 furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus and deemed to be part of this prospectus from the date of the filing of such reports and documents.

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

You may request a copy of the filings incorporated herein by reference, including exhibits to such documents that are specifically incorporated by reference, at no cost, by writing or calling us at the following address or telephone number:

Arcturus Therapeutics Holdings Inc.
10628 Science Center Drive, Suite 250
San Diego, California 92121
Telephone: (858) 900-2660
Attention: Investor Relations

Statements contained in this prospectus as to the contents of any contract or other documents are not necessarily complete, and in each instance investors are referred to the copy of the contract or other document filed as an exhibit to the registration statement or to documents incorporated by reference therein, each such statement being qualified in all respects by such reference and the exhibits and schedules thereto.

\$200,000,000



Common Stock

PROSPECTUS

Cantor

Wells Fargo Securities

, 2022

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

The following table sets forth all expenses, other than the underwriting discounts and commissions, payable by the registrant in connection with the sale of the securities being registered. All of such fees expenses, except for the registration fee, are estimates:

	Amount
SEC Registration fee	\$ 55,100
Accounting fees and expenses	\$ *
Legal fees and expenses	\$ *
Miscellaneous fees and expenses	\$ *
Total	\$ *

* The calculation of these fees and expenses is dependent on the number of issuances and amount of securities offered and, accordingly, cannot be estimated at this time.

The Company shall bear all expenses in connection with the issuance and distribution of the securities being offered hereby.

Item 15. Indemnification of Directors and Officers

We are incorporated under the laws of the state of Delaware. Section 145(a) of the Delaware General Corporation Law, or the DGCL, provides that a Delaware corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of the fact that such person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with such action, suit or proceeding if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful.

Section 145(b) of the DGCL provides that a Delaware corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that such person is or was a director, officer, employee or agent of the corporation, or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, joint venture, trust or other enterprise, against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection with the defense or settlement of such action or suit if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation, unless and only to the extent that the Court of Chancery or the court in which such action or suit was brought shall determine that, despite the adjudication of liability but in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the court shall deem proper.

Further subsections of DGCL Section 145 provide that:

(1) to the extent a present or former director or officer of a corporation has been successful on the merits or otherwise in the defense of any action, suit or proceeding referred to in subsections (a) and (b) of Section 145 or in the defense of any claim, issue or matter therein, such person shall be indemnified against expenses, including attorneys' fees, actually and reasonably incurred by such person in connection therewith;

(2) the indemnification and advancement of expenses provided for pursuant to Section 145 shall not be deemed exclusive of any other rights to which those seeking indemnification or advancement of expenses may be entitled under any bylaw, agreement, vote of stockholders or disinterested directors or otherwise; and

(3) the corporation shall have the power to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against any liability asserted against such person and incurred by such person in any such capacity, or arising out of such person's status as such, whether or not the corporation would have the power to indemnify such person against such liability under Section 145.

Section 145 of the DGCL makes provision for the indemnification of officers and directors in terms sufficiently broad to indemnify our officers and directors under certain circumstances from liabilities (including reimbursement for expenses incurred) arising under the Securities Act of 1933, as amended (the "Securities Act"). Our bylaws provide, in effect, that, to the fullest extent and under the circumstances permitted by Section 145 of the DGCL, we will indemnify any person (and the estate of any person) who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he or she is or was a director or officer of our company or is or was serving at our request as a director or officer of another corporation or enterprise. We may, in our discretion, similarly indemnify its employees and agents.

We have entered into indemnification agreements with our officers and directors.

Our certificate of incorporation, as amended, relieves our directors from monetary damages to us or our stockholders for breach of such director's fiduciary duty as a director to the fullest extent permitted by the DGCL. Under Section 102(b)(7) of the DGCL, a corporation may relieve its directors from personal liability to such corporation or its stockholders for monetary damages for any breach of their fiduciary duty as directors except (i) for a breach of the duty of loyalty, (ii) for acts or omissions not in good faith, or which involve intentional misconduct or a knowing violation of law, (iii) for willful or negligent violations of certain provisions in the DGCL imposing certain requirements with respect to stock repurchases, redemptions and dividends, or (iv) for any transactions from which the director derived an improper personal benefit.

We currently maintain an insurance policy which, within the limits and subject to the terms and conditions thereof, covers certain expenses and liabilities that may be incurred by directors and officers in connection with proceedings that may be brought against them as a result of an act or omission committed or suffered while acting as a director or officer of our company.

Item 16. Exhibits

See the Exhibit Index attached to this registration statement and incorporated herein by this reference.

Item 17. Undertakings

(a) The undersigned registrant hereby undertakes:

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

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

(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 a 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 (1)(i), (1)(ii) and (1)(iii) of this section 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, as amended (the "Exchange Act") that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

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

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

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

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

(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.

(5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities:

The 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.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Exchange Act) 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.

(h) Insofar as indemnification for liabilities arising under the Securities Act 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 Commission such indemnification is against public policy as expressed in the Securities 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 Securities Act and will be governed by the final adjudication of such issue.

(j) 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 in accordance with the rules and regulations prescribed by the Commission under section 305(b)(2) of the Act.

EXHIBIT INDEX

<u>Exhibit</u>	
<u>Number</u>	<u>Description</u>
1.1*	Form of Underwriting Agreement.
1.2	Controlled Equity OfferingSM Sales Agreement, dated as of December 23, 2022 by and between Cantor Fitzgerald & Co, Wells Fargo Securities, LLC and Arcturus Therapeutics Holdings Inc.
3.1	Certificate of Incorporation. Incorporated by reference to Annex B to the proxy statement/prospectus which forms part of the Registration Statement on Form S-4 filed on March 18, 2019 (File No. 333-230353).
3.2	Certificate of Amendment, dated November 25, 2020. Incorporated by reference to Exhibit 3.1 to Form 8-K filed on November 25, 2020 (File No. 001-38942).
3.3	Bylaws of Arcturus Therapeutics Holdings Inc. Incorporated by reference to Exhibit 3.2 to the Company's Registration Statement on Form S-3, filed with the SEC on May 8, 2020 (File No. 333-238139).
4.1*	Form of Specimen Certificate Representing Preferred Stock.
4.2	Form of Indenture.
4.3*	Form of Subordinated Debt Securities Indenture.
4.4*	Form of Senior Debt Securities Indenture.
4.4*	Form of Warrant.
4.5*	Form of Warrant Agreement.
4.6*	Form of Unit Agreement.
5.1	Opinion of Dentons US LLP.
23.1	Consent of Dentons US LLP (included in Exhibit 5.1).
23.2	Consent of Independent Registered Public Accounting Firm.
24.1	Powers of Attorney (incorporated by reference to the signature page hereto).
25.1**	Statement of Eligibility on Form T-1 under the Trust Indenture Act of 1939, as amended, of Debt Trustee (to be filed prior to any issuance of Debt Securities).
107	Filing Fee Table.

* To be filed by amendment or incorporated by reference in connection with the offering of the securities.

** To be filed in accordance with the requirements of Section 305(b)(2) of the Trust Indenture Act of 1939.

SIGNATURES

Pursuant to the requirement of the Securities Act, 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 San Diego, State of California, on this 23rd day of December 2022.

ARCTURUS THERAPEUTICS HOLDINGS INC.

By: /s/ Joseph E. Payne
Joseph E. Payne
Chief Executive Officer

POWER OF ATTORNEY

Each person whose signature appears below constitutes and appoints Joseph E. Payne and Andy Sassine, and each of them, as his/her true and lawful attorney-in-fact and agent, each acting alone, with full power of substitution and resubstitution, for him/her and in his/her name, place and stead, in any and all capacities, to sign any or all amendments (including post-effective amendments) to this Registration Statement on Form S-3, and to file the same, with all exhibits thereto, and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated below.

Signature	Capacity	Date
<u>/s/ Joseph E. Payne</u> Joseph E. Payne	President, Chief Executive Officer and Director (<i>Principal Executive Officer</i>)	December 23, 2022
<u>/s/ Dr. Padmanabh Chivukula</u> Dr. Padmanabh Chivukula	Chief Scientific Officer, Chief Operating Officer and Secretary	December 23, 2022
<u>/s/ Dr. Peter Farrell</u> Dr. Peter Farrell	Chairman of the Board	December 23, 2022
<u>/s/ Andy Sassine</u> Andy Sassine	Chief Financial Officer, Director (<i>Principal Financial Officer</i>)	December 23, 2022
<u>/s/ Dr. Magda Marquet</u> Dr. Magda Marquet	Director	December 23, 2022
<u>/s/ James Barlow</u> James Barlow	Director	December 23, 2022
<u>/s/ Dr. Edward Holmes</u> Dr. Edward Holmes	Director	December 23, 2022
<u>/s/ Dr. Jing L. Marantz</u> Dr. Jing L. Marantz	Director	December 23, 2022
<u>/s/ Dr. John Markels</u> Dr. John Markels	Director	December 23, 2022
<u>/s/ Keith C. Kummerfeld</u> Keith C. Kummerfeld	Senior Vice President of Finance and Corporate Controller (<i>Principal Accounting Officer</i>)	December 23, 2022

ARCTURUS THERAPEUTICS HOLDINGS INC.

Shares of Common Stock
(par value \$0.001 per share)

Controlled Equity OfferingSM
Sales Agreement

December 23, 2022

CANTOR FITZGERALD & CO.
499 Park Avenue
New York, NY 10022

WELLS FARGO SECURITIES, LLC
500 West 33rd Street, 14th Floor
New York, New York 10001

Ladies and Gentlemen:

Arcturus Therapeutics Holdings Inc., a Delaware corporation (the “**Company**”), confirms its agreement (this “**Agreement**”) with Cantor Fitzgerald & Co. and Wells Fargo Securities, LLC (each an “**Agent**” and together, the “**Agents**”), 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 to or through an Agent that the Company shall from time to time designate, as sales agent or principal (the “**Designated Agent**”), shares of common stock (the “**Placement Shares**”) of the Company, par value \$0.001 per share (the “**Common Stock**”) for aggregate gross sales price of up to \$200,000,000; *provided, however*, that in no event shall the Company issue or sell through the Agents such number or dollar amount of Placement Shares that would (a) exceed the 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) exceed the 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) exceed the 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) exceed the 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 aggregate gross sales price or amount of Placement Shares that may be issued and sold under this Agreement shall be the sole responsibility of the Company and that the Agents shall have no obligation in connection with such compliance. The offer and sale of Placement Shares through the Agents will be effected pursuant to the Registration Statement (as defined below) filed by the Company and 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, 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 Agents, for use by the Agents, 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. 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, and any one or more additional effective registration statements on Form S-3 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, 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) (as defined below), is herein called the “**Prospectus**.”

Any reference herein to the Registration Statement, any Prospectus Supplement, the Prospectus or any Issuer Free Writing Prospectus 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 Designated Agent by email notice (or other method mutually agreed to in writing by the parties) of the number or dollar amount of Placement Shares to be issued, the time period during which sales are requested to be made, any limitation on the number or dollar amount 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 authorized individuals from the Company set forth on **Schedule 2** (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 Designated Agent set forth on **Schedule 2**, as such **Schedule 2** may be amended from time to time. The Placement Notice shall be effective upon receipt by the Designated Agent, unless and until (i) the Designated Agent declines to accept the terms contained therein for any reason, in its sole discretion, which shall be communicated by the Designated Agent to the Company within two (2) Trading Days (defined in **Section 3**) from the date the Designated Agent receives the Placement Notice, (ii) the entire amount of the Placement Shares thereunder have been sold, (iii) the Company suspends sales under or terminates the Placement Notice for any reason, in its sole discretion, (iv) the Company issues a subsequent Placement Notice and explicitly indicates that the parameters of the subsequent Placement Notice supersede those parameters contained in the earlier dated Placement Notice or (v) this Agreement has been terminated under the provisions of **Section 12**. The amount of any discount, commission or other compensation to be paid by the Company to the Designated Agent in connection with the sale of the Placement Shares shall be calculated in accordance with the terms set forth in **Schedule 3**. It is expressly acknowledged and agreed that neither the Company nor any Designated 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 Designated Agent and the Designated 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 the Designated Agent. Subject to the provisions of Section 5(a), the Designated 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 Nasdaq Global Market (the “Exchange”) to sell the Placement Shares up to the number or amount specified in, and otherwise in accordance with the terms of, such Placement Notice. Each Designated 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 or amount of Placement Shares sold on such day, the compensation payable by the Company to the Designated Agent pursuant to Schedule 3 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 Designated Agent (as set forth in Section 5(b)) from the gross proceeds that it receives from such sales. Unless otherwise specified by the Company in a Placement Notice, the Designated 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. “Trading Day” means any day on which Common Stock is traded on the Exchange.

4. Suspension of Sales. The Company or the Designated 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 2, 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 2), 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), 7(n) and 7(o) with respect to the delivery of certificates, opinions, or comfort letters to the Agents, 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 2 hereto, as such schedule may be amended from time to time. Notwithstanding any other provision of this Agreement, during any period in which the Company is in possession of material non-public information, the Company and the Agents agree that (i) no sale of Placement Shares will take place, (ii) the Company shall not request the sale of any Placement Shares, and (iii) the Agents shall not be obligated to sell or offer to sell any Placement Shares.

5. Sale and Delivery to the Designated Agents; 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 Designated 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 Designated 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 Designated Agent shall provide written confirmation of such acceptance and sales under a Placement Notice in accord with Section 3. The Company acknowledges and agrees that (i) there can be no assurance that the Designated Agent will be successful in selling Placement Shares, (ii) the Designated 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 Designated 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 Designated Agent shall be under no obligation to purchase Placement Shares on a principal basis pursuant to this Agreement, except as otherwise agreed by the Designated 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 second (2nd) 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 Designated 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 gross sales price at which such Placement Shares were sold and received by the Designated Agent, after deduction of (i) the Agents' commission, discount or other compensation for such sales payable by the Company pursuant to Section 2 hereof, and (ii) any transaction fees imposed by any Governmental Authority (as defined below) 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 Designated Agent's or its designee's account (provided the Designated 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 ("DWAC") 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 Designated 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 (other than as a result of a failure by the Designated Agent to provide instructions for delivery), the Company will (i) hold the Designated Agent harmless against any loss, claim, damage, or expense (including reasonable and documented 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 Designated Agent (without duplication) any commission, discount, or other compensation to which they 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 Designated Agent may request in writing at least one full Business Day (as defined below) before the applicable Settlement Date. The certificates for the Placement Shares, if any, will be made available by the Company for examination and packaging by the Designated Agent in The City of New York not later than noon (New York time) on the Business Day prior to the applicable 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 Agents 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.

6. Representations and Warranties of the Company. The Company represents and warrants to, and agrees with, each Agent that as of the date of this Agreement (except for those representations, warranties and agreements that speak solely as of a specified date or time, in which case as of such date or time), and as of (i) each Representation Date (as defined in Section 7(1) (other than a Representation date occurring at a time at which no Placement Notice is pending), (ii) each date on which a Placement Notice is given, (iii) the date and time of each sale of any Placement Shares pursuant to this Agreement and (iv) each Settlement Date (each such time or date referred to in clauses (i) through (iv), an "**Applicable Time**"):

(a) The Company meets the requirements for the use of Form S-3 under the Securities Act. The Company has prepared and filed with the Commission a "shelf registration statement" as defined in Rule 405 under the Securities Act on Form S-3, and the Placement Shares have been and remain eligible for registration by the Company on such automatic shelf registration statement. The Registration Statement meets, and the offering and sale of Placement Shares as contemplated hereby comply with, the requirements of Rule 415(a)(1)(x) under the Securities Act. Each Agent is named as the agents engaged by the Company in the section entitled "Plan of Distribution" in the Prospectus Supplement. The Company has not received, and has no notice from the Commission of, any notice pursuant to Rule 401(g)(2) under the Securities Act objecting to the use of the shelf registration statement form. No stop order of the Commission preventing or suspending the use of the base prospectus, the Prospectus Supplement or the Prospectus, or the effectiveness of the Registration Statement, has been issued, and no proceedings for such purpose have been instituted or are pending before or, to the knowledge of the Company, threatened by the Commission. At the time of the filing of the Prospectus Supplement, the Company will pay the required Commission filing fees relating to the Placement Shares that may be sold pursuant to this Agreement, in accordance with Rules 456(b) and 457(r) under the Securities Act. Copies of the Registration Statement, the Prospectus, any such amendments or supplements to any of the foregoing and all Incorporated Documents 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 Agents and their counsel.

(b) Each of the Registration Statement and any post-effective amendment thereto, at the time it became or becomes effective, at each deemed effective date with respect to the Agents pursuant to Rule 430B(f)(2) under the Securities Act and as of each Applicable Time, complied, complies and will comply in all material respects with the requirements of the Securities Act and did not, does not and will not contain any 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, except that the representations and warranties set forth in this sentence do not apply to Agents' Information (as defined below). The Prospectus and any amendment or supplement thereto, when so filed with the Commission under Rule 424(b) under the Securities Act, complied, complies and as of each Applicable Time will comply in all material respects with the requirements of the Securities Act, and each Prospectus Supplement, Prospectus or issuer free writing prospectus (or any amendments or supplements to any of the foregoing) furnished to the Agents for use in connection with the offering of the Placement Shares was identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T. Neither the Prospectus nor any amendment or supplement thereto, as of its date and as of each Applicable Time, included, includes or will include an untrue statement of a material fact or omitted, omits or will omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading, except that the representations and warranties set forth in this sentence do not apply to Agents' Information. Each Incorporated Document heretofore filed, when it was filed (or, if any amendment with respect to any such document was filed, when such amendment was filed), conformed in all material respects with the requirements of the Exchange Act and was filed on a timely basis with the Commission, and any further Incorporated Documents so filed and incorporated after the date of this Agreement will be filed on a timely basis and, when so filed, will conform in all material respects with the requirements of the Exchange Act; no such Incorporated Document when it was filed (or, if an amendment with respect to any such document was filed, when such amendment was filed), contained an untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; and no such Incorporated Document, when it is filed, will contain an untrue statement of a material fact or will omit to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading.

(c) (i) At the time of filing the Registration Statement and (ii) at the time of the execution of this Agreement (with such date being used as the determination date for purposes of this clause (ii)), the Company was not and is not an "ineligible issuer" (as defined in Rule 405), without taking account of any determination by the Commission pursuant to Rule 405 that it is not necessary that the Company be considered an ineligible issuer.

(d) 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. Each issuer free writing prospectus that the Company has filed, or is required to file, pursuant to Rule 433 or that was prepared by or on behalf of or used by the Company complies or will comply in all material respects with the requirements of the Securities Act.

(e) The Company has not distributed and, prior to the later to occur of each Settlement Date and completion of an Agent's distribution of the Placement Shares under this Agreement, will not distribute any offering material in connection with the offering and sale of the Placement Shares other than the Registration Statement, the Prospectus or any Permitted Free Writing Prospectus (as defined below).

(f) The Company is subject to and in compliance in all material respects with the reporting requirements of Section 13 or Section 15(d) of the Exchange Act. The Common Stock is registered pursuant to Section 12(b) of the Exchange Act and is listed on the Exchange, and the Company has taken no action designed to, or reasonably likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act or 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. The Company is in compliance with the current listing standards of the Exchange. The Company has filed a Notification of Listing of Additional Shares with the Exchange with respect to the Placement Shares.

(g) Other than as contemplated by this Agreement and except as disclosed in the Registration Statement and in the Prospectus, the Company has not incurred any liability for any brokerage or finder's fee or other fee or financial advisory or agent's commission as a result of any transactions contemplated by this Agreement.

(h) The Company is a well-known seasoned issuer (as defined in Rule 405 under the Securities Act) eligible to use the Registration Statement as an automatic shelf registration statement.

(i) Each "forward-looking statement" (within the meaning of Section 27A of the Securities Act or Section 21E of the Exchange Act) contained or incorporated by reference in the Registration Statement or the Prospectus has been made or reaffirmed with a reasonable basis and has been disclosed in good faith.

(j) Ernst & Young LLP, which has expressed its opinion with respect to the financial statements (which term as used in this Agreement includes the related notes thereto) filed with the Commission as a part of the Registration Statement or the Prospectus, is (i) an independent registered public accounting firm as required by the Securities Act, the Exchange Act, and the rules of the Public Company Accounting Oversight Board ("**PCAOB**"), (ii) in compliance with the applicable requirements relating to the qualification of accountants under Rule 2-01 of Regulation S-X under the Securities Act and (iii) a registered public accounting firm as defined by the PCAOB whose registration has not been suspended or revoked and who has not requested such registration to be withdrawn.

(k) The Company has an authorized capitalization as set forth in the Prospectus, and all of the issued and outstanding shares of capital stock of the Company are fully paid and non-assessable and have been duly authorized and validly issued, in compliance with all applicable state, federal and foreign securities laws and not in violation of or subject to any preemptive or similar right that entitles any person to acquire from the Company or any Subsidiary any Common Stock or other security of the Company or any security convertible into, or exercisable or exchangeable for, Common Stock or any other such security of the Company (any "**Relevant Security**"), except for such rights as may have been fully satisfied or waived prior to the effectiveness of the Registration Statement. No holder of any Relevant Security has any rights to require registration under the Securities Act of any Relevant Security in connection with the offer and sale of the Placement Shares contemplated hereby, except for any such rights that have either been fully complied with by the Company or effectively waived by the holders thereof.

(l) The Placement Shares to be delivered on each Settlement Date, if any, have been duly authorized and, when issued and delivered in accordance with this Agreement, will be validly issued, fully paid and non-assessable, will have been issued in compliance with all applicable state and federal securities laws and will not have been issued in violation of or subject to any preemptive or similar right that entitles any person to acquire any Relevant Security from the Company. The Common Stock and the Placement Shares conform to the descriptions thereof contained in the Registration Statement and the Prospectus. Except as disclosed in the Registration Statement and the Prospectus, the Company has no outstanding warrants, options to purchase, or any preemptive rights or other rights to subscribe for or to purchase, or any contracts or commitments to issue or sell, any Relevant Security.

(m) The Company and each of its consolidated subsidiaries (collectively, the “**Subsidiaries**”) has been duly organized and validly exist as corporations or other legal entities in good standing under the laws of their respective jurisdiction of organization (to the extent such good standing concept exists in such jurisdiction) and has power and authority (as the case may be) to own or lease its property and conduct its business as described in the Registration Statement and the Prospectus. The Company and each Subsidiary is qualified to do business in each jurisdiction in which the character or location of its properties (owned, leased or licensed) or the nature or conduct of its business makes such qualification necessary, except for those failures to be so qualified or in good standing which (individually and in the aggregate) would not reasonably be expected to have a material adverse effect on (i) the business, management, condition (financial or otherwise), results of operations, stockholders’ equity, properties or prospects of the Company and the Subsidiaries, taken as a whole; or (ii) the ability of the Company to consummate the sale of the Placement Shares or any other transaction contemplated by this Agreement or the Registration Statement and the Prospectus (any such effects described in clauses (i) or (ii) a “**Material Adverse Effect**”). The certificate or articles of incorporation, by-laws, partnership agreement, limited liability company agreement or other constitutive and organizational documents (as the case may be) of the Company and each Subsidiary comply with the requirements of applicable law and are in full force and effect.

(n) Neither the Company nor any Subsidiary (i) is in violation of its certificate or articles of incorporation, by-laws, certificate of formation, limited liability company agreement, partnership agreement or other organizational documents, (ii) is in default under, and no event has occurred which, with notice or lapse of time or both, would constitute a default under or result in the creation or imposition of any lien, charge, mortgage, pledge, security interest, claim, equity, trust or other encumbrance, preferential arrangement, defect or restriction of any kind whatsoever (“**Lien**”) upon any property or assets of the Company or any Subsidiary pursuant to, any indenture, mortgage, deed of trust, note, lease, loan agreement or other agreement or instrument to which it is a party or by which it is bound or to which any of its property or assets is subject, or (iii) is in violation of any statute, law, rule, regulation, ordinance, directive, judgment, writ, decree or order of any court or judicial, regulatory or other legal or governmental agency or body, foreign or domestic, having jurisdiction over the Company or any Subsidiary except (in the case clauses (ii) and (iii) above) for violations or defaults that would not (individually or in the aggregate) reasonably be expected to have a Material Adverse Effect.

(o) Each of the Company and each Subsidiary has all requisite power and authority, and all necessary consents, approvals, authorizations, orders, registrations, qualifications, licenses, filings and permits of, with and from all judicial, regulatory and other legal or governmental agencies and bodies and all third parties, foreign and domestic (collectively, the “**Consents**”), to own, lease and operate its properties and conduct its business as it is now being conducted and as disclosed in the Registration Statement and the Prospectus, and each such Consent is valid and in full force and effect, except in each case as would not reasonably be expected to have a Material Adverse Effect. Neither the Company nor any Subsidiary has received notice of any investigation or proceedings which, if decided adversely to the Company or any such Subsidiary, would reasonably be expected to result in the revocation of, or imposition of a materially burdensome restriction on, any such Consent.

(p) This Agreement has been duly and validly authorized, executed and delivered by the Company and constitutes a valid and legally binding obligation of the Company.

(q) The issuance and sale of the Placement Shares, the compliance by the Company with this Agreement and the consummation of the transactions contemplated hereby and by the Registration Statement and the Prospectus do not and will not (i) conflict with or result in a breach or violation of any of the terms and provisions of, or constitute a default (or an event which with notice or lapse of time, or both, would constitute a default) under, or result in the creation or imposition of any lien upon any property or assets of the Company or any Subsidiary pursuant to, any indenture, mortgage, deed of trust, note, lease, loan agreement or other agreement, instrument, franchise, license or permit to which the Company or any Subsidiary is a party or by which the Company or any Subsidiary or their respective properties, operations or assets may be bound, (ii) violate or conflict with any provision of the certificate or articles of incorporation, by-laws, certificate of formation, limited liability company agreement, partnership agreement or other organizational documents (as the case may be) of the Company or any Subsidiary, or (iii) violate or conflict with any statute, law, rule, regulation, ordinance, directive, judgment, writ, decree or order of any court or judicial, regulatory, administrative or other legal or governmental agency or body (including, without limitation, the United States Food and Drug Administration (the “**FDA**”), domestic or foreign, having jurisdiction over the Company or any Subsidiary, except (in the case of clauses (i) and (iii) above) as would not reasonably be expected to have a Material Adverse Effect.

(r) No Consent is required for the execution, delivery and performance by the Company of this Agreement, the issue and sale of the Placement Shares (including the use of proceeds from the sale of the Placement Shares as described in the Registration Statement and the Prospectus) and the consummation by the Company of the transactions contemplated hereby and by the Registration Statement and the Prospectus, except the registration under the Securities Act of the Placement Shares, such Consents as may be required by the Exchange in regards to the listing of the Placement Shares and under applicable state securities or blue sky laws and such other Consents as have been obtained.

(s) There is no judicial, regulatory, arbitral or other legal or governmental proceeding or other litigation or arbitration, domestic or foreign, pending to which the Company or any Subsidiary is a party or of which any property, operations or assets of the Company or any Subsidiary is the subject which, individually or in the aggregate, if determined adversely to the Company or any Subsidiary, would reasonably be expected to have a Material Adverse Effect; to the Company's knowledge, no such proceeding, litigation or arbitration is threatened or contemplated; and the defense of all such proceedings, litigation and arbitration against or involving the Company or any Subsidiary would not reasonably be expected to have a Material Adverse Effect.

(t) The financial statements, including the notes thereto, and the supporting schedules included or incorporated by reference in the Registration Statement and the Prospectus present fairly in all material respects the consolidated financial position as of the dates indicated and the cash flows and results of operations for the periods specified of the Company and its consolidated Subsidiaries; said financial statements have been prepared in conformity with United States generally accepted accounting principles ("**GAAP**") applied on a consistent basis throughout the periods involved; and the supporting schedules, if any, included in the Registration Statement and the Prospectus present fairly in all material respects in accordance with GAAP the information required to be stated therein. No other historical or pro forma financial statements or supporting schedules are required to be included in the Registration Statement or the Prospectus by the Securities Act or the Exchange Act. The other financial and statistical information included or incorporated by reference in the Registration Statement and the Prospectus present fairly in all material respects the information included therein and have been prepared on a basis consistent with that of the financial statements that are included or incorporated by reference in the Registration Statement and the Prospectus and the books and records of the respective entities presented therein. All disclosures contained in the Registration Statement and the Prospectus, or incorporated by reference therein, regarding "non-GAAP financial measures" (as such term is defined by the rules and regulations of the Commission) comply with Regulation G of the Exchange Act and Item 10 of Regulation S-K of 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 accordance with the Commission's rules and guidelines applicable thereto.

(u) The statistical, industry-related and market-related data included in the Registration Statement and the Prospectus are based on or derived from sources which the Company reasonably and in good faith believes are reliable and accurate, and such data agree with the sources from which they are derived.

(v) The Company has submitted a Listing of Additional Shares notification to the Exchange. The Company has not received an oral or written notification from the Exchange or any court or any other federal, state, local or foreign governmental or regulatory authority having jurisdiction over the Company or any of its Subsidiaries or any of their properties or assets (“**Governmental Authority**”) of any inquiry or investigation or other action that would cause the Placement Shares to stop being quoted on the Exchange.

(w) There are no contracts or documents which are required to be described in the Registration Statement or the Prospectus or to be filed as exhibits to the Registration Statement which have not been so described and filed as required.

(x) The Company and its Subsidiaries maintain a system of internal accounting and other controls sufficient to provide reasonable assurances 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 accountability for assets, (iii) access to assets is permitted only in accordance with management’s general or specific authorization, (iv) the recorded accounting for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences and (v) 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 accordance with the Commission’s rules and guidelines applicable thereto.

(y) The Company maintains a system of internal control over financial reporting (as such term is defined in Rule 13a-15(f) under the Exchange Act) that complies with the requirements of the Exchange Act and has been designed by the Company’s principal executive officer and principal financial officer, or under their supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP. 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. Since the date of the latest audited financial statements included or incorporated by reference 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.

(z) The Company maintains disclosure controls and procedures (as such term is defined in Rule 13a-15(e) under the Exchange Act) that comply with the requirements of the Exchange Act; such disclosure controls and procedures have been designed to ensure that material information relating to the Company and its Subsidiaries is made known to the Company’s principal executive officer and principal financial officer by others within those entities; and such disclosure controls and procedures are effective.

(aa) There is and has been no failure on the part of the Company or any of the Company’s directors or officers, in their capacities as such, to comply in all material respects with any provision of the Sarbanes-Oxley Act of 2002 and the rules and regulations promulgated in connection therewith (the “**Sarbanes-Oxley Act**”), including Section 402 related to loans and Sections 302 and 906 related to certifications.

(bb) The shares of Common Stock are registered pursuant to Section 12(b) or 12(g) of the Exchange Act and are listed on the Exchange, and the Company has taken no action designed to, or likely to have the effect of, terminating the registration of the shares of Common Stock under the Exchange Act or delisting the shares of 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. The Company is in compliance with all applicable listing requirements of the Exchange.

(cc) To the Company's knowledge, no relationship, direct or indirect, exists between or among any of the Company or any affiliate of the Company, on the one hand, and any director, officer, shareholder, customer or supplier of the Company or any affiliate of the Company, on the other hand, which is required by the Securities Act or the Exchange Act to be described in the Registration Statement or the Prospectus that is not so described as required. There are no outstanding loans, advances (except normal advances for business expenses in the ordinary course of business) or guarantees of indebtedness by the Company to or for the benefit of any of the officers or directors of the Company or any of their respective family members. The Company has not, in violation of the Sarbanes-Oxley Act, directly or indirectly, including through any affiliate of the Company, extended or maintained credit, arranged for the extension of credit, or renewed an extension of credit, in the form of a personal loan to or for any director or executive officer of the Company.

(dd) Neither the Company nor any of its affiliates (within the meaning of Rule 144 under the Securities Act) has taken, directly or indirectly, any action which constitutes or is designed to cause or result in, or which would reasonably be expected to constitute, cause or result in, the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Placement Shares or to result in a violation of Regulation M under the Exchange Act.

(ee) Neither the Company nor any of its affiliates (within the meaning of Rule 144 under the Securities Act) has, prior to the date hereof, made any offer or sale of any securities which could be "integrated" (within the meaning of the Securities Act) with the offer and sale of the Placement Shares pursuant to the Registration Statement and Prospectus.

(ff) All of the information provided to the Agents or to counsel for the Agents by the Company, its officers and directors and to the Company's knowledge the holders of any securities (debt or equity) or options to acquire any securities of the Company in connection with the offering of the Placement Shares is true, complete and correct in all material respects and compliant with Financial Industry Regulatory Authority, Inc.'s ("**FINRA**") rules and any letters, filings or other supplemental information provided to FINRA pursuant to FINRA Rules or NASD Conduct Rules is true, complete and correct in all material respects. In accordance with FINRA Conduct Rule 5110(h)(1)(C), the Placement Shares have been registered with the Commission on Form S-3 under the Securities Act.

(gg) The statements set forth in the Prospectus under the caption "Description of Capital Stock We May Offer", insofar as it purports to constitute a summary of the terms of the Common Stock, are accurate and complete in all material respects. The statements set forth in the Company's Annual Report on Form 10-K for the year ended December 31, 2021 under the caption "Business—Product Approval and Government Regulation" and "Risk Factors" and as set forth in the Prospectus under the caption "Risk Factors", insofar as they purport to describe the provisions of the laws and documents referred to therein, are accurate and complete in all material respects.

(hh) The Company is not and, at all times up to and including consummation of the transactions contemplated by this Agreement, and after giving effect to application of the net proceeds of the sale of the Placement Shares as described in the Prospectus, will not be, required to register as an "investment company" under the Investment Company Act of 1940, as amended, and is not and will not be an entity "controlled" by an "investment company" within the meaning of such act.

(ii) Except as disclosed in the Registration Statement and the Prospectus, there are no contracts, agreements or understandings between the Company and any person that would give rise to a valid claim against the Company or the Agents for a brokerage commission, finder's fee or other like payment in connection with the transactions contemplated by this Agreement or, to the Company's knowledge, any arrangements, agreements, understandings, payments or issuance with respect to the Company or any of its officers, directors, shareholders, partners, employees, Subsidiaries or affiliates that may affect the Agents' compensation as determined by FINRA Rule 5110.

(jj) The Company and each Subsidiary owns or leases all such properties as are necessary to the conduct of its business as presently operated and as proposed to be operated as described in the Registration Statement and the Prospectus. The Company and the Subsidiaries have good and marketable title in fee simple to all real property and good and marketable title to all personal property owned by them, in each case free and clear of any and all Liens except such as are described in the Registration Statement and the Prospectus or such as do not (individually or in the aggregate) materially affect the value of such property or materially interfere with the use made or proposed to be made of such property by the Company and the Subsidiaries; and any real property and buildings held under lease or sublease by the Company and the Subsidiaries are held by them under valid, subsisting and enforceable leases with such exceptions as are not material to, and do not materially interfere with, the use made and proposed to be made of such property and buildings by the Company and the Subsidiaries. Neither the Company nor any Subsidiary has received any notice of any claim adverse to its ownership of any real or personal property or of any claim against the continued possession of any real property, whether owned or held under lease or sublease by the Company or any Subsidiary.

(kk) To their knowledge, the Company and each Subsidiary: (i) owns or possesses valid and adequate rights to use any and all patents and patent applications; trademarks, service marks, domain names, social media accounts and identifiers, trade names, brand names, trademark registrations, service mark registrations, and all goodwill arising from the foregoing; rights of publicity; copyrights, works of authorship, software, data, databases, systems, and technology, licenses, formulae, customer lists, know-how, trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures; and all other intellectual, industrial, or proprietary property or rights (collectively, "**Intellectual Property**") used in or necessary for the conduct of their respective businesses as presently conducted and as described as proposed to be conducted in the Registration Statement and the Prospectus (collectively, the "**Company Intellectual Property**"), except, in each case, as would not reasonably be expected to have a Material Adverse Effect, and none of the foregoing will be adversely affected by the consummation of the transactions contemplated hereby; and (ii) except as described in the Registration Statement and the Prospectus, exclusively own free and clear of all Liens all right, title, and interest in and to all Intellectual Property described in the Prospectus as being owned by them or that is otherwise purported to be owned by them (collectively, the "**Owned Intellectual Property**"). All material registrations and applications for Owned Intellectual Property are subsisting, unexpired and have not been abandoned in any applicable jurisdiction. The Company and the Subsidiaries have not received any notice of any claim of infringement, misappropriation or violation of the Intellectual Property rights of others that would, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect. The Company and Subsidiaries have taken reasonable measures consistent with industry standards to protect the confidentiality of their material trade secrets and confidential or proprietary information (including the source code for all material proprietary software). No such material trade secrets or information (including source code) has ever been disclosed or released to any third party (except pursuant to reasonable confidentiality obligations) and, to the Company's knowledge, no event has occurred, and no circumstances or conditions exist (including the execution of this Agreement or the consummation of the transactions contemplated hereby) that (with or without notice or lapse of time, or both) will, or would reasonably be expected to, result in the disclosure or release thereof to a third party. To the Company's knowledge, all such trade secrets and information (including source code) which has not been patented is and has been kept confidential. Except as disclosed in the Registration Statement and the Prospectus, neither the Company nor any Subsidiary has granted, licensed or assigned to any other person or entity any right to manufacture, have manufactured, assemble, offer to sell, or sell the current products and services of the Company and its Subsidiaries or those products and services described in the Registration Statement and the Prospectus, except for manufacturing services contracts in the ordinary course of business. To the knowledge of the Company and each Subsidiary, there is and has been no infringement, misappropriation, or other violation (i) by the Company or any Subsidiary (including by the operation of its respective business or its products or services) of any Intellectual Property rights of any third party or (ii) by third parties of any Owned Intellectual Property, except, in each case, as would not reasonably be expected to have a Material Adverse Effect. There is no pending or, to the Company's knowledge, threatened action, suit, proceeding, or claim either (x) challenging (A) the Company's or any Subsidiary's rights in or to any Company Intellectual Property or (B) the validity, enforceability, scope, ownership, or use of any Owned Intellectual Property, or (y) alleging any infringement, misappropriation, or other violation by the Company or any Subsidiary of any patent, trademark, copyright, trade secret or other Intellectual Property right of any third party. None of the Company's or any Subsidiary's material proprietary software contains, incorporates, includes or is linked to, derived from, embedded with or distributed with any "copyleft" or similar software in any manner that would require that any source code for such material proprietary software to be disclosed, licensed, or distributed to others.

(ll) The Company and its Subsidiaries' information technology assets and equipment, computers, systems, networks, hardware, software, websites, applications, and databases (collectively, "**IT Systems**") are adequate for, and operate and perform in all material respects as required in connection with the operation of the business of the Company and its Subsidiaries as currently conducted, and to the best of the Company's knowledge, are free and clear of all material bugs, errors, defects, viruses, worms, Trojan horses, time bombs, malware or other similar flaws, harmful programs or corruptants. The Company and its subsidiaries have implemented and maintained commercially reasonable controls, policies, procedures, and safeguards to maintain and protect their material confidential information and the integrity, continuous operation, redundancy and security of all IT Systems and data (including all personal, personally identifiable, sensitive, confidential or regulated data ("**Personal Data**")) used in connection with their businesses, and there have been no breaches, violations, outages or unauthorized uses of or accesses to same, except for those that have been remedied without material cost or liability or the duty to notify any other person, nor any incidents under internal review or investigations relating to the same. The Company and its Subsidiaries are presently in material compliance with all applicable laws or statutes and all judgments, orders, rules and regulations of any court or arbitrator or governmental or regulatory authority, internal policies and contractual obligations relating to the privacy and security of IT Systems and Personal Data and to the protection of such IT Systems and Personal Data from unauthorized use, access, misappropriation or modification.

(mm) Neither the Company nor its Subsidiaries have been notified in writing, or have been required by applicable Law or a Governmental Authority to notify in writing, any person of any Personal Data or security-related incident. Neither the Company nor its Subsidiaries have received any notice of any claims, investigations, or alleged violations of Law with respect to Personal Data. To the best of the Company's knowledge, no person has commenced any proceedings relating to the Company or its Subsidiaries' information privacy or data security practices.

(nn) There has been no loss, damage, or unauthorized access, disclosure, use, or breach of security of any Company or Subsidiary information in their possession, custody, or control, or otherwise held or processed on their behalf that would reasonably be expected to have a Material Adverse Effect. The Company and its Subsidiaries have implemented, and required of their third party vendors, adequate policies and commercially reasonable security controls regarding the collection, use, disclosure, retention, confidentiality, integrity, and availability of personal and business sensitive information in their possession, custody, or control, or held or processed on their behalf, and regarding the integrity and availability of the information technology the Company and its Subsidiaries own, operate, or outsource.

(oo) The Company and the Subsidiaries maintain insurance in such amounts and covering such risks as the Company reasonably considers adequate for the conduct of its business and the value of its properties and as is customary for companies engaged in similar businesses in similar industries, all of which insurance is in full force and effect, except where the failure to maintain such insurance would not reasonably be expected to have a Material Adverse Effect. There are no material claims by the Company or any Subsidiary under any such policy or instrument as to which any insurance company is denying liability or defending under a reservation of rights clause. The Company reasonably believes that it will be able to renew its existing insurance as and when such coverage expires or will be able to obtain replacement insurance adequate for the conduct of the business and the value of its properties at a cost that would not have a Material Adverse Effect.

(pp) Except as would not reasonably be expected to result in a Material Adverse Effect, each of the Company and each Subsidiary has accurately prepared and timely filed all federal, state, foreign and other tax returns that are required to be filed by it or has been granted extensions thereof and has paid or made provision for the payment of all taxes, assessments, governmental or other similar charges, including without limitation, all sales and use taxes and all taxes which the Company or any Subsidiary is obligated to withhold from amounts owing to employees, creditors and third parties, with respect to the periods covered by such tax returns (whether or not such amounts are shown as due on any tax return). Except as would not reasonably be expected to result in a Material Adverse Effect, no deficiency assessment with respect to a proposed adjustment of the Company's or any Subsidiary's federal, state, local or foreign taxes is pending or, to the Company's knowledge, threatened. The accruals and reserves on the books and records of the Company and the Subsidiaries in respect of tax liabilities for any taxable period not finally determined are adequate to meet any assessments and related liabilities for any such period and, since December 31, [2019], the Company and the Subsidiaries have not incurred any liability for taxes other than in the ordinary course of its business, except as would not reasonably be expected to result in a Material Adverse Effect. There is no tax lien, whether imposed by any federal, state, foreign or other taxing authority, outstanding against the assets, properties or business of the Company or any Subsidiary, other than any such tax lien arising automatically under applicable law with respect to taxes not yet due and payable or being contested in good faith.

(qq) No labor disturbance by the employees of the Company or any Subsidiary exists or, to the Company's knowledge, is imminent and the Company is not aware of any existing or imminent labor disturbances by the employees of any of its or any Subsidiary's principal suppliers, manufacturers, customers or contractors, which, in either case (individually or in the aggregate), would reasonably be expected to have a Material Adverse Effect.

(rr) (i) Except as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect, each "employee benefit plan" (within the meaning of Section 3(3) of the Employee Retirement Security Act of 1974, as amended ("ERISA")) for which the Company or any member of its "Controlled Group" (defined as any organization which is a member of a controlled group of corporations within the meaning of Section 414 of the Internal Revenue Code of 1986, as amended (the "Code")) would have any liability (each a "Plan") has been maintained in compliance with its terms and with the requirements of all applicable statutes, rules and regulations including ERISA and the Code; (ii) no prohibited transaction, within the meaning of Section 406 of ERISA or Section 4975 of the Code, has occurred with respect to any Plan excluding transactions effected pursuant to a statutory or administrative exemption; (iii) with respect to each Plan subject to Title IV of ERISA (A) no "reportable event" (within the meaning of Section 4043(c) of ERISA) has occurred or is reasonably expected to occur, (B) no "accumulated funding deficiency" (within the meaning of Section 302 of ERISA or Section 412 of the Code), whether or not waived, has occurred or is reasonably expected to occur, (C) the fair market value of the assets under each Plan exceeds the present value of all benefits accrued under such Plan (determined based on those assumptions used to fund such Plan), and (D) neither the Company or any member of its Controlled Group has incurred, or reasonably expects to incur, any liability under Title IV of ERISA (other than contributions to the Plan or premiums to the Pension Benefit Guaranty Corporation in the ordinary course and without default) in respect of a Plan (including a "multiemployer plan", within the meaning of Section 4001(c)(3) of ERISA); and (iv) each Plan that is intended to be qualified under Section 401(a) of the Code is so qualified and nothing has occurred, whether by action or by failure to act, which would cause the loss of such qualification.

(ss) There has been no storage, generation, transportation, handling, use, treatment, disposal, discharge, emission, contamination, release or other activity involving any kind of hazardous, toxic or other wastes, pollutants, contaminants, petroleum products or other hazardous or toxic substances, chemicals or materials (“**Hazardous Substances**”) by, due to, on behalf of, or caused by the Company or any Subsidiary (or, to the Company’s knowledge, any other entity for whose acts or omissions the Company is or may be liable) upon any property now or previously owned, operated, used or leased by the Company or any Subsidiary, or upon any other property, which would be a violation of or give rise to any liability under any applicable law, rule, regulation, order, judgment, decree or permit, common law provision or other legally binding standard relating to pollution or protection of human health and the environment (“**Environmental Law**”), except for violations and liabilities which, individually or in the aggregate, would not reasonably be expected to have a Material Adverse Effect. There has been no disposal, discharge, emission contamination or other release of any kind at, onto or from any such property or into the environment surrounding any such property of any Hazardous Substances with respect to which the Company or any Subsidiary has knowledge, except as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect. Neither the Company nor any Subsidiary has agreed to assume, undertake or provide indemnification for any liability of any other person under any Environmental Law, including any obligation for cleanup or remedial action, except as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect. There is no pending or, to the Company’s knowledge, threatened administrative, regulatory or judicial action, claim or notice of noncompliance or violation, investigation or proceedings relating to any Environmental Law against the Company or any Subsidiary, except in each case which, individually or in the aggregate, would not reasonably be expected to have a Material Adverse Effect. No property of the Company or any Subsidiary is subject to any Lien under any Environmental Law. Neither the Company nor any Subsidiary is subject to any order, decree, agreement or other individualized legal requirement related to any Environmental Law.

(tt) The Company and the Subsidiaries (i) are in compliance with all statutes, rules and regulations applicable to the testing, development, manufacture, packaging, processing, use, distribution, marketing, labeling, promotion, sale, offer for sale, storage, import, export or disposal of any product under development, manufactured or distributed by the Company or the Subsidiaries (“**Applicable Laws**”) except where such noncompliance would not reasonably be expected to have a Material Adverse Effect, (ii) have not received any Form 483 from the FDA, notice of adverse finding, warning letter, or other written correspondence or notice from the FDA, the European Medicines Agency (the “**EMA**”), or any other federal, state, local or foreign governmental or regulatory authority alleging or asserting material 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**”), that would, individually or in the aggregate, result in a Material Adverse Effect; (iii) possess all Authorizations and such Authorizations are valid and in full force and effect and neither the Company nor the Subsidiaries is in violation of any term of any such Authorizations except where such nonpossession, failure or noncompliance would not reasonably be expected to have a Material Adverse Effect; (iv) have not received written notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from the FDA, the EMA, or any other federal, state, local or foreign governmental or regulatory authority or third party alleging that any Company product, operation or activity is in violation of any Applicable Laws or Authorizations except where such noncompliance would not reasonably be expected to have a Material Adverse Effect, and has no knowledge that the FDA, the EMA, or any other federal, state, local or foreign governmental or regulatory authority or third party is considering any such claim, litigation, arbitration, action, suit, investigation or proceeding against the Company; (v) have not received written notice that the FDA, EMA, or any other federal, state, local or foreign governmental or regulatory authority has taken, is taking or intends to take action to limit, suspend, modify or revoke any Authorizations that would reasonably be expected to have a Material Adverse Effect and has no knowledge that the FDA, EMA, or any other federal, state, local or foreign governmental or regulatory authority is considering such action; and (vi) have filed, obtained, maintained or submitted all reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Applicable Laws or Authorizations, except whether the failure to file, obtain, maintain or submit such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments would not result in a Material Adverse Effect, 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) except such incompletions and incorrections as would not reasonably be expected to result in a Material Adverse Effect.

(uu) The Company's and each of its Subsidiaries' business practices have been structured in a manner reasonably designed to comply with the state, federal and foreign Health Care Laws applicable to the Company and its Subsidiaries respective businesses, and the Company and its Subsidiaries are in compliance with Health Care Laws, except where the failure to do so would not reasonably be expected to have a Material Adverse Effect. The Company and its Subsidiaries have not engaged in activities which to its knowledge are cause for false claims liability, civil penalties, or mandatory or permissive exclusion from Medicare, Medicaid, or any other state health care program or federal health care program. For purposes of this Agreement, "**Health Care Laws**" means the: (i) the Federal Food, Drug, and Cosmetic Act (21 U.S.C. § 301 et seq.) and the regulations promulgated thereunder; (ii) all applicable federal, state, local and all applicable foreign health care related fraud and abuse laws, including, without limitation, the U.S. Anti-Kickback Statute (42 U.S.C. Section 1320a-7b(b)), the U.S. civil False Claims Act (31 U.S.C. Section 3729 et seq.), the federal criminal false claims law (42 U.S.C. § 1320a-7b(a)), the federal civil monetary penalties law (42 U.S.C. § 1320a-7a), the Stark Law (42 U.S.C. §1395nn), 18 U.S.C. Sections 286 and 287, the health care fraud criminal provisions under the U.S. Health Insurance Portability and Accountability Act of 1996 ("**HIPAA**") (42 U.S.C. Section 1320d et seq.), the exclusion laws (42 U.S.C. §1320a-7), the statutes and regulations government healthcare programs, including the European Union General Data Protection Regulation (EU 2016 679), Medicare, Title XVIII of the Social Security Act, and Medicaid, Title XIX of the Social Security Act, and the regulations promulgated pursuant to such statutes; (iii) the U.S. federal Prescription Drug Marketing Act of 1987, as amended, and the regulations promulgated thereunder; (iv) the U.S. Controlled Substances Act; (v) the Clinical Laboratory Improvement Act; and (vi) the Standards for Privacy of Individually Identifiable Health Information (the "**Privacy Rule**"), the Security Standards, and the Standards for Electronic Transactions and Code Sets promulgated under HIPAA, the Health Information Technology for Economic and Clinical Health Act (42 U.S.C. Section 17921 et seq.), and the regulations promulgated thereunder and any state or non-U.S. counterpart thereof or other law or regulation the purpose of which is to protect the privacy of individuals or prescribers. Neither the Company nor its Subsidiaries have received written notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other material action from any court or arbitrator or governmental or regulatory authority or third party alleging that any product, operation or activity is in violation of any Health Care Laws nor, to the Company's knowledge, is any such claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action threatened. The Company and its Subsidiaries have filed, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Health Care Laws, and all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete and accurate on the date filed in all material respects (or were corrected or supplemented by a subsequent submission). Neither the Company nor its Subsidiaries are a party to any corporate integrity agreements, monitoring agreements, consent decrees, plans of correction, settlement orders, or similar agreements with or imposed by any governmental or regulatory authority. Additionally, neither the Company, its Subsidiaries nor any of their respective employees, officers or directors has been excluded, suspended or debarred from participation in any U.S. federal health care program or human clinical research or, to the knowledge of the Company, is subject to a governmental inquiry, investigation, proceeding, or other similar action that would reasonably be expected to result in debarment, suspension, or exclusion.

(vv) All animal and other preclinical studies and clinical trials currently being conducted by the Company or on behalf of the Company are, to the Company's knowledge, being conducted in all material respects in compliance with all Applicable Laws and in accordance with experimental protocols, procedures and controls generally used by qualified experts in the preclinical study and clinical trials of new drugs and biologics as applied to comparable products to those being developed by the Company, and, except as set forth in the Registration Statement and the Prospectus, the Company has no knowledge of any other clinical trials or preclinical studies, the results of which reasonably call into question the clinical trial or preclinical study results described or referred to in the Registration Statement and the Prospectus when viewed in the context in which such results are described, except such results as would not reasonably be expected to result in a Material Adverse Effect; and the Company has not received any written notices or correspondence from the FDA, the EMA, or any other domestic or foreign governmental agency requiring the termination or suspension of any preclinical studies or clinical trials conducted by or on behalf of the Company that are described in the Registration Statement and the Prospectus or the results of which are referred to in the Registration Statement and the Prospectus.

(ww) The Company has established and administers a compliance program applicable to the Company, to assist the Company and the directors, officers and employees of the Company in complying with applicable regulatory guidelines (including, without limitation, those administered by the FDA, the EMA, and any other foreign, federal, state or local governmental or regulatory authority performing functions similar to those performed by the FDA or EMA).

(xx) Neither the Company nor any of its Subsidiaries nor, to the Company's knowledge, any director, officer, agent, employee, affiliate or other person acting on behalf of the Company or any of its Subsidiaries, has (i) made any unlawful contribution, gift, entertainment or other unlawful expense relating to political activity; (ii) made any direct or indirect unlawful payment to any domestic governmental official, "foreign official" (as defined in the U.S. Foreign Corrupt Practices Act of 1977, as amended, and the rules and regulations thereunder (collectively, the "**FCPA**")) or employee; (iii) violated or is in violation of any provision of the FCPA, UK Bribery Act, or any applicable non-U.S. anti-bribery statute or regulation or any locally applicable corruption laws; (iv) made any bribe, rebate, payoff, influence payment, kickback or other unlawful payment; or (v) received notice of any investigation, proceeding or inquiry by any governmental agency, authority or body regarding any of the matters in clauses (i)-(iv) above; and the Company and its Subsidiaries and, to the Company's knowledge, the Company's affiliates have conducted their respective businesses in compliance with the FCPA and have instituted and maintain policies and procedures designed to ensure, and which are reasonably expected to continue to ensure, continued compliance therewith.

(yy) 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, including those of the Bank Secrecy Act, as amended by Title III of the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (USA PATRIOT Act) (Title III of Pub. L. 107-56 (signed into law October 26, 2001)) (the “**USA Patriot Act**”), and those of the Currency and Foreign Transactions Reporting Act of 1970, as amended, and the money laundering statutes of all applicable jurisdictions, the rules and regulations thereunder and any related or similar rules, regulations or guidelines issued, administered or enforced by any governmental agency (collectively, the “**Money Laundering Laws**”) and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its Subsidiaries with respect to the Money Laundering Laws is pending or, to the Company’s knowledge, threatened.

(zz) None of the Company, any of its Subsidiaries, any officer or director of either the Company or its Subsidiaries nor, to the best knowledge of the Company, any agent, employee, affiliate or other person acting on behalf of the Company or any of its Subsidiaries is or, in the past five years, has been (A) engaged in any services (including financial services), transfers of goods, software, or technology, or any other business activity related to (i) Cuba, Iran, North Korea, Sudan, Syria, Russia, and the Donetsk, Luhansk and Crimea regions of Ukraine (“**Sanctioned Countries**”), (ii) the government of any Sanctioned Country, (iii) any person, entity or organization located in, resident in, formed under the laws of, or owned or controlled by the government of, any Sanctioned Country, or (iv) any person, entity or organization made subject or target of any sanctions administered or enforced by the United States Government (including the US Department of Treasury, Office of Foreign Assets Control and the US Department of State), including, without limitation, the list of Specially Designated Nationals of the Office of Foreign Assets Control of the U.S. Treasury Department (“**OFAC**”), or by the United Nations Security Council, the European Union, Her Majesty’s Treasury, or other relevant sanctions authority (collectively, “**Sanctions**”) and the Company will not directly or indirectly use the proceeds of this offering, or lend, contribute or otherwise make available such proceeds to any of its subsidiaries, or any joint venture partner or other person or entity, for the purpose of financing the activities of or business with any person, or in any country or territory, that currently is the subject to any U.S. sanctions administered by OFAC or in any other manner that will result in a violation by any person (including any person participating in the transaction whether as underwriter, advisor, investor or otherwise) of U.S. sanctions administered by OFAC; (B) engaged in any transfers of goods, technologies or services (including financial services) that may assist the governments of Sanctioned Countries or facilitate money laundering or other activities proscribed by United States laws, rules or regulations; (C) is a person, entity or organization currently the subject of any Sanctions; or (D) located, organized or resident in any Sanctioned Country.

(aaa) Except as disclosed in the Registration Statement and the Prospectus, the Company (i) does not have any material lending or other relationship with any bank or lending affiliate of any Agent and (ii) does not intend to use any of the proceeds from the sale of the Placement Shares to repay any outstanding debt owed to any affiliate of any Agent.

(bbb) The Company acknowledges and agrees that each Agent has informed the Company that such Agent may, to the extent permitted under the Securities Act and the Exchange Act, purchase and sell shares of 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 Agents, except as may be otherwise agreed by the Company and the Agents.

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

(ddd) The Company is not required to register as a “broker” or “dealer” in accordance with the provisions of the Exchange Act and does not, directly or indirectly through one or more intermediaries, control or have any other association with (within the meaning of Article I of the By-laws of FINRA) any member firm of FINRA. No relationship, direct or indirect, exists between or among the Company, on the one hand, and the directors, officers or shareholders of the Company, on the other hand, which is required by the rules of FINRA to be described in the Registration Statement and the Prospectus, which is not so described. All of the information (including, but not limited to, information regarding affiliations, security ownership and trading activity) provided to an Agent or its counsel by the Company, its officers and directors and the holders of any securities (debt or equity) or warrants, options or rights to acquire any securities of the Company in connection with the filing to be made and other supplemental information to be provided to FINRA pursuant to FINRA Rule 5110 in connection with the transactions contemplated by this Agreement is true, complete and correct.

(eee) 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.

(fff) Neither the Company nor any of its Subsidiaries has (i) failed to pay any dividend or sinking fund installment on preferred stock or (ii) defaulted on any installment or payment due on indebtedness for borrowed money or on any rental on one or more long-term leases, which defaults, individually or in the aggregate, could reasonably be expected to result in a Material Adverse Effect.

(ggg) There are no material outstanding loans, advances (except normal advances for business expenses in the ordinary course of business) or guarantees of indebtedness by the Company or any of its Subsidiaries to or for the benefit of any of the officers or directors of the Company or any of its Subsidiaries, or any of the family members of any of such persons, except as disclosed in the Registration Statement or Prospectus. All transactions by the Company with office holders or control persons of the Company have been duly approved by the board of directors of the Company, or duly appointed committees or officers thereof, if and to the extent required under U.S. law.

Any certificate signed by any officer of the Company and delivered to the Agents or their counsel in connection with the offering of the Placement Shares shall be deemed a representation and warranty by the Company, as to matters covered thereby, to the Agents.

7. Covenants of the Company. The Company covenants and agrees with each 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 a Designated 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 Agents 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, other than Incorporated Documents, 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 an 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 Agents (*provided, however*, that the failure of the Agents to make such request shall not relieve the Company of any obligation or liability hereunder, or affect the Agents’ right to rely on the representations and warranties made by the Company in this Agreement and provided, further, that the only remedy the Agents shall have with respect to the failure by the Company to make such filing (but without limiting the Agents’ rights under Section 9 hereof) will 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, other than Incorporated Documents, relating to the Placement Shares or a security convertible into or exchangeable or exercisable for the Placement Shares unless a copy thereof has been submitted to the Agents within a reasonable period of time before the filing and no Agent has reasonably objected thereto (*provided, however*, that the failure of an Agent to make such objection shall not relieve the Company of any obligation or liability hereunder, or affect the Agents’ right to rely on the representations and warranties made by the Company in this Agreement and provided, further, that the only remedy the Agents shall have with respect to the Company’s making such filing notwithstanding the Agents’ objection (but without limiting the Agents’ rights under Section 9 hereof) will be to cease making sales under this Agreement) and the Company will furnish to the Agents at the time of filing thereof a copy of any Incorporated Document, except for those documents available via EDGAR; and (iv) the Company will cause each amendment or supplement to the Prospectus, other than Incorporated Documents, to be filed with the Commission as required pursuant to the applicable paragraph of Rule 424(b) of the Securities Act and, in the case of any Incorporated Document, to be filed with the Commission as required pursuant to the Exchange Act, within the time period prescribed.

(b) Notice of Commission Stop Orders. The Company will advise the Agents, 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 Agents 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 or the Prospectus or any Issuer Free Writing Prospectus.

(c) Delivery of Prospectus; Subsequent Changes. During any period in which the Prospectus relating to the Placement Shares is required to be delivered by a Designated 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 will file on or before their respective due dates (taking into account any extensions available under the Exchange Act) 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 thereof and make all requisite filings with the Commission pursuant to said Rule 430B and to notify the Designated Agent promptly of all such filings if not available on EDGAR. 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 Agents 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.

(d) Listing of Placement Shares. During any period in which the Prospectus relating to the Placement Shares is required to be delivered by a Designated 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 a similar rule), the Company will use its commercially reasonable efforts to cause the Placement Shares to be listed on the Exchange. The Company will timely file with the Exchange all material documents and notices required by the Exchange of companies that have or will issue securities that are traded on the Exchange.

(e) Delivery of Registration Statement and Prospectus. The Company will furnish to the Agents and their 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 filed with the Commission during such period), in each case as soon as reasonably practicable and in such quantities as the Agents may from time to time reasonably request and, at the Agents' 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 Agents to the extent such document is available on EDGAR.

(f) Earnings Statement. The Company will make generally available to its security holders and to the Agents as soon as practicable, but in any event not later than 15 months after the end of the Company's current fiscal quarter, an earnings statement covering a 12-month period that satisfies the provisions of Section 11(a) and Rule 158 of the Securities Act; provided that the Company will be deemed to have furnished such statement to its security holders and the Agents to the extent such statement has been filed on EDGAR.

(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 all Agents, the Company will not, directly or indirectly, offer to sell, sell, contract to sell, grant any option to sell or otherwise dispose of any shares of Common Stock (other than the Placement Shares offered pursuant to this Agreement) or securities convertible into or exchangeable or exercisable for shares of Common Stock, warrants or any rights to purchase or acquire shares of Common Stock during the period beginning on the fifth (5th) Trading Day immediately prior to the date on which any Placement Notice is delivered to a Designated Agent hereunder and ending on the second (2nd) 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 offering" or continuous equity transaction offer to sell, sell, contract to sell, grant any option to sell or otherwise dispose of any shares of Common Stock (other than the Placement Shares offered pursuant to this Agreement) or securities convertible into or exchangeable or exercisable for shares of Common Stock, warrants or any rights to purchase or acquire, shares of Common Stock prior to the later of the termination of this Agreement and the sixtieth (60th) 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) shares of Common Stock, options to purchase shares of Common Stock, other securities under the Company's existing equity incentive plans, or shares of Common Stock issuable upon the exercise of options or vesting of other securities, pursuant to any employee or director stock option or benefits plan, stock ownership plan or dividend reinvestment plan (but not shares of 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) shares of 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 Agents and (iii) shares of 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 a fiscal quarter in which the Company intends to tender a Placement Notice, advise the Designated 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 provided or required to be provided to the Agents pursuant to this Agreement.

(j) Due Diligence Cooperation. During the term of this Agreement, the Company will cooperate with any reasonable due diligence review conducted by the Agents, its affiliates agents and counsel from time to time 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 Agents may reasonably request.

(k) Required Filings Relating to Placement of Placement Shares. The Company shall disclose, in its quarterly reports on Form 10-Q and in its annual report on Form 10-K to be filed by the Company with the Commission from time to time, the number of the Placement Shares sold through the Agents under this Agreement, and the net proceeds to the Company from the sale of the Placement Shares pursuant to this Agreement during the relevant quarter or, in the case of an Annual Report on Form 10-K, during the fiscal year covered by such Annual Report and the fourth quarter of such fiscal year. The Company agrees that on or prior to 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, which prospectus supplement will set forth, within the relevant period, the number or amount of Placement Shares sold through the Agents, the Net Proceeds to the Company and the compensation payable by the Company to the Agents 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.; *provided*, that, unless a prospectus supplement containing such information is required to be filed under the Securities Act, the requirement of this Section 7(k) may be satisfied by Company's inclusion in the Company's Form 10-K or Form 10-Q, as applicable, of the number or amount of Placement Shares sold through the Agents, the Net Proceeds to the Company and the compensation payable by the Company to the Agents with respect to such Placement Shares during the relevant period.

(l) Representation Dates; Certificate. On or prior to the date on which the Company first delivers a Placement Notice pursuant to this agreement (the "**First Placement Notice Date**") and each time the Company:

(i) amends or supplements the Registration Statement or the Prospectus relating to the Placement Shares (other than a prospectus supplement filed in accordance with Section 7(k) of this Agreement) by means of a post-effective amendment, sticker or supplement but not by means of incorporation of document(s) 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 a quarterly report on Form 10-Q under the Exchange Act; or

(iv) files a current report on Form 8-K containing amended financial information (which shall not include any earnings release that is “furnished” pursuant to Item 2.02 or Item 7.01 of Form 8-K) 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 Agents (but in the case of clause (iv) above only if (1) a Placement Notice is pending or in effect and (2) the Agents request such certificate within three Business Days after filing of such Form 8-K) with a certificate dated the Representation Date, in substantially the form attached hereto as **Exhibit 7(l)**, 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 waived for any Representation Date occurring at a time a Suspension is in effect, which waiver shall continue until the earlier to occur of the date the Company delivers instructions for the sale of Placement Shares 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 a Suspension was in effect and did not provide the Agents with a certificate under this **Section 7(l)**, then before the Company delivers the instructions for the sale of Placement Shares or the Agents sell any Placement Shares pursuant to such instructions, the Company shall provide the Agents with a certificate in conformity with this **Section 7(l)**, dated as of the date that the instructions for the sale of Placement Shares are issued.

(m) **Legal Opinions.** On or prior to the First Placement Notice Date, and on any date which the Company is obligated to deliver a certificate pursuant to **Section 7(l)** for which no waiver is applicable, the Company shall cause to be furnished to the Agents the written opinion and negative assurance letter of Dentons US LLP, counsel to the Company, or such other counsel satisfactory to the Agents (“**Company Counsel**”), in form and substance satisfactory to the Agents and their counsel, dated the date that the opinion and negative assurance letter are required to be delivered, modified, as necessary, to relate to the Registration Statement and the Prospectus as then amended or supplemented; *provided, however*, that in lieu of such opinion and negative assurance letter for subsequent Representation Dates, Company Counsel may furnish the Agents with a letter to the effect that the Agents may rely on a prior opinion or negative assurance letter delivered by such counsel 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 or negative assurance letter shall be deemed to relate to the Registration Statement and the Prospectus as amended or supplemented at such Representation Date).

(n) **Intellectual Property Opinion.** On or prior to the First Placement Notice Date and on any date which the Company is obligated to deliver a certificate pursuant to **Section 7(l)** for which no waiver is applicable, the Company shall cause to be furnished to the Agents the written opinion of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., counsel for the Company with respect to intellectual property matters, or such other intellectual property counsel satisfactory to the Agents (“**Intellectual Property Counsel**”), in form and substance satisfactory to the Agents and its counsel, dated the date that the opinion letter is required to be delivered, modified, as necessary, to relate to the Registration Statement and the Prospectus as then amended or supplemented; *provided, further*, that any such opinion of Intellectual Property Counsel shall only be required to be delivered on or prior to the First Placement Notice Date and subsequently no more than once a year with the first delivery of opinions by the Company pursuant to this Agreement following the filing of the Company’s annual report on Form 10-K each year.

(o) Comfort Letter. On or prior to the First Placement Notice Date and on any date which the Company is obligated to deliver a certificate pursuant to Section 7(l) for which no waiver is applicable, the Company shall cause its independent registered public accounting firm (and any other independent accountants whose report is included in the Registration Statement or the Prospectus) to furnish the Agents letters (the “**Comfort Letters**”), dated the date the Comfort Letter is delivered, which shall meet the requirements set forth in this Section 7(o); *provided*, that if requested by the Agents, the Company shall cause a Comfort Letter to be furnished to the Agents within ten (10) Trading Days of the occurrence of any material transaction or event that necessitates the filing of additional, pro forma, amended or revised financial statements (including any restatement of previously issued financial statements). Each Comfort Letter shall be in form and substance satisfactory to the Agents and each Comfort Letter from the Company’s independent registered public accounting firm shall (i) confirm that they are an independent registered public accounting firm within the meaning of the Securities Act and the PCAOB, (ii) state, 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 or agents in connection with registered public offerings (the first such letter, the “**Initial Comfort Letter**”) and (iii) update 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.

(p) Market Activities; Compliance with Reg M. The Company will not, directly or indirectly, and will cause its officers, directors and Subsidiaries not to (i) take any action designed to cause or result in, or that constitutes or would 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 shares of Common Stock or (ii) sell, bid for, or purchase shares of Common Stock in violation of Regulation M, or pay anyone any compensation for soliciting purchases of the Placement Shares other than the Agents; *provided, however*, that the Company may bid for and purchase shares of Common Stock in accordance with Rule 10b-18 under the Exchange Act.

(q) 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.

(r) Securities Act and Exchange Act. The Company will use its commercially reasonable efforts to comply with all requirements imposed upon it by the Securities Act and the Exchange Act as from time to time in force, so far as necessary to permit the sales of, or dealings in, the Placement Shares as contemplated by the provisions hereof and the Prospectus.

(s) No Offer to Sell. Other than an Issuer Free Writing Prospectus approved in advance by the Company and the Agents, neither the Agents nor the Company (including its agents and representatives, other than the Agents in their 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.

(t) Blue Sky and Other Qualifications. The Company will use its commercially reasonable efforts, in cooperation with the Agents, to the extent required, 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 Agents 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).

(u) Sarbanes-Oxley Act. The Company will maintain and keep accurate books and records reflecting its 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 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 is made known to it by others within the Company, particularly during the period in which such periodic reports are being prepared.

(v) Renewal of Registration Statement. If, immediately prior to the third anniversary of the initial effective date of the Registration Statement (the "**Renewal Date**"), any of the Placement Shares remain unsold and this Agreement has not been terminated, the Company will, prior to the Renewal Date, file a new shelf registration statement or, if applicable, an automatic shelf registration statement relating to the Common Stock that may be offered and sold pursuant to this Agreement (which shall include a prospectus reflecting the number or amount of Placement Shares that may be offered and sold pursuant to this Agreement), in a form satisfactory to the Agents and their counsel, and, if such registration statement is not an automatic shelf registration statement, will use its best efforts to cause such registration statement to be declared effective within 180 days after the Renewal Date. The Company will take all other reasonable actions necessary or appropriate to permit the public offer and sale of the Placement Shares to continue as contemplated in the expired registration statement and this Agreement. From and after the effective date thereof, references herein to the "**Registration Statement**" shall include such new shelf registration statement or such new automatic shelf registration statement, as the case may be.

(w) General Instruction I.B.6. of Form S-3. If, from and after the date of this Agreement, the Company is no longer eligible to use Form S-3 (including pursuant to General Instruction I.B.6.) at the time it files with the Commission an annual report on Form 10-K or any post-effective amendment to the Registration Statement, then it shall promptly notify the Agents and, within two Business Days after the date of filing of such annual report on Form 10-K or amendment to the Registration Statement, the Company shall file a new prospectus supplement with the Commission reflecting the number of shares of Common Stock available to be offered and sold by the Company under this Agreement pursuant to General Instruction I.B.6. of Form S-3; *provided, however*, that the Company may delay the filing of any such prospectus supplement for up to 30 days if, in the reasonable judgment of the Company, it is in the best interest of the Company to do so, provided that no Placement Notice is in effect or pending during such time. Until such time as the Company shall have corrected such misstatement or omission or effected such compliance, the Company shall not notify the Agents to resume the offering of Placement Shares.

(x) Tax Indemnity. The Company will indemnify and hold harmless the Agents against any documentary, stamp or similar issue tax, including any interest and penalties, on the issue and sale of the Placement Shares.

(y) Transfer Agent. The Company has engaged and will maintain, at its sole expense, a transfer agent and registrar for the Common Stock.

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 Agents shall deem necessary, (ii) the printing and delivery to the Agents 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 Agents, 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 Agents, (iv) the fees and disbursements of the counsel, accountants and other advisors to the Company, (v) the fees and expenses of Agents including but not limited to the reasonable fees and expenses of the counsel to the Agents, payable upon the execution of this Agreement, (a) in an amount not to exceed \$75,000 in connection with the execution of this Agreement and (b) in an amount not to exceed \$15,000 per calendar quarter thereafter payable in connection with 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, (vi) the qualification or exemption of the Placement Shares under state securities laws in accordance with the provisions of Section 7(t) hereof, including filing fees, but excluding fees of the Agents' counsel, (vii) the printing and delivery to the Agents of copies of any Permitted Issuer Free Writing Prospectus and the Prospectus and any amendments or supplements thereto in such number as the Agents shall deem necessary, (viii) the preparation, printing and delivery to the Agents 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 Agents' 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. Conditions to the Agents' Obligations. The obligations of the Agents 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 Agents of a due diligence review satisfactory to the Agents in their reasonable judgment, and to the continuing satisfaction (or waiver by the Agents in their sole discretion) of the following additional conditions:

(a) Registration Statement Effective. The Registration Statement shall be effective and shall be available for all offers and sales of Placement Shares (i) that have been issued pursuant to all prior Placement Notices and (ii) that will be issued pursuant to any Placement Notice.

(b) Prospectus Supplement. The Company shall have filed with the Commission the Prospectus Supplement pursuant to Rule 424(b) under the Securities Act not later than the Commission's close of business on the second Business Day following the date of this Agreement.

(c) No Material Notices. None of the following events shall have occurred and be continuing: (i) receipt by the Company or any of its Subsidiaries 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 or any of its Subsidiaries 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 any 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, in the case of the Prospectus, so that it will not contain any 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.

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

(e) 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, on a consolidated basis, in the authorized capital stock of the Company or any Material Adverse Effect or any development that could reasonably be expected to result in a Material Adverse Effect, or any downgrading in or withdrawal of the rating assigned to any of the Company's securities (other than asset backed securities), if any, 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), if any, the effect of which, in the judgment of the Agents (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.

(f) Company Counsel Legal Opinions. The Agents shall have received the opinions and negative assurance letters, as applicable, of Company Counsel and Intellectual Property Counsel required to be delivered pursuant to Section 7(m) and Section 7(n), as applicable, on or before the date on which such delivery of such opinions and negative assurance letters are required pursuant to Section 7(m) and Section 7(n), as applicable.

(g) Agents' Counsel Legal Opinion. The Agents shall have received from Goodwin Procter LLP, counsel for the Agents, such opinion or opinions, on or before the date on which the delivery of the Company Counsel legal opinion is required pursuant to Section 7(m), with respect to such matters as the Agents may reasonably require, and the Company shall have furnished to such counsel such documents as they may request to enable them to pass upon such matters.

(h) Comfort Letter. The Agents shall have received the Comfort Letter required to be delivered pursuant to Section 7(o) on or before the date on which such delivery of such Comfort Letter is required pursuant to Section 7(l).

(i) Representation Certificate. The Agents 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).

(j) Secretary's Certificate. On or prior to the First Placement Notice Date, the Agents shall have received a certificate, signed on behalf of the Company by the Secretary of the Company and attested to by an executive officer of the Company, dated as of such date and in form and substance satisfactory to the Agents and their counsel, certifying as to (i) the amended and restated certificate of incorporation of the Company, (ii) the amended and restated bylaws of the Company, (iii) the resolutions of the board of directors of the Company or duly authorized committee thereof authorizing the execution, delivery and performance of this Agreement and the issuance and sale of the Placement Shares and (iv) the incumbency of the officers of the Company duly authorized to execute this Agreement and the other documents contemplated by this Agreement (including each of the officers set forth on Schedule 2).

(k) No Suspension. The Common Stock shall be duly listed, and admitted and authorized for trading, subject to official notice of issuance, on the Exchange. Trading in the Common Stock shall not have been suspended on, and the Common Stock shall not have been delisted from, the Exchange.

(l) 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 Agents such appropriate further information, opinions, certificates, letters and other documents as the Agents may have reasonably requested. All such information, opinions, certificates, letters and other documents shall have been in compliance with the provisions hereof. The Company shall have furnished the Agents with conformed copies of such opinions, certificates, letters and other documents as the Agents may have reasonably requested.

(m) Securities Act Filings Made. All filings with the Commission required by Rule 424(b) or Rule 433 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(b) (without reliance on Rule 424(b)(8) of the Securities Act) or Rule 433, as applicable.

(n) Approval for Listing. Either (i) the Placement Shares shall have been 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 First Placement Notice Date and the Exchange shall have reviewed such application and not provided any objections thereto.

(o) FINRA. If FINRA review is applicable, FINRA shall have raised no objection to the terms of the offering contemplated hereby and the amount of compensation allowable or payable to the Agents as described in the Prospectus.

(p) No Termination Event. There shall not have occurred any event that would permit the Agents to terminate this Agreement pursuant to Section 11(a).

10. Indemnification and Contribution.

(a) Company Indemnification. The Company agrees to indemnify and hold harmless either of the Agents, their respective affiliates and their respective partners, members, directors, officers, employees and agents and each person, if any, who controls the Agents 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 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 to the extent of the aggregate amount paid in settlement of any litigation, or any investigation or proceeding by any Governmental Authority, 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 Authority, 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 Agents' Information (as defined below).

(b) Agents Indemnification. Each Agent agrees, severally and not jointly, 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 such Agent and furnished to the Company in writing by such Agent expressly for use therein. The Company hereby acknowledges that the only information that the Agents have furnished to the Company expressly for use in the Registration Statement, the Prospectus, any Prospectus Supplement 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 "Agents' Information").

(c) Procedure. Any party that proposes to assert the right to be indemnified under this Section 10 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 10, 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 10 and (ii) any liability that it may have to any indemnified party under the foregoing provision of this Section 10 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 and documented 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 reasonably satisfactory to the indemnified party to assume the defense of such action, 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 documented fees, disbursements and other charges will be reimbursed by the indemnifying party promptly after the indemnifying party receives a written invoice relating to such documented 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 10 (whether or not any indemnified party is a party thereto), unless such settlement, compromise or consent (1) includes an express and 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, for which it is entitled to be reimbursed under this Section 10, such indemnifying party agrees that it shall be liable for any settlement of the nature contemplated by Section 10(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 Agents, the Company and the Agents will contribute to the total losses, claims, liabilities, expenses and damages (including any documented 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, but after deducting any contribution received by the Company from persons other than the Agents, such as persons who control the Company within the meaning of the Securities Act, officers of the Company who signed the Registration Statement and directors of the Company, who also may be liable for contribution) to which the Company and the Agents 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 Agents on the other hand. The relative benefits received by the Company on the one hand and the Agents 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 Agents 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 Agents, 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 Agents, 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 Agents agree that it would not be just and equitable if contributions pursuant to this Section 10(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 10(e) shall be deemed to include, for the purpose of this Section 10(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 10(c) hereof. Notwithstanding the foregoing provisions of this Section 10(e), the Agents shall not be required to contribute any amount in excess of the commissions received by them 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 10(e), any person who controls a party to this Agreement within the meaning of the Securities Act, any affiliates of the Agents and any officers, directors, partners, employees or agents of the Agents or each person that is controlled by or under common control with the Agents, 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 10(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 10(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 10(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 10(c) hereof.

11. Representations and Agreements to Survive Delivery. The indemnity and contribution agreements contained in Section 10 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 Agents, 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.

12. Termination.

(a) Each Agent may terminate this Agreement, solely with respect to such Agent, 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 such 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 such 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 10 (Indemnification and Contribution), Section 11 (Representations and Agreements to Survive Delivery), Section 17 (Governing Law and Time; Waiver of Jury Trial) and Section 18 (Consent to Jurisdiction) hereof shall remain in full force and effect notwithstanding such termination. If an Agent elects to terminate this Agreement as provided in this Section 12(a), such Agent shall provide the required notice as specified in Section 13 (Notices).

(b) The Company shall have the right, by giving 5 days' prior 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 10, Section 11(f), Section 16 and Section 17 hereof shall remain in full force and effect notwithstanding such termination.

(c) Each Agent shall have the right, solely with respect to such Agent, by giving 5 days' prior 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 10, Section 11, Section 17 and Section 18 hereof shall remain in full force and effect notwithstanding such termination.

(d) Unless earlier terminated pursuant to this Section 12, this Agreement shall automatically terminate upon the issuance and sale of all of the Placement Shares through the Agents on the terms and subject to the conditions set forth herein; *provided* that the provisions of Section 8, Section 10, Section 11, Section 17 and Section 18 hereof shall remain in full force and effect notwithstanding such termination.

(e) This Agreement shall remain in full force and effect unless terminated pursuant to Sections 11(a), (b), (c), or (d) 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 7(g), Section 9, Section 10, Section 12(f), Section 16 and Section 17 shall remain in full force and effect.

(f) 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 Agents 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. Upon termination of this Agreement, the Company shall not be required to pay to the Agents any discount or commission with respect to any Placement Shares not otherwise sold by the Agents under this Agreement; *provided, however*, that the Company shall remain obligated to reimburse the Agents' expenses pursuant to Section 8.

13. 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 in this Agreement, and if sent to the Agents, shall be delivered to:

Cantor Fitzgerald & Co.
499 Park Avenue
New York, NY 10022
Attention: Sameer Vasudev
Email: svasudev@cantor.com; CFCEO@cantor.com
Facsimile: (212) 307-3730

and:

Cantor Fitzgerald & Co.
499 Park Avenue
New York, NY 10022
Attention: General Counsel
Email: Legal-IBD@cantor.com

And

Wells Fargo Securities, LLC
30 Hudson Yards
New York, New York 10001
Attention: Equity Syndicate Department and Special Equities Desk
Email: david.bohn@wellsfargo.com; ryan.haney@wellsfargo.com;
jennifer.r.lynch@wellsfargo.com; william.oconnell@wellsfargo.com;
josie.callanan@wellsfargo.com; jim.w.birchenough@wellsfargo.com;
lucy.to@wellsfargo.com
Facsimile: (212) 214-5918

And

with a copy (which shall not constitute notice) to:

Goodwin Procter LLP
The New York Times Building
620 Eighth Avenue
New York, NY 10018
Attention: Siavosh Salimi, Esq.
Email: SSalimi@goodwinlaw.com

and if to the Company, shall be delivered to:

Arcturus Therapeutics Holdings Inc.
10628 Science Center Drive, Suite 250
San Diego, California 92121
Attention: Chief Legal Officer
E-mail: Lance@arcturusrx.com

with copies (which shall not constitute notice) to:

Dentons US LLP
1221 Avenue of the Americas
New York, New York 10020
Attention: Jeffrey A. Baumel, Esq.
E-mail: jeffrey.baumel@dentons.com

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 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) by Electronic Notice as set forth in the next paragraph, (iii) on the next Business Day after timely delivery to a nationally-recognized overnight courier or (iv) 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 13 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 actual acknowledgment of receipt from the person whom the notice is sent, other than via auto-reply. 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 10 days of receipt of the written request for Nonelectronic Notice.

14. Successors and Assigns. This Agreement shall inure to the benefit of and be binding upon the Company and the Agents and their respective successors and the affiliates, controlling persons, officers, directors and other persons referred to in Section 10 hereof. References to any of the parties contained in this Agreement shall be deemed to include the successors and permitted assigns of each such party. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto, the persons referred to in the preceding sentence and 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 Agents may assign their rights and obligations hereunder to an affiliate thereof without obtaining the Company's consent, so long as such affiliate is a registered broker-dealer.

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

16. Entire Agreement; Amendment; Severability; Waiver. This Agreement (including all schedules (as amended pursuant to this Agreement) 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 Agents; *provided, however*, that Schedule 2 of this Agreement may be amended by either party from time to time by sending a notice containing a revised Schedule 2 to the other party in the manner provided in Section 13 and, upon such amendment, all references herein to Schedule 2 shall automatically be deemed to refer to such amended Schedule 2. 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.

17. **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.**

18. **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.**

19. 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, electronic mail (including any electronic signature covered by the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act, the Electronic Signatures and Records Act or other applicable law, e.g., www.docuSign.com) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

20. 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.

21. Permitted Free Writing Prospectuses. The Company represents, warrants and agrees that, unless it obtains the prior written consent of the Agents, and each Agent represents, warrants and agrees that, unless it obtains the prior written consent of the Company, 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.

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

- (a) each 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 Agents nor their respective 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 Agents and their respective affiliates are engaged in a broad range of transactions which may involve interests that differ from those of the Company and the Agents and their respective 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 Agents or their respective 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 Agents and their respective 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.

2. **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.

“**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 Agents outside of the United States.

[Remainder of Page Intentionally Blank]

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

Very truly yours,

ARCTURUS THERAPEUTICS HOLDINGS INC.

By: _____

Name:

Title:

**ACCEPTED as of the date
first-above written:**

CANTOR FITZGERALD & CO.

By: _____
Name:
Title:

WELLS FARGO SECURITIES, LLC

By: _____
Name:
Title:

FORM OF PLACEMENT NOTICE

From: []
[]
Arcturus Therapeutics Holdings Inc.
Cc: []
To: [Cantor Fitzgerald & Co.] [Wells Fargo Securities, LLC]
Subject: [Cantor Fitzgerald] [Wells Fargo Securities] —At the Market Offering—Placement

Ladies and Gentlemen:

Pursuant to the terms and subject to the conditions contained in the Controlled Equity OfferingSM Sales Agreement, dated December [•], 2022 (the “**Agreement**”), by and among Arcturus Therapeutics Holdings Inc., a Delaware corporation (the “**Company**”), Cantor Fitzgerald & Co. and Wells Fargo Securities, LLC, I hereby request on behalf of the Company that the Designated Agent (as defined in the Agreement) sell up to [] shares of common stock, \$0.001 par value per share, of the Company (the “**Shares**”), at a minimum market price of \$ per share[; *provided* that no more than [] Shares shall be sold in any one Trading Day (as such term is defined in Section 3 of the Agreement)]. Sales should begin [on the date of this Placement Notice] and end on [DATE] [until all Shares that are the subject of this Placement Notice are sold].

The Company

[•]

The Agents

Cantor Fitzgerald

[•]

With copies to: CFControlledEquityOffering@cantor.com

Wells Fargo Securities

[•]

Compensation

The Company shall pay the Agents compensation in cash equal to 3.0% of the gross proceeds from the sales of Placement Shares pursuant to the terms of this Agreement of which this **Schedule 3** forms a part.

OFFICERS' CERTIFICATE

Each of Joseph Payne, the duly qualified and elected Chief Executive Officer of Arcturus Therapeutics Holdings Inc., a Delaware corporation (the "**Company**"), and Andrew Sassine, the duly qualified and elected Chief Financial Officer of the Company, does hereby certify in his respective capacity and on behalf of the Company, pursuant to Section 7(l) of the Controlled Equity OfferingSM Sales Agreement, dated December [•], 2022 (the "**Sales Agreement**"), by and between the Company, Cantor Fitzgerald & Co. and Wells Fargo Securities, LLC, that, after due inquiry, to the best of the knowledge of the undersigned:

(i) The representations and warranties of the Company in Section 6 of the Sales Agreement (A) to the extent such representations and warranties are subject to qualifications and exceptions contained therein relating to materiality or Material Adverse Effect, are true and correct on and as of the date hereof with the same force and effect as if expressly made on and as of the date hereof, and (B) to the extent such representations and warranties are not subject to any qualifications or exceptions relating to materiality or Material Adverse Effect, are true and correct in all material respects as of the date hereof as if made on and as of the date hereof with the same force and effect as if expressly made on and as of the date hereof.

(ii) The Company has complied with all agreements and satisfied all conditions on its part to be performed or satisfied pursuant to the Sales Agreement at or prior to the date hereof.

(iii) As of the date hereof, (A) the Registration Statement complies in all material respects with the requirements of the Securities Act and does not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein not misleading, (B) the Prospectus complies in all material respects with the requirements of the Securities Act does not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading and (C) no event has occurred as a result of which it is necessary to amend or supplement the Registration Statement or the Prospectus in order to make the statements therein not untrue or misleading or for clauses (A) and (B) above, to be true and correct.

(iv) There has been no material adverse change, or any development that could reasonably be expected to result in a material adverse change, in the condition (financial or otherwise), earnings, results of operations, business, properties, operations, assets, liabilities or prospects of the Company and its Subsidiaries, taken as a whole, whether or not arising from transactions in the ordinary course of business, since the date as of which information is given in the Prospectus, as amended or supplemented to the date hereof.

(v) The Company does not possess any material non-public information.

(vi) The maximum amount of Placement Shares that may be sold pursuant to the Sales Agreement has been duly authorized by the Company's board of directors or a duly authorized committee thereof pursuant to a resolution or unanimous written consent in accordance with the Company's amended and restated articles of incorporation, amended and restated bylaws and applicable law.

Capitalized terms used but not defined herein shall have the meanings ascribed to them in the Sales Agreement.

Dentons US LLP and Goodwin Procter LLP are entitled to rely on this certificate in connection with the respective opinions such firms are rendering pursuant to the Sales Agreement. Capitalized terms used but not defined herein shall have the meanings ascribed to them in the Sales Agreement.

IN WITNESS WHEREOF, each of the undersigned, in such individual's respective capacity as Chief Executive Officer or Chief Financial Officer of the Company, has executed this Officers' Certificate on behalf of the Company.

By:

Name: Joseph Payne
Title: Chief Executive Officer
Date:

By:

Name: Andrew Sassine
Title: Chief Financial Officer
Date:

PERMITTED FREE WRITING PROSPECTUS

ARCTURUS THERAPEUTICS HOLDINGS INC.

Issuer

AND

as Trustee

INDENTURE

Dated as of , 2022

Debt Securities

CROSS-REFERENCE TABLE(1)

SECTION OF

TRUST INDENTURE

ACT OF 1939, AS AMENDED

SECTION(S) OF

INDENTURE

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(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.

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INDENTURE

INDENTURE, dated as of , 2022, among ARCTURUS THERAPEUTICS HOLDINGS INC., a Delaware 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 Arcturus Therapeutics Holdings Inc., a corporation duly organized and existing under the laws of the State of Delaware, 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 Depository 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;
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(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 Depository, 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 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;
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(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: Arcturus Therapeutics Holdings Inc., 10628 Science Center Drive, Suite 250, San Diego, California 92121, 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.

ARCTURUS THERAPEUTICS HOLDINGS INC.

By: _____

Name:

Title:

, as Trustee

By: _____

Name:

Title:

December 23, 2022

Arcturus Therapeutics Holdings Inc.
10628 Science Center Drive, Suite 250
San Diego, California 92121

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to Arcturus Therapeutics Holdings Inc., a Delaware 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 offering amount of \$500,000,000 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, par value \$0.001 per share (the "Common Stock");
- (ii) one or more classes or series of shares of the Company's preferred stock, par value \$0.001 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").

For the purposes of this opinion letter, the Company Securities shall be deemed to include any additional Common Stock, Preferred Stock, Debt Securities, Warrants, Subscription Rights and Units that may be registered pursuant to any registration statement that the Company may hereafter file with the Commission pursuant to Rule 462(b) under the Securities Act.

We advise you that we have also examined the prospectus supplement to the Registration Statement in connection with the registration under the Securities Act of up to \$200,000,000 of Common Stock (the "Shares") to be issued and sold by the Company. We understand that the Company has agreed to issue and sell the Shares, from time to time, through Cantor Fitzgerald & Co. and Wells Fargo Securities, LLC, as sales agents (the "Agents"), pursuant to a Controlled Equity OfferingSM Sales Agreement by and between the Company and the Agents (the "Sales Agreement").

This opinion letter is being furnished to the Company in accordance with the requirements of Item 601(b)(5) of Regulation S-K. The opinions set forth herein are limited to applicable laws as in effect on the date hereof.

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"). We are basing this opinion letter 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.

In connection with rendering this opinion, we have examined originals, certified copies or copies otherwise identified as being true copies of the following:

- (a) the Registration Statement;
- (b) the Certificate of Incorporation of the Company, as amended (the "Certificate of Incorporation");
- (c) the Bylaws of the Company (the "Bylaws");
- (d) corporate proceedings of the Company relating to its proposed issuance of the Company Securities; and
- (e) such other instruments and documents as we have deemed relevant or necessary in connection with our opinions set forth herein.

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"). 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").

In making the aforesaid examinations, we have assumed the genuineness and authenticity of all documents examined by us and all signatures therein and the conformity to originals of all copies of all documents examined by us. We have also assumed that the corporate records furnished to us by the Company include all corporate proceedings taken by it to date.

Based on and subject to the assumptions, qualifications and limitations set forth herein, 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 Delaware General Corporation Law, the filing of a certificate or amendment, as applicable, with the Secretary of State of the State of Delaware, 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, 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.

(7) The Shares to be issued and sold by the Company under the Sales Agreement have been duly authorized and, when such Shares are issued and delivered by the Company against payment therefor in accordance with the terms of the Sales Agreement, will be validly issued, fully paid and nonassessable.

Our opinions are subject to the effect of federal and state bankruptcy, insolvency, reorganization, arrangement, moratorium, fraudulent conveyance and other laws relating to or affecting the rights of secured or unsecured creditors generally (or affecting the rights of only creditors of specific types of debtors), with respect to which we express no opinion.

Our opinions are subject to the effect of general principals of equity, whether applied by a court of law or equity, including, without limitation, concepts of materiality, good faith and fair dealing and upon the availability of injunctive relief or other equitable remedies, and the application of principles of equity (regardless of whether enforcement is considered in proceedings at law or in equity).

We express no opinion as to the laws of any jurisdiction other than (i) the corporate laws of the State of Delaware (including the Delaware General Corporation Law and applicable provisions of the Delaware constitution, but excluding local laws), (ii) with respect to opinion paragraphs 3 through 6, the laws of the State of New York, and (iii) the federal laws of the United States of America. We express no opinion to the extent that any other laws are applicable to the subject matter hereof and express no opinion and provide no assurance as to compliance with any federal or state securities law, rule or regulation.

We hereby consent to the use of our opinion as herein set forth as an exhibit to the Registration Statement and to the use of our name under the caption “Legal Matters” in the prospectus forming a part of the Registration Statement. We further consent to the incorporation by reference of this opinion into any registration statement filed pursuant to Rule 462(b) under the Securities Act with respect to additional Company Securities. We do not, by giving any such consent, admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act.

Very truly yours,

/s/ Dentons US LLP

Dentons US LLP

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption "Experts" in the Registration Statement (Form S-3) and related Prospectus of Arcturus Therapeutics Holdings Inc. for the registration of common stock, preferred stock, debt securities, warrants, rights and units and to the incorporation by reference therein of our reports dated February 28, 2022, with respect to the consolidated financial statements of Arcturus Therapeutics Holdings Inc. and its Subsidiaries, and the effectiveness of internal control over financial reporting of Arcturus Therapeutics Holdings Inc. and its Subsidiaries, included in its Annual Report (Form 10-K) for the year ended December 31, 2021, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

San Diego, California
December 23, 2022

Calculation of Filing Fee Tables

Form S-3
(Form Type)

Arcturus Therapeutics Holdings Inc.
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered and Carry Forward Securities

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Share	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Fees to Be Paid	Equity	Common Stock, \$0.001 par value per share (1)						
	Equity	Preferred Stock, \$0.001 par value per share (1)						
	Debt	Debt Securities						
	Other	Warrants						
	Other	Units						
	Other	Rights						
	Unallocated (Universal) Shelf		457(o)	(2)	(3)	\$500,000,000	\$110.20 per \$1,000,000	\$55,100(4)
Fees Previously Paid	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carry Forward Securities	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
						Total Offering Amounts	\$500,000,000	55,100
						Total Fees Previously Paid		—
						Total Fee Offsets		—
						Net Fee Due		55,100

- (1) Includes rights to acquire common stock or preferred stock under any shareholder rights plan then in effect, if applicable under the terms of any such plan.
- (2) An unspecified number of securities or aggregate principal amount, as applicable, is being registered as may from time to time be offered at unspecified prices and, in addition, an unspecified number of additional shares of Common Stock is being registered as may be issued from time to time upon conversion of any debt securities that are convertible into common stock or pursuant to any anti-dilution adjustments with respect to any such convertible debt securities.
- (3) Estimated solely for the purpose of calculating the registration fee. No separate consideration will be received for shares of common stock that are issued upon conversion of debt securities or preferred stock or upon exercise of common stock warrants registered hereunder. The aggregate maximum offering price of all securities issued pursuant to this registration statement will not exceed \$500,000,000.
- (4) The registration fee has been calculated in accordance with Rule 457(o) under the Securities Act of 1933, as amended.