

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

SCHEDULE 14A

**PROXY STATEMENT PURSUANT TO SECTION 14(a) OF THE
SECURITIES EXCHANGE ACT OF 1934 (AMENDMENT NO.)**

Filed by the Registrant

Filed by a Party other than the Registrant

Check the appropriate box:

- Preliminary Proxy Statement
- Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))
- Definitive Proxy Statement
- Definitive Additional Materials
- Soliciting Material under §240.14a-12

ARCTURUS THERAPEUTICS HOLDINGS INC.

(Name of Registrant as Specified in Its Charter)

(Name of Person(s) Filing Proxy Statement, if Other Than the Registrant)

Payment of Filing Fee (Check the appropriate box):

- No fee required.
- Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.

1) Title of each class of securities to which transaction applies:

2) Aggregate number of securities to which transaction applies:

3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11
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4) Proposed maximum aggregate value of transaction:

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- Fee paid previously with preliminary materials.
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1) Amount Previously Paid:

2) Form, Schedule or Registration Statement No.:

3) Filing Party:

4) Date Filed:



**10628 Science Center Drive, Suite 250,
San Diego, California 92121**

To our Stockholders:

We are pleased to invite you to attend the 2023 annual meeting of stockholders (the “Annual Meeting”) of Arcturus Therapeutics Holdings Inc. (the “Company” or “Arcturus”), to be held on June 14, 2023 at 9:00 a.m. Pacific Time, at our offices at 10628 Science Center Drive, Suite 250, San Diego, California 92121.

Details regarding how to attend the Annual Meeting and the business to be conducted at the Annual Meeting are more fully described in the accompanying notice of annual meeting of stockholders and proxy statement.

Your vote is important. Regardless of whether you plan to attend the Annual Meeting, it is important that your shares be represented and voted at the Annual Meeting, and we hope you will vote as soon as possible. You may vote by proxy over the Internet or by mail by following the instructions on the proxy card or voting instruction card. Voting over the Internet, written proxy or voting instruction card will ensure your representation at the Annual Meeting regardless of whether you attend the Annual Meeting.

Thank you for your ongoing support of, and continued interest in, Arcturus.

Sincerely,

/s/ Dr. Peter Farrell
Dr. Peter Farrell
Chairman of the Board

/s/ Joseph E. Payne
Joseph E. Payne
President and Chief Executive Officer

San Diego, California

May 1, 2023



ARCTURUS THERAPEUTICS HOLDINGS INC.

**10628 Science Center Drive, Suite 250,
San Diego, California 92121**

NOTICE OF ANNUAL MEETING OF STOCKHOLDERS

- Time and Date** 9:00 a.m. Pacific Time, on June 14, 2023.
- Place** 10628 Science Center Drive, Suite 250, San Diego, California 92121
- Items of Business**
- (1) To elect Dr. Peter Farrell, Joseph E. Payne, Andy Sassine, James Barlow, Dr. Edward W. Holmes, Dr. Magda Marquet, Dr. Jing L. Marantz, and Dr. John Markels to the Board of Directors (the “Board”), to serve until our next annual meeting of stockholders.
 - (2) To approve, on a non-binding advisory basis, the resolution approving named executive officer compensation.
 - (3) To ratify the appointment of Ernst & Young LLP (“E&Y”), as our independent registered public accounting firm for the fiscal year ending December 31, 2023.
 - (4) To transact other business that may properly come before the annual meeting.

Adjournments and Postponements Any action on the items of business described above may be considered at the annual meeting at the time and on the date specified above or at any time and date to which the annual meeting may be properly adjourned or postponed.

Record Date April 28, 2023. Only stockholders of record of our common stock as of April 28, 2023 are entitled to notice of and to vote at the annual meeting.

Meeting Admission You are invited to attend the annual meeting if you are a stockholder of record or a beneficial owner of shares of our common stock, in each case, as of April 28, 2023. If you are a stockholder of record, you must present valid government-issued photo identification (e.g., driver’s license or passport) for admission to the annual meeting. If you are a beneficial owner of shares of our common stock, you must provide proof of such ownership as of April 28, 2023 (e.g., your most recent account statement reflecting your stock ownership as of April 28, 2023) and you must present valid government-issued photo identification for admission to the annual meeting.

Voting **Your vote is very important.** You may vote by proxy over the Internet or by mail by following the instructions on the proxy card or voting instruction card.

For specific instructions on how to vote your shares, please refer to the section entitled “*Questions and Answers About the Proxy Materials and Annual Meeting*” in the accompanying proxy statement.

By order of the Board of Directors,

/s/ Dr. Peter Farrell

Dr. Peter Farrell
Chairman of the Board
San Diego, California
May 1, 2023

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**ARCTURUS THERAPEUTICS HOLDINGS INC. PROXY STATEMENT
FOR THE 2023 ANNUAL MEETING OF STOCKHOLDERS
TO BE HELD ON JUNE 14, 2023**

The information provided in the “Questions and Answers” format below is for your convenience only and is merely a summary of the information contained in this proxy statement. You should read the entire proxy statement carefully. In this proxy statement, we refer to Arcturus Therapeutics Holdings Inc., a Delaware corporation, as Arcturus, the Company, we, us, our and other similar pronouns.

**QUESTIONS AND ANSWERS
ABOUT THE PROXY MATERIALS AND ANNUAL MEETING**

Why am I receiving these materials?

This proxy statement and the enclosed form of proxy are furnished in connection with the solicitation of proxies by our Board for use at the 2023 annual meeting of stockholders of Arcturus Therapeutics Holdings Inc., a Delaware corporation, and any postponements or adjournments thereof. The annual meeting will be held on June 14, 2023 at 9:00 a.m. Pacific Time, at our offices at 10628 Science Center Drive, Suite 250, San Diego, California 92121.

Stockholders are invited to attend the annual meeting and are requested to vote on the items of business described in this proxy statement. The proxy statement is being mailed on or about May 1, 2023 to all stockholders entitled to vote at the annual meeting.

Who may vote at the annual meeting?

Only stockholders of record as of the close of business on April 28, 2023, the record date, are entitled to vote at the annual meeting. As of the record date, there were 26,562,951 shares of our common stock issued and outstanding, held by 10 holders of record. We do not have cumulative voting rights for the election of directors.

Stockholder of Record: Shares Registered in Your Name. If, at the close of business on the record date for the annual meeting, your shares were registered directly in your name with our transfer agent, Continental Stock Transfer & Trust Company (“Continental”), then you are a stockholder of record. As a stockholder of record, you have the right to grant your voting proxy directly to the individuals listed on the proxy card or to vote online, by mail, or in person at the annual meeting.

Beneficial Owner: Shares Registered in the Name of a Broker, Bank, or Other Nominee. If, at the close of business on the record date for the annual meeting, your shares were held, not in your name, but rather in an account at a brokerage firm, bank, or other nominee, then you are the beneficial owner of shares held in “street name” and these proxy materials are being forwarded to you by that organization. The organization holding your account is considered the stockholder of record for purposes of voting at the annual meeting. As a beneficial owner, you have the right to direct your broker, bank or other nominee regarding how to vote the shares in your account by following the voting instructions your broker, bank or other nominee provides. You are also invited to attend the annual meeting. However, since you are not the stockholder of record, you may not vote your shares in person at the annual meeting unless you obtain a valid proxy from your broker, bank or other nominee.

How can I vote my shares?

Stockholder of Record: Shares Registered in Your Name

If you are a stockholder of record, you may vote in one of the following ways:

- **You may vote in person.** If you plan to attend the annual meeting, you may vote by delivering your completed proxy card in person or by completing and submitting a ballot, which will be provided at the annual meeting.
- **You may vote by mail.** Complete, sign and date the proxy card that accompanies this proxy statement and return it promptly in the postage-prepaid envelope provided. Your completed, signed and dated proxy card must be received prior to the annual meeting.

- **You may vote via the Internet.** To vote via the Internet, go to www.cstproxyvote.com to complete an electronic proxy card (have your proxy card in hand when you visit the website). You will be asked to provide the company number and control number from your proxy card. Internet voting is available 24 hours a day, 7 days a week, until 11:59 p.m., Eastern time, on June 13, 2023.

If you are a beneficial owner of shares held of record by a broker, bank or other nominee, you will receive voting instructions from your broker, bank or other nominee. You must follow the voting instructions provided by your broker, bank or other nominee in order to instruct your broker, bank or other nominee on how to vote your shares.

How can I attend the annual meeting?

Stockholder of Record: Shares Registered in Your Name. If you were a stockholder of record at the close of business on the record date, you must present valid government-issued photo identification (e.g., driver's license or passport) for admission to the annual meeting.

Beneficial Owners: Shares Registered in the Name of a Broker, Bank or Other Nominee. If you were a beneficial owner at the close of business on the record date, you may not vote your shares in person at the annual meeting unless you obtain a "legal proxy" from your broker, bank or other nominee who is the stockholder of record with respect to your shares. You may still attend the annual meeting even if you do not have a legal proxy. For admission to the annual meeting, you must provide proof of beneficial ownership as of the record date (e.g., your most recent account statement reflecting your stock ownership as of the record date) and you must present valid government-issued photo identification.

Please allow ample time for check-in. Please note that cameras, recording equipment, large bags, briefcases and/or packages will not be permitted in the annual meeting.

Will the annual meeting be webcast?

We do not expect to webcast the annual meeting.

What am I voting on?

You are being asked to vote on three proposals:

- the election of Dr. Peter Farrell, Joseph E. Payne, Andy Sassine, James Barlow, Dr. Edward W. Holmes, Dr. Magda Marquet, Dr. Jing L. Marantz, and Dr. John H. Markels to the Board, to serve until our next annual meeting of stockholders;
- the approval, by non-binding advisory vote, of the resolution approving named executive officer compensation (the "Say on Pay Proposal");
- the ratification of the appointment of Ernst & Young LLP ("E&Y") as our independent registered public accounting firm for our fiscal year ending December 31, 2023.

What if other matters are properly brought before the annual meeting?

As of the date of this proxy statement, we are not aware of any other matters that will be presented for consideration at the annual meeting. If any other matters are properly brought before the annual meeting, the persons named as proxies will be authorized to vote or otherwise act on those matters in accordance with their judgment. If for any reason any of Dr. Peter Farrell, Joseph E. Payne, Andy Sassine, James Barlow, Dr. Edward W. Holmes, Dr. Magda Marquet, Dr. Jing L. Marantz or Dr. John Markels is not available as a candidate for director, the persons named as proxy holders will vote your proxy for such other candidate as may be nominated by our Board.

How does the Board recommend that I vote?

Our Board recommends that you vote your shares:

- **“FOR”** the election of Dr. Peter Farrell, Joseph E. Payne, Andy Sassine, James Barlow, Dr. Edward W. Holmes, Dr. Magda Marquet, Dr. Jing L. Marantz and Dr. John H. Markels to the Board;
- **“FOR”** the Say on Pay Proposal;
- **“FOR”** the ratification of the appointment of E&Y as our independent registered public accounting firm for our fiscal year ending December 31, 2023.

Can I change my vote or revoke my proxy?

Stockholder of Record: Shares Registered in Your Name.

If you are a stockholder of record, you can change your vote or revoke your proxy at any time before the annual meeting by:

- entering a new vote over the Internet (until the applicable deadline set forth above);
- returning a later-dated proxy card (which automatically revokes the earlier proxy);
- providing a written notice of revocation to our corporate secretary at Arcturus Therapeutics Holdings Inc., 10628 Science Center Drive, Suite 250, San Diego, California 92121, Attn: Corporate Secretary; or
- attending the annual meeting and voting in person.

Beneficial Owner: Shares Registered in the Name of a Broker, Bank or Other Nominee. If you are the beneficial owner of your shares, you must contact the broker, bank or other nominee holding your shares and follow their instructions to change your vote or revoke your proxy.

What is the effect of giving a proxy?

Proxies are solicited by, and on behalf of, our Board. Joseph E. Payne, our President and Chief Executive Officer, and Dr. Peter Farrell, our Chairman, have been designated as proxies for the annual meeting by our Board. When proxies are properly dated, executed and returned, the shares represented by such proxies will be voted at the annual meeting in accordance with the instruction of the stockholder. If no specific instructions are given, however, the shares will be voted in accordance with the recommendations of our Board as described above and, if any other matters are properly brought before the annual meeting, the shares will be voted in accordance with the proxies' judgment.

How many votes do I have?

On each matter to be voted upon at the annual meeting, each stockholder will be entitled to one vote for each share of our common stock held by them on the record date.

What is the quorum requirement for the annual meeting?

A quorum is the minimum number of shares required to be present or represented at the annual meeting for the meeting to be properly held under our bylaws and Delaware law. Holders of at least 33.33% of the voting power of our outstanding common stock entitled to vote at the annual meeting must be present in person or represented by proxy for us to hold and transact business at the annual meeting. On the record date, there were 26,562,951 shares outstanding and entitled to vote. Thus, the holders of at least 8,765,774 shares must be present in person or represented by proxy at the annual meeting to have a quorum.

Abstentions, “WITHHOLD” votes, and “broker non-votes” (as explained below) are counted as present and entitled to vote for purposes of determining a quorum. If there is no quorum, the meeting may be adjourned to another date by the chairman of the meeting or the holders of a majority of the voting power present in person or represented by proxy at the annual meeting and entitled to vote.

What are broker non-votes?

Broker non-votes occur when a beneficial owner of shares held in “street name” does not give instructions to the broker holding the shares as to how to vote on matters deemed “non-routine” and there is at least one “routine” matter to be voted upon at the meeting. Generally, if shares are held in street name, the beneficial owner of the shares is entitled to give voting instructions to the broker holding the shares. If the beneficial owner does not provide voting instructions, the broker can still vote the shares with respect to matters that are considered to be “routine,” but not with respect to “non-routine,” matters. In the event that a broker votes shares on the “routine” matters, but does not vote shares on the “non-routine” matters, those shares will be treated as broker non-votes with respect to the “non-routine” proposals. Accordingly, if you own shares through a nominee, such as a broker or bank, please be sure to instruct your nominee how to vote to ensure that your vote is counted on each of the proposals.

What matters are considered “routine” and “non-routine”?

The ratification of the appointment of E&Y as our independent registered public accounting firm for our fiscal year ending December 31, 2023 (Proposal No. 3) is considered routine under the rules of the Nasdaq Stock Market LLC (“Nasdaq”). All other proposals are considered “non-routine” under applicable federal securities rules and the rules of The Nasdaq Stock Market LLC.

What are the effects of abstentions and broker non-votes?

An abstention represents a stockholder’s affirmative choice to decline to vote on a proposal. If a stockholder indicates on its proxy card that it wishes to abstain from voting its shares, or if a broker, bank or other nominee holding its customers’ shares of record causes abstentions to be recorded for shares, these shares will be considered present and entitled to vote at the annual meeting. As a result, abstentions will be counted for purposes of determining the presence or absence of a quorum and will also count as votes against a proposal in cases where approval of the proposal requires the affirmative vote of a majority of the shares present in person or represented by proxy and entitled to vote at the annual meeting (Proposal No. 2 and 3). However, because the outcome of Proposal No. 1 (election of directors) will be determined by a plurality vote, abstentions will have no impact on the outcome of such proposal as long as a quorum exists.

Broker non-votes will be counted for purposes of calculating whether a quorum is present at the annual meeting, but will not be counted for purposes of determining the number of votes cast. Therefore, a broker non-vote will make a quorum more readily attainable but will not otherwise affect the outcome of the vote on any proposal.

What is the voting requirement to approve each of the proposals?

Proposal No. 1: Election of Directors. The election of each of Dr. Peter Farrell, Joseph E. Payne, Andy Sassine, James Barlow, Dr. Edward W. Holmes, Dr. Magda Marquet, Dr. Jing L. Marantz and Dr. John H. Markels to the Board requires a plurality of the votes cast by the holders of shares present in person or represented by proxy at the annual meeting and entitled to vote on the election of a director. This means that if each of the nominees receives one or more votes, he or she will be elected as a director. You may vote “FOR” or “WITHHOLD” for each of the nominees. Because the outcome of this proposal will be determined by a plurality vote, shares voted “WITHHOLD” will not prevent each of Dr. Peter Farrell, Joseph E. Payne, Andy Sassine, James Barlow, Dr. Edward W. Holmes, Dr. Magda Marquet, Dr. Jing L. Marantz and Dr. John H. Markels from being elected as a director. Shares voted “WITHHOLD” will count towards the quorum requirement for the annual meeting.

Proposal No. 2: Say on Pay. The approval, on an advisory basis, of the Say on Pay Proposal requires the affirmative vote of a majority of the shares present in person or represented by proxy at the annual meeting and entitled to vote thereon to be approved. You may vote “FOR,” “AGAINST,” or “ABSTAIN” on this proposal. Abstentions will count towards the quorum requirement for the annual meeting and will have the same effect as a vote against the proposal.

Proposal No. 3: Ratification of Appointment of E&Y. The ratification of the appointment of E&Y requires the affirmative vote of a majority of the shares present in person or represented by proxy at the annual meeting and entitled to vote thereon to be approved. You may vote “FOR,” “AGAINST,” or “ABSTAIN” on this proposal. Abstentions will count towards the quorum requirement for the annual meeting and will have the same effect as a vote against the proposal.

Who will count the votes?

A representative of Continental will tabulate the votes and may act as inspector of elections.

What if I do not specify how my shares are to be voted or fail to provide timely directions to my broker, bank or other nominee?

Stockholder of Record: Shares Registered in Your Name. If you are a stockholder of record and you submit a proxy but you do not provide voting instructions, your shares will be voted:

- **“FOR”** the election of Dr. Peter Farrell, Joseph E. Payne, Andy Sassine, James Barlow, Dr. Edward W. Holmes, Dr. Magda Marquet, Dr. Jing L. Marantz and Dr. John H. Markels to the Board;
- **“FOR”** the Say on Pay Proposal; and
- **“FOR”** the ratification of the appointment of E&Y as our independent registered public accounting firm for our fiscal year ending December 31, 2023.

In addition, if any other matters are properly brought before the annual meeting, the persons named as proxies will be authorized to vote or otherwise act on those matters in accordance with their judgment.

Beneficial Owner: Shares Registered in the Name of a Broker, Bank or Other Nominee. Brokers, banks and other nominees holding shares of common stock in street name for customers are generally required to vote such shares in the manner directed by their customers. In the absence of timely directions, your broker, bank or other nominee will have discretion to vote your shares on our sole “routine” matter - Proposal No. 3 relating to ratifying the appointment of E&Y. Absent direction from you, however, your broker, bank or other nominee will not have the discretion to vote on Proposal No. 1 or 2.

How can I contact Arcturus’ transfer agent?

You may contact our transfer agent by writing Continental Stock Transfer & Trust Company, 1 State Street, 30th Floor, New York, NY 10014. You may also contact our transfer agent via email at cstmail@continentalstock.com or by telephone at (212) 509-4000.

How are proxies solicited for the annual meeting, and who is paying for such solicitation?

Our Board is soliciting proxies for use at the annual meeting by means of the proxy materials. We will bear the entire cost of proxy solicitation, including the preparation, assembly, printing, mailing and distribution of the proxy materials. Copies of solicitation materials will also be made available upon request to brokers, banks and other nominees to forward to the beneficial owners of the shares held of record by such brokers, banks or other nominees. The original solicitation of proxies may be supplemented by solicitation by telephone, electronic communication, or other means by our directors, officers or employees. No additional compensation will be paid to these individuals for any such services, although we may reimburse such individuals for their reasonable out-of-pocket expenses in connection with such solicitation. We do not plan to retain a proxy solicitor to assist in the solicitation of proxies, although we may engage a proxy solicitor in the future.

If you choose to access the proxy materials and/or vote over the Internet, or attend the annual meeting, you are responsible for any Internet access charges you may incur.

Where can I find the voting results of the annual meeting?

We will announce preliminary voting results at the annual meeting. We will also disclose voting results on a Current Report on Form 8-K filed with the Securities and Exchange Commission (“SEC”), within four business days after the annual meeting. If final voting results are not available to us in time to file a Current Report on Form 8-K within four business days after the annual meeting, we will file a Current Report on Form 8-K to publish preliminary results and, within four business days after final results are known, file an additional Current Report on Form 8-K to publish the final results.

What does it mean if I receive more than one set of printed materials?

If you receive more than one set of printed materials, your shares may be registered in more than one name and/or are registered in different accounts. Please follow the voting instructions on each set of printed materials to ensure that all of your shares are voted.

I share an address with another stockholder, and we received only one printed copy of the proxy materials. How may I obtain an additional copy of the proxy materials?

We have adopted an SEC-approved procedure called “householding,” under which we can deliver a single copy of the proxy materials and annual report to multiple stockholders who share the same address unless we receive contrary instructions from one or more of the stockholders. This procedure reduces our printing and mailing costs. Stockholders who participate in householding will continue to be able to access and receive separate proxy cards. Upon written or oral request, we will undertake to promptly deliver a separate copy of the proxy materials and annual report to any stockholder at a shared address to which we delivered a single copy of any of these documents. To receive a separate copy, or, if you are receiving multiple copies, to request that we only send a single copy of next year’s proxy materials and annual report, you may contact us at the address below, or call us at 858-900-2660:

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

Stockholders who hold shares in street name may contact their brokerage firm, bank, broker-dealer or other nominee to request information about householding.

When are stockholder proposals due for next year’s annual meeting?

Please see the section entitled “*Proposals of Stockholders for 2024 Annual Meeting*” in this proxy statement for more information regarding the deadlines for the submission of stockholder proposals for our 2024 annual meeting.

BOARD OF DIRECTORS AND CORPORATE GOVERNANCE

Composition of the Board

Our Board is currently composed of eight members. The following table sets forth the names, ages, and certain other information for our directors.

Name	Age	Position(s)	Director Since
Dr. Peter Farrell	80	Chairman of the Board	May 2018
Joseph E. Payne	51	President, Chief Executive Officer and Director	March 2013
Andy Sassine	58	Chief Financial Officer and Director	May 2018
James Barlow	64	Director	May 2018
Dr. Edward W. Holmes	82	Director	September 2019
Dr. Magda Marquet	64	Director	May 2018
Dr. Jing L. Marantz	57	Director	December 2021
Dr. John H. Markels	57	Director	December 2022

Dr. Peter Farrell is the Chairman of our Board, a position he has held since May 2018. In addition, Dr. Farrell is the founder, former long-term CEO and current Chairman of ResMed Inc. (NYSE:RMD). Dr. Farrell has been Chairman and a director of ResMed since 1989, when the company began as a management buyout of sleep technology from Baxter Healthcare. Peter was previously Foundation Director of the University of New South Wales (UNSW) Graduate School for Biomedical Engineering (1978-89) while simultaneously serving as Vice President of Research & Development for Baxter Healthcare in Tokyo (1984-89). Dr. Farrell served on the board of directors of NuVasive, Inc., a company focused on the surgical treatment of spine disorders. Dr. Farrell serves on the board of trustees of The Scripps Research Institute in La Jolla and is Chairman of the Boston-based POC NMR diagnostic company, WaveGuide. Since July 2019, Dr. Farrell has been a director of Evolus, Inc. (EOLS). Dr. Farrell is a fellow or honorary fellow of several professional bodies, including the US National Academy of Engineering. He was inducted as 1998 San Diego Entrepreneur of the Year for Health Sciences, 2001 Australian Entrepreneur of the Year and 2005 US National Entrepreneur of the Year for Health Sciences. Dr. Farrell was appointed to the Executive Council of the division of Sleep Medicine at Harvard Medical School in 1998, was appointed Vice Chairman in 2000 (2000-2010), became Chairman in 2010 and served in that capacity for three years. He is on various academic advisory boards including UCSD's Jacobs School of Engineering, where he was named the 2012 Gordon Fellow, UCSD's Rady Business School and the MIT Dean of Engineering's Advisory Council. Dr. Farrell holds a B.E. with honors in chemical engineering from the University of Sydney, an SM in chemical engineering from MIT, a PhD in bioengineering from the University of Washington, Seattle, and a DSc from UNSW for research which resulted in improved treatment for both hemodialysis and peritoneal dialysis patients. Dr. Farrell is nominated for re-election on our Board because of his significant experience as an executive and director of a number of companies in the healthcare sector.

Joseph E. Payne is our President and Chief Executive Officer, positions he has held since March 2013. Mr. Payne served on our predecessor's board since March 2013. He brings with him an exceptional track record of ushering novel therapeutics to the clinic including targeted RNA medicines utilizing lipid-mediated delivery technologies. Mr. Payne's background includes over 20 years of successful drug discovery experience at Merck Research Labs, DuPont Pharmaceuticals, Bristol-Myers Squibb, Kalypsys, and Nitto Denko Corporation as evidenced by over 40 publications and patents, and several investigational new drug (IND) clinical candidates. His academic training includes a Bachelor's Degree in Chemistry, magna cum laude from Brigham Young University, a Master of Science in Synthetic Organic Chemistry from the University of Calgary and Executive Training Certification from MIT Sloan School of Management. He served on the board of directors of Vallon Pharmaceuticals Inc., a public clinical-stage company focused on the development and commercialization of novel abuse-deterrent medications for CNS disorders, until April 2023. Mr. Payne is nominated for re-election on our Board because of his position as our President and Chief Executive Officer and his significant experience in the pharmaceutical sector. As a member of our executive team, Mr. Payne serves a vital function in the link between management and our Board, enabling the Board to perform its oversight function with the benefits of management's perspective on the business.

Andy Sassine has served as our Chief Financial Officer since January 2019. Mr. Sassine served as one of our directors from May 2018 until June 2019, and was reelected as a director in September 2019. Mr. Sassine serves on the board of directors of iCAD Inc. (NASDAQ:ICAD), a leading provider of advanced image analysis, workflow solutions and radiation therapy for early detection and treatment of cancer. Mr. Sassine served in various positions at Fidelity Investments from 1999 to 2012, including, most recently as Portfolio Manager. Between 2004 and 2011, he managed the Fidelity Small Cap Stock Fund, the Fidelity International Small Cap Opportunities Fund and the Fidelity Advisor International Small Cap Opportunities Fund. Mr. Sassine joined Fidelity as a high yield research analyst, covering the Telecommunications, Satellite, Technology, Defense and Aerospace, and Restaurant Industries and in 2001, joined the international group as a research analyst covering small and mid-cap international stocks. Mr. Sassine previously served on the boards of Excicure, Inc., MYnd Analytics, Inc., Acorn Energy, Freedom Meditech, Inc., Gemphire Therapeutics, Inc., and MD Revolution. Mr. Sassine was a member of the Henry B. Tippie College of Business, University of Iowa Board of Advisors from 2009 to 2018 and served on the Board of Trustees at the Clarke Schools for Hearing and Speech from 2009 to 2014. Mr. Sassine earned a Bachelor of Arts degree at the University of Iowa in 1987 and an MBA from the Wharton School at the University of Pennsylvania in 1993. Mr. Sassine is nominated for re-election on our Board because of his position as our Chief Financial Officer and his extensive knowledge and experience as a fund manager and board member of other similarly-sized companies.

James Barlow is a member of the board of directors of NAHS Holding, Inc., an Employee Stock Ownership Plan company, whose affiliates provide post-acute care, subacute care, short and long-term rehabilitation, and skilled nursing in the United States. Mr. Barlow is a C-level financial executive with more than 30 years of experience leading teams in the successful strategic achievement of financial and operational goals, and expertise in domestic and international operations, financial planning, forecasting and reporting, restructurings, business development and integrations, treasury and investor relations. As an Executive Officer (Principal Accounting Officer) at Allergan, Inc. from January 2002 to March 2015, he oversaw financial due diligence, integration and structuring for all significant asset purchases, sales, business combinations and licensing transactions, the spin-off of Advanced Medical Optics, the \$3.3 billion acquisition of Inamed Corporation and more than \$4.5 billion in other transactions. He ensured consistent application of corporate policies and procedures and alignment with global reporting and corporate compliance requirements, made recommendations globally to improve financial operations and participated in robust financial planning/forecasting activities. Prior to joining Allergan, Mr. Barlow served as Chief Financial Officer of Wynn Oil Company, a division of Parker Hannifin Corporation, during 2001, Treasurer and Controller of Wynn's International, Inc. from 1990 to 2000 and Vice President and Controller of Ford Equipment Leasing Company from 1986 to 1990. From 1983 to 1985 Mr. Barlow worked for the accounting firm Deloitte Haskins and Sells. Mr. Barlow received a Bachelor of Science degree in Accounting, graduating magna cum laude, from Brigham Young University and a Master of Accountancy, graduating with honors—high distinction, from Brigham Young University. He is a certified public accountant (inactive). Mr. Barlow is nominated for re-election on our Board of Directors because of his significant experience as an executive and director of a number of companies in the healthcare sector, and because of his financial and accounting expertise.

Dr. Edward W. Holmes has served as a member of our Board of Directors since September 2019. Dr. Holmes is currently a Distinguished Professor of Medicine at the University of California, Vice Chancellor/Dean of Health Sciences Emeritus at the University of California, San Diego, and CEO/President of the Sanford Consortium for Regenerative Medicine. Dr. Holmes has served as Chair of the Department of Medicine at the University of Pennsylvania, Vice President for Translational Medicine at Stanford University, and Vice Chancellor/Dean of Duke University School of Medicine. Dr. Holmes was the Executive Deputy Chairman of the Biomedical Research Council and the Executive Chairman of the National Medical Research Council in Singapore; he was a Senior Fellow in A*STAR and Advisor to the National Research Council of Singapore. He holds an appointment as the Lien Ying Chow Professor of Medicine at the Yong Loo Lin School of Medicine, National University of Singapore. For his contributions to the Singapore government, Dr. Holmes was made an Honorary Citizen in 2011, and he was awarded the President's Science and Technology Medal in 2017. Dr. Holmes also served on the Council of Advisors for the National Institute for Diabetes, Digestive, and Kidney Diseases of the National Institutes of Health. He served as Chair of the Research Advisory Board of GlaxoSmithKline, on the scientific advisory board of Ajinomoto and on the board of directors of Tularik, Inc. He also served on the Grand Challenges Explorations Innovation Review Panel for the Gates Foundation. He has been elected to membership in the American Society for Clinical Investigation, the Association of American Physicians, Fellow of the American Association for the Advancement of Science, and a member of the United States National Academy of Medicine. Dr. Holmes holds a Doctor of Medicine degree from the University of Pennsylvania. Dr. Holmes is nominated for re-election on our Board because of his significant experience in research, medicine and genetics.

Dr. Magda Marquet, Ph.D., joined our Board of Directors in 2018. Dr. Marquet has served as co-founder and co-chief executive officer of ALMA Life Sciences LLC, an early-stage healthcare investment firm, since 2013. Dr. Marquet also has been a co-founder of AltheaDx, a biotechnology company, since 2009. Dr. Marquet previously served as the co-founder and chairman of Althea Technologies, a biotechnology company, from 2009 to 2019, and previously served as its co-president and co-chief executive officer from 1998 to 2009. Prior to starting Althea Technologies, Dr. Marquet held several positions in product development and pharmaceutical development in companies such as Vical and Amylin Pharmaceuticals. Dr. Marquet served on the board of directors of Pfenex from 2019 until its acquisition by Ligand Pharmaceuticals in October 2020 and now serves on the board of directors of AnaptysBio since January 2021 as well as several private company boards. Dr. Marquet holds a Ph.D. in biochemical engineering from INSA/University of Toulouse, France. Dr. Marquet is nominated for re-election on our Board because of her significant experience as an executive and director of a number of companies in the life sciences sector, and because of her management and clinical expertise.

Dr. Jing L. Marantz, M.D., Ph.D., MBA, joined our Board of Directors in December 2021. Dr. Marantz has served as Chief Business Officer of Krystal Biotech, Inc., a clinical stage gene therapy company, since January 2022 after serving on its board since January 2021. Dr. Marantz previously served as Senior Vice President, Head of Medical Affairs of Acceleron Pharma, Inc. from October 2020 until its acquisition by Merck & Co, Inc. in November 2021. From June 2018 to September 2020, Dr. Marantz served as Senior Vice President, Medical Affairs of Alnylam Pharmaceuticals, Inc., a biopharmaceutical company focused on the discovery, development and commercialization of RNA interference therapeutics. She served as Vice President, Global Medical Affairs for Alexion Pharmaceuticals from August 2016 to June 2018 and as Global Medical Lead for TECFIDERA[®] at Biogen from April 2014 to June 2016. Dr. Marantz earned her medical degree from Tongji Medical College, Ph.D. in Biochemistry and Molecular Biology from Medical University of South Carolina and MBA from the University of California at Berkeley.

Dr. John H. Markels, Ph.D., joined our Board of Directors in December 2022. Dr. Markels serves on the board of directors of Sangamo Therapeutics and chairs and serves on the advisory boards for the University of California, Berkeley College of Chemistry and University of Delaware Department of Chemical and Biomolecular Engineering, respectively. Dr. Markels retired from Merck & Co., Inc. (“Merck”) in March 2022, most recently as President of Global Vaccines, where he led an integrated team dedicated to discovery and development, supply and access, and global marketing and long-term strategy for the vaccines portfolio. Earlier roles at Merck included President, Latin America from January 2018 to January 2019, SVP, Global Human Health Business Strategy from January 2017 to December 2017, Managing Director, Mexico from November 2013 to January 2017. Prior to his commercial roles, he had a long career in senior leadership positions in global manufacturing, including operations leadership for Europe, Middle East and Africa, Asia Pacific and emerging markets as well as manufacturing technology and product development roles in active pharmaceutical ingredients (API) and vaccines. Dr. Markels received his Ph.D. in chemical engineering from the University of California, Berkeley and his B.S. in chemical engineering from the University of Delaware.

Director Independence

The listing rules of Nasdaq require us to maintain a Board comprised of a majority of independent directors, as determined affirmatively by our Board. In addition, the Nasdaq listing rules require that, subject to specified exceptions, each member of our audit, compensation and nominating and corporate governance committees must be independent. Audit committee members and compensation committee members must also satisfy the independence criteria set forth in Rule 10A-3 and Rule 10C-1, respectively, under the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Under the Nasdaq listing rules, a director will only qualify as an “independent director” if, in the opinion of our Board, the director does not have a relationship that would interfere with the exercise of independent judgment in carrying out his or her responsibilities.

Our Board has undertaken a review of the independence of our directors and considered whether any director has a material relationship with us that could compromise his or her ability to exercise independent judgment in carrying out his or her responsibilities. Based upon information requested from and provided by each director concerning his or her background, employment and affiliations, including family relationships, our Board has determined that none of Dr. Farrell, Mr. Barlow, Dr. Holmes, Dr. Marquet, Dr. Marantz and Dr. Markels (representing six of our eight directors), has a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director and that they each are an “independent director” as that term is defined under the Nasdaq listing rules. Mr. Payne is not considered independent due to his position as our President and Chief Executive Officer. Mr. Sassine is not considered independent due to his position as our Chief Financial Officer.

In making these determinations, our Board considered the relationships that each nonemployee director has with us and all other facts and circumstances our Board deemed relevant in determining their independence, including consulting relationships, family relationships and the beneficial ownership of our capital stock by each non-employee director.

Board Leadership Structure

Our Board is currently chaired by Dr. Farrell. Our Board believes that we and our stockholders are currently best served by this leadership structure. As Chairman, Dr. Farrell promotes unified leadership and direction for our Board and management and provides the critical leadership necessary for carrying out our strategic initiatives. Dr. Farrell, together with our Board's strong committee system and independent directors, allows our Board to maintain effective oversight of our business operations, including independent oversight of our financial statements, executive compensation, selection of director candidates, and corporate governance programs. We believe our current Board's leadership structure enhances its ability to effectively carry out its roles and responsibilities on behalf of our stockholders.

Role of Board in Risk Oversight Process

Our Board has an active role, as a whole and also at the committee level, in overseeing risk management. Our Board is responsible for general oversight and regular review of risk management, including financial, strategic, and operational risks. The compensation committee is responsible for overseeing the management of risks relating to our executive compensation plans and arrangements, and whether our compensation policies and programs have the potential to encourage excessive risk taking. The audit committee is responsible for overseeing the management of risks relating to accounting matters and financial reporting. The nominating and corporate governance committee is responsible for overseeing our corporate governance practices and the management of risks associated with Board independence and potential conflicts of interest. Although each committee is responsible for evaluating and overseeing the management of certain risks, the entire Board is regularly informed through discussions from committee members about such risks. The Board believes its leadership structure is consistent with and supports the administration of its risk oversight function.

Board Meetings and Committees

During 2022, our Board held nine meetings, and each director attended at least 75% of the aggregate of (i) the total number of meetings of our Board held during the period for which he or she has been a director and (ii) the total number of meetings held by all committees of our Board on which he or she served during the periods that he or she served.

Our Board has established an audit committee, a compensation committee and a nominating and corporate governance committee. The composition and responsibilities of each of the committees of our Board is described below.

Audit Committee

Our audit committee members currently consist of Mr. Barlow, Dr. Holmes and Dr. Marquet. Mr. Barlow serves as the chairman. Each of the members of our audit committee is an independent director under the Nasdaq listing rules, satisfies the additional independence criteria for audit committee members and satisfies the requirements for financial literacy under the Nasdaq listing rules and Rule 10A-3 of the Exchange Act, as applicable.

Our Board has also determined that Mr. Barlow qualifies as an audit committee financial expert within the meaning of the applicable rules and regulations of the SEC and satisfies the financial sophistication requirements of the Nasdaq listing rules.

Our audit committee oversees our corporate accounting and financial reporting process and assists our Board in monitoring our financial systems and our legal and regulatory compliance. Our audit committee also:

- oversees the work of our independent auditors;
- approves the hiring, discharging and compensation of our independent auditors;
- approves engagements of the independent auditors to render any audit or permissible non-audit services;
- reviews the qualifications, independence and performance of the independent auditors;
- reviews our financial statements and our critical accounting policies and estimates;
- reviews the adequacy and effectiveness of our internal controls;
- reviews our policies with respect to risk assessment and risk management;
- reviews and monitors our policies and procedures relating to related person transactions; and
- reviews and discusses with management and the independent auditors the results of our annual audit, our quarterly financial statements and our publicly filed reports.

Our audit committee operates under a written charter approved by our Board and that satisfies the applicable rules and regulations of the SEC and the listing requirements of Nasdaq. The charter is available on the corporate governance section of our website, which is located at <http://ir.arcturusrx.com/governance-highlights>. Our audit committee held four meetings during 2022.

Compensation Committee

The members of our compensation committee are Dr. Marquet, Dr. Marantz and Mr. Barlow. Dr. Marquet is currently the chairwoman of our compensation committee. Our Board has determined that each member of our compensation committee is an independent director under the current rules of Nasdaq, satisfies the additional independence criteria for compensation committee members under Rule 10C-1 of the Exchange Act and the Nasdaq listing rules, is a “non-employee director” within the meaning of Rule 16b-3 under the Exchange Act, and is an “outside director” for purposes of Section 162(m) of the Internal Revenue Code of 1986, as amended (the “Code”).

Our compensation committee oversees our corporate compensation programs. The compensation committee also:

- reviews and recommends for Board approval policies, plans and arrangements relating to compensation and benefits of our officers and employees;
- reviews and recommends for Board approval corporate goals and objectives relevant to the compensation of our Chief Executive Officer and other executive officers;
- evaluates the performance of our executive officers in light of established goals and objectives;
- recommends compensation of our executive officers based on its evaluations;
- reviews director compensation levels and practices, and recommends, from time to time, changes in such compensation levels and practices to the Board;
- reviews and discusses with management the compensation disclosures required by SEC rules;
- engages a compensation consultant, legal counsel or other external advisors to advise on executive compensation and assess the independence of executive officers in accordance with Nasdaq;
- evaluates whether any compensation consultant, legal counsel or other external advisor has a conflict of interest in accordance with the SEC rules; and
- prepares the annual compensation committee report required by SEC rules.

Our compensation committee is also responsible for assessing and monitoring whether any of our compensation policies and programs have the potential to encourage excessive risk-taking.

Our compensation committee operates under a written charter approved by our Board and that satisfies the applicable rules and regulations of the SEC and the listing requirements of Nasdaq. The charter is available on the corporate governance section of our website, which is located at <http://ir.arcturusrx.com/governance-highlights>. Our compensation committee held five meetings during 2022.

Compensation Committee Interlocks and Insider Participation

None of the members of the compensation committee was at any time one of our officers or employees. None of our executive officers serves as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving as members of our Board or compensation committee.

Nominating and Corporate Governance Committee

The members of our nominating and corporate governance committee are Dr. Holmes, Dr. Marantz and Dr. Farrell. Dr. Holmes is the chairman of our nominating and corporate governance committee. Our Board has determined that each member of our nominating and corporate governance committee is independent under the Nasdaq listing rules.

Our nominating and corporate governance committee oversees and assists our Board in reviewing and recommending nominees for election as directors. The nominating and corporate governance committee also:

- evaluates and makes recommendations regarding the organization and governance of our Board and its committees;
- assesses the performance of members of our Board and makes recommendations regarding committee and chair assignments;
- recommends desired qualifications for Board membership and conducts searches for potential members of our Board; and
- reviews and makes recommendations with regard to our corporate governance guidelines.

Our nominating and corporate governance committee operates under a written charter approved by our Board and that satisfies the applicable rules and regulations of the SEC and the listing requirements of Nasdaq. The charter is available on the corporate governance section of our website, which is located at <http://ir.arcturusrx.com/governance-highlights>. Our nominating and corporate governance committee held one meetings during 2022.

Board Diversity

Effective corporate governance is critical for both our long-term performance and maintaining stockholder trust. Our Board is responsible for overseeing the governance, strategy and operation of the Company. Our eight directors come from diverse backgrounds, drawing on their substantial experience across industries and professional designations, including experience related to: biotechnology and pharmaceutical; finance, including investment management and capital markets; healthcare and medical services and operations; philanthropy; public accounting; and higher education.

Board Diversity Matrix

Board Diversity Matrix (As of April 28, 2023)

Total Number of Directors: Eight

	Female	Male	Non-Binary	Did Not Disclose Gender
Part I: Gender Identity				
Directors	2	6	-	-
Part II: Demographic Background				
Asian	1	-	-	-
Hispanic or Latinx	1	-	-	-
White	-	6	-	-
Did Not Disclose Demographic Background			-	

Considerations in Evaluating Director Nominees

In its evaluation of director candidates, including the member or members of the Board eligible for reelection, our nominating and corporate governance committee will consider the following:

- The current size and composition of our Board and the needs of the Board and its respective committees;
- Factors such as character, integrity, judgment, diversity of experience, independence, area of expertise, corporate experience, length of service, potential conflicts of interest, other commitments, and the like. Our nominating and corporate governance committee evaluates these factors, among others, and does not assign any particular weighting or priority to any of these factors; and
- Other factors that our nominating and corporate governance committee may consider appropriate.

The nominating and corporate governance committee also focuses on issues of diversity, such as diversity in experience, international perspective, background, expertise, skills, age, gender, and ethnicity. The nominating and corporate governance committee does not have a formal policy with respect to diversity; however, our Board and the nominating and corporate governance committee believe that it is essential that members of our Board represent diverse viewpoints. Any nominee for a position on the Board must satisfy the following minimum qualifications:

- The highest levels of personal and professional ethics and integrity;
- Proven achievement and competence in the nominee's field and the ability to exercise sound business judgment;
- Skills that are complementary to those of the existing Board;
- The ability to assist and support management and make significant contributions to our success; and
- An understanding of the fiduciary responsibilities required of a member of the Board and the commitment of time and energy necessary to diligently carry out those responsibilities.

If our nominating and corporate governance committee determines that an additional or replacement director is required, the committee may take such measures as it considers appropriate in connection with its evaluation of a director candidate, including candidate interviews, inquiry of the person or persons making the recommendation or nomination, engagement of an outside search firm to gather additional information, or reliance on the knowledge of the members of the committee, Board or management.

After completing its review and evaluation of director candidates, our nominating and corporate governance committee recommends to our full Board the director nominee. Our nominating and corporate governance committee has discretion to decide which individuals to recommend for nomination as directors and our Board has the final authority in determining the selection of director candidates for nomination to our Board.

Requirements for Stockholder Recommendations of a Candidate to our Board

Our nominating and corporate governance committee will consider recommendations for candidates to our Board from our stockholders. A stockholder that wishes to recommend a candidate for consideration by the committee as a potential candidate for director must direct the recommendation in writing to Arcturus Therapeutics Holdings Inc., 10628 Science Center Drive, Suite 250, San Diego, California 92121, Attention: Corporate Secretary, and must include the candidate's name, home and business contact information, detailed biographical data, relevant qualifications, a signed letter from the candidate confirming willingness to serve, information regarding any relationships between us and the candidate and evidence of the recommending stockholder's ownership of our stock. Such recommendation must also include a statement from the recommending stockholder in support of the candidate, particularly within the context of the criteria for Board membership, including character, integrity, judgment, diversity of experience, independence, area of expertise, corporate experience, potential conflicts of interest, other commitments and personal references. Our nominating and corporate governance committee will consider the recommendation but will not be obligated to take any further action with respect to the recommendation. See "*Stockholder Proposals and Director Nominations Not for Inclusion in Proxy Statement*" elsewhere in this proxy statement for additional requirements on the timeliness for recommendations for candidates in connection with next year's annual meeting.

Communications with the Board

In cases where stockholders or other interested parties wish to communicate directly with our non-management directors, messages can be sent to Arcturus Therapeutics Holdings Inc., 10628 Science Center Drive, Suite 250, San Diego, California 92121, Attention: Corporate Secretary. Our corporate secretary monitors these communications and will provide a summary of all received messages to the Board at each regularly scheduled meeting of the Board. Our Board generally meets on a quarterly basis. Where the nature of a communication warrants, our corporate secretary may determine, in his judgment, to obtain the more immediate attention of the appropriate committee of the Board, non-management directors, independent advisors or our management, as our corporate secretary considers appropriate.

Our corporate secretary may decide in the exercise of his or her judgment whether a response to any stockholder or interested party communication is necessary.

This procedure for stockholder and other interested party communications with the non-management directors is administered by our nominating and corporate governance committee. This procedure does not apply to (i) communications to non-management directors from our officers or directors who are stockholders or (ii) stockholder proposals submitted pursuant to Rule 14a-8 under the Exchange Act.

Director Attendance at Annual Meetings

We do not have a formal policy regarding attendance by members of our Board at annual meetings of stockholders. We encourage, but do not require, directors to attend. Three members of our Board attended the 2022 annual meeting of stockholders.

Code of Business Conduct and Ethics

On December 7, 2021, the Board approved and adopted a new Code of Business Conduct and Ethics (the “New Code of Conduct”). The New Code of Conduct is applicable to all directors, officers and employees of the Company and its subsidiaries, including but not limited to the Company’s principal executive officer and principal financial officer. The New Code of Conduct replaces the Company’s previous Code of Business Conduct and Ethics (the “Prior Code”) in its entirety, to reflect current industry and public company best practices

A copy of the New Code of Conduct on the corporate governance section of our website, which is located at <http://ir.arcturusrx.com/governance-highlights>.

Human Capital Management

At Arcturus, dedication to human capital management is a core component of our corporate governance and culture. Our comprehensive approach to human capital management is grounded in our core values of integrity, excellence, and respect for people, which reflect our commitment to creating a safe, supportive, ethical, and rewarding work environment.

As of December 31, 2022 we had 171 full-time employees and no part-time employees.

Environmental, Social and Governance Practices

We do not currently have a formal Environmental, Social and Governance Policy (“ESG Policy”) in place, but plan to do so in the future. We anticipate that the ESG Policy, when adopted by the Board, will include “Human Capital Management” as a key component, and focus on various topics, which may or may not include (1) hiring, promotion and talent development; (2) health and safety; (3) compensation and benefits; and (4) diversity and inclusion. Although we have not adopted a formal ESG Policy, our management and leadership incorporates the foregoing and other environmental, social and governance considerations in all matters related to human capital and human capital management.

Employee, Officer and Director Hedging

Pursuant to our Insider Trading Policy, officers, and employees are prohibited from engaging in any hedging transactions (including transactions involving options, puts, calls, prepaid variable forward contracts, equity swaps, collars and exchange funds, or other derivatives) that are designed to hedge or speculate on any change in the market value of our securities.

DIRECTOR COMPENSATION

Director Compensation Table

The following table and related footnotes show the compensation paid during the year ended December 31, 2022 to our non-employee directors.

Name	Fees Earned or Paid in Cash (\$)	Option Awards (\$) (1)	All Other Compensation (\$)	Total (\$)
Dr. Peter Farrell	\$ 65,000	\$ 240,300	—	\$ 305,300
Mr. James Barlow	\$ 62,500	\$ 240,300	—	\$ 302,800
Dr. Magda Marquet	\$ 52,500	\$ 240,300	—	\$ 292,800
Dr. Edward W. Holmes	\$ 53,054	\$ 240,300	—	\$ 293,345
Dr. Jing L. Marantz	\$ 29,122	\$ 240,300	—	\$ 269,422
Dr. John H. Markels (2)	\$ 0	\$ 486,827	—	\$ 486,827

(1) Represents annual option awards, which vest as set forth below in “*Annual Equity Grants*.”

(2) Dr. John H. Markels was appointed to serve as a member of the Board, effective December 8, 2022.

Narrative to Director Compensation Table

Our director compensation policy is intended to provide a total compensation package that enables us to attract and retain qualified and experienced individuals to serve as directors and to align our directors’ interests with those of our stockholders.

Annual Cash Compensation

The annual retainers payable to non-employee directors for service on the Board and its committees are (i) \$35,000 for service on the Board, (ii) \$5,000 for service on each of the compensation committee and the nominating and corporate governance committee, (iii) \$7,500 for service on the audit committee, (iv) an additional \$20,000 for the Chairman of the Board, (v) an additional \$5,000 for the chairman of each of the compensation committee and the nominating and corporate governance committee, and (vi) an additional \$10,000 for the chairman of the audit committee.

Inaugural Equity Grants

Each non-employee director who joins the board receives an equity award of an option to purchase 20,000 shares of our common stock, which vests monthly over a two-year period from the date of grant.

Annual Equity Grants

Each non-employee director receives an annual equity award of an option to purchase 15,000 shares of our common stock, which vests monthly over a one-year period from the date of grant. New directors receive an annual equity grant that is prorated based on the number of days of their service in the year of grant.

PROPOSAL NUMBER 1

ELECTION OF DIRECTORS

Our Board is currently composed of eight directors. At the annual meeting, each director will be elected to our Board by the holders of our common stock. Each director's term continues until the election and qualification of his or her successor, or such director's earlier death, resignation or removal.

Nominees for Director

Our nominating and corporate governance committee recommended for nomination and our Board nominated each of Dr. Peter Farrell, Joseph E. Payne, Andy Sassine, James Barlow, Dr. Edward W. Holmes, Dr. Magda Marquet, Dr. Jing L. Marantz and Dr. John H. Markels, for election as a director at the annual meeting. If elected, each will serve as a director until our next annual meeting and until his or her respective successor is duly elected and qualified. For more information concerning each of the nominees, please see the section entitled "*Board of Directors and Corporate Governance*."

Each of the nominees has agreed to serve if elected, and management has no reason to believe that he or she will be unavailable to serve. In the event he or she is unable or declines to serve as a director at the time of the annual meeting, proxies will be voted for any nominee who may be proposed by the nominating and corporate governance committee and designated by the present Board to fill the vacancy.

Required Vote

The directors elected to the Board will be elected by a plurality of the votes cast by the holders of shares present in person or represented by proxy and entitled to vote on the election of a director. In other words, if each of the nominees receives a single "FOR" vote, he or she will be elected as a director. Shares represented by executed proxies will be voted, if authority to do so is not expressly withheld, to elect each of Dr. Peter Farrell, Joseph E. Payne, Andy Sassine, James Barlow, Dr. Edward W. Holmes, Dr. Magda Marquet, Dr. Jing L. Marantz and Dr. John H. Markels, as a director. Broker non-votes will have no effect on this proposal.

Board Recommendation:

Our Board recommends a vote "FOR" the election to the Board of each of Dr. Peter Farrell, Joseph E. Payne, Andy Sassine, James Barlow, Dr. Edward W. Holmes, Dr. Magda Marquet, Dr. Jing L. Marantz and Dr. John H. Markels, as a director.

PROPOSAL NUMBER 2

TO APPROVE, BY NON-BINDING ADVISORY VOTE, THE RESOLUTION APPROVING THE COMPANY'S NAMED EXECUTIVE OFFICER COMPENSATION

In accordance with Section 14A of the Exchange Act and the related rules of the SEC, the Company is asking its stockholders to vote to approve, on an advisory (non-binding) basis, the compensation of our named executive officers as disclosed in this proxy statement. This proposal, commonly known as a "say-on-pay" proposal, gives our stockholders the opportunity to express their views on the compensation of our named executive officers. This vote is not intended to address any specific item of compensation, but rather the overall compensation of our named executive officers and the principles, policies and practices described in this proxy statement. Accordingly, the following advisory resolution is submitted for stockholder vote at the annual meeting:

RESOLVED, that the stockholders of Arcturus Therapeutics Holdings Inc. (the "Company") approve, on an advisory basis, the compensation of the Company's named executive officers as disclosed in this proxy statement pursuant to the compensation disclosure rules of the Securities and Exchange Commission, including the compensation tables regarding named executive officer compensation and the narrative disclosures that accompany the compensation tables.

Although the "say-on-pay" vote is non-binding, the board of directors and the compensation committee will carefully review and consider the voting results when evaluating our named executive officer compensation program.

Required Vote

The Say on Pay Proposal requires the affirmative vote of a majority of the shares present in person or represented by proxy at the annual meeting and entitled to vote thereon to be approved. You may vote "FOR," "AGAINST," or "ABSTAIN" on this proposal. Abstentions will count towards the quorum requirement for the annual meeting and will have the same effect as a vote against the proposal. Broker non-votes will have no effect on this proposal.

Board Recommendation

Our board of directors recommends a vote "FOR" the approval of the non-binding advisory resolution approving the Company's Named Executive Officer compensation.

PROPOSAL NUMBER 3

RATIFICATION OF APPOINTMENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Our audit committee has appointed E&Y as the independent registered public accounting firm to audit our consolidated financial statements for the year ending December 31, 2023.

Notwithstanding such appointment and even if our stockholders ratify such appointment, our audit committee, in its discretion, may appoint another independent registered public accounting firm at any time during the year if it believes that such a change would be in the best interests of Arcturus and its stockholders. Our audit committee is submitting the appointment of E&Y to our stockholders because we value our stockholders' views on such appointment and as a matter of good corporate governance. If the appointment is not ratified by our stockholders, our audit committee may consider appointing another independent registered public accounting firm. A representative of E&Y is expected to be present at the annual meeting, and will be available to respond to appropriate questions following the annual meeting, but is not expected to make a statement.

Fees Paid to the Independent Registered Public Accounting Firm

The following table sets forth the fees billed to us and our subsidiaries by Ernst & Young LLP, an independent registered public accounting firm, which served as our principal accountant for the years ended December 31, 2022 and 2021, respectively.

(US Dollars in thousands)	2022	2021
Audit fees ⁽¹⁾	\$ 1,074	\$ 1,020
Audit-related fees	—	—
Tax fees ⁽²⁾	201	64
All other fees	—	—
Total	\$ 1,275	\$ 1,084

(1) Includes fees for professional services rendered by our principal accountant in connection with the audit of our consolidated annual financial statements and services that would normally be provided by our principal accountant in connection with statutory and regulatory filings or engagements.

(2) Tax fees are fees for services (including tax services provided in connection with our redomicile to the United States) rendered by our respective principal accountants in connection with tax compliance, tax planning and tax advice.

All fees described above were pre-approved by the audit committee.

Auditor Independence

In 2022, there were no other professional services provided by E&Y that would have required our audit committee to consider their compatibility with maintaining the independence of E&Y.

Pre-Approval Policy

Our audit committee has a pre-approval policy for the engagement of our independent registered public accounting firm to perform certain audit and non-audit services. Pursuant to this policy, which is designed to assure that such engagements do not impair the independence of our auditors, the audit committee pre-approves annually a catalog of specific audit and non-audit services in the categories of audit services, audit-related services and tax services that may be performed by our independent registered public accounting firm. If a type of service, that is to be provided by our auditors, has not received such general pre-approval, it will require specific pre-approval by our audit committee. The policy prohibits retention of the independent registered public accounting firm to perform the prohibited non-audit functions defined in applicable SEC rules.

Required Vote

Ratification of the appointment of E&Y as our independent registered public accounting firm for the year ending December 31, 2023 requires the affirmative “FOR” vote of a majority of the shares present in person or represented by proxy at the annual meeting and entitled to vote on the proposal. You may vote “FOR,” “AGAINST,” or “ABSTAIN” on this proposal. Abstentions have the same effect as a vote against the proposal. Broker non-votes will have no effect on this proposal.

Board Recommendation

Our Board recommends a vote “FOR” the ratification of the appointment of E&Y as our independent registered public accounting firm for the year ending December 31, 2023.

REPORT OF THE AUDIT COMMITTEE

The audit committee is a committee of our Board comprised solely of independent directors as required by the listing standards of Nasdaq and rules and regulations of the SEC. The audit committee operates under a written charter approved by our Board, which is available on the corporate governance section of our web site at <http://ir.arcturusrx.com/governance-highlights>. The audit committee held 4 meetings in 2022. The meetings of the audit committee are designed to facilitate and encourage communication among the audit committee, us and our independent auditor. The composition of the audit committee, the attributes of its members and the responsibilities of the audit committee, as reflected in its charter, are intended to comply with applicable requirements for corporate audit committees. The audit committee reviews and assesses the adequacy of its charter and its performance on an annual basis.

With respect to our financial reporting process, our management is responsible for (i) establishing and maintaining internal controls and (ii) preparing our consolidated financial statements. Arcturus' independent registered public accounting firm is responsible for performing an independent audit of Arcturus' consolidated financial statements in accordance with the auditing standards of the Public Company Accounting Oversight Board (United States), or PCAOB, and to issue a report thereon. It is the responsibility of the audit committee to oversee these activities. Specifically, the audit committee is responsible for the appointment, compensation, and general oversight of the external auditor, as well as fee negotiations with the external auditor. It is not the responsibility of the audit committee to prepare Arcturus financial statements. These are the fundamental responsibilities of management. In the performance of its oversight function, the audit committee has:

- reviewed and discussed the audited financial statements for fiscal year 2022 with the management of Arcturus;
- discussed with E&Y, Arcturus' independent registered public accounting firm for fiscal year 2022, the matters required to be discussed by Auditing Standard No. 16, Communications with Audit Committees, as amended (AICPA, Professional Standards, Vol. 1, section 380), and as adopted by the PCAOB in Rule 3200T; and
- received the written disclosures and the letter from E&Y as required by applicable requirements of the PCAOB regarding E&Y's communications with the audit committee concerning independence, and has discussed with E&Y its independence.

Based on the audit committee's review of the audited financial statements and the various discussions with management and E&Y, the audit committee recommended to our Board that the audited financial statements be included in our annual report on Form 10-K for the fiscal year ended December 31, 2022 for filing with the SEC.

James Barlow
Dr. Edward Holmes
Dr. Magda Marquet

This report of the audit committee shall not be deemed to be "soliciting material" or to be "filed" with the SEC or subject to Regulation 14A promulgated by the SEC or Section 18 of the Exchange Act, and shall not be deemed incorporated by reference into any prior or subsequent filing by Arcturus under the Securities Act of 1933, as amended (the "Securities Act"), or the Exchange Act, except to the extent Arcturus specifically requests that the information be treated as "soliciting material" or specifically incorporates it by reference.

EXECUTIVE OFFICERS

The names of our executive officers, their ages, their positions with us and other biographical information are set forth below. There are no family relationships among any of our directors and executive officers.

Name	Age	Position(s)
Joseph E. Payne	51	President and Chief Executive Officer
Andy Sassine	58	Chief Financial Officer
Dr. Padmanabh Chivukula	44	Chief Scientific Officer and Chief Operating Officer
Lance Kurata	53	Chief Legal Officer

Biographical information for Joseph E. Payne and Andy Sassine is set forth above in the section titled “*Board of Directors and Corporate Governance.*”

Dr. Padmanabh Chivukula has served as our Chief Scientific Officer and Chief Operating Officer since 2013. Dr. Chivukula has an exceptional and technically solid foundation in nanoparticle technology. From 2008 until February 2013, Dr. Chivukula was employed by Nitto Denko Corporation, where his titles included Group Leader and Chief Scientist. Dr. Chivukula brings over 15 years of experience in drug delivery and therapeutic drug development, including leading the polymeric RNAi research department at Nitto. Dr. Chivukula has a Ph.D. in Pharmaceutical Chemistry from the University of Utah where he specialized in nano particle technology.

Lance Kurata has served as our Chief Legal Officer since August 2020. Prior to joining Arcturus, Mr. Kurata was Partner and Chair of West Coast Technology Transactions at Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, PC. From 2002 to 2006, he was a partner at Fish & Richardson, where he was a member of the corporate group and nationwide head of the technology transactions practice. From 1996 until 2002, Mr. Kurata practiced corporate law at Brobeck Phleger & Harrison, specializing in strategic collaborations, public and private financings, mergers and acquisitions and corporate governance. Mr. Kurata obtained his B.A. from University of California, Los Angeles and he earned his J.D. from Stanford Law School.

EXECUTIVE COMPENSATION

Compensation Discussion and Analysis

Introduction

The Compensation Discussion and Analysis is designed to provide our stockholders with an understanding of our executive compensation philosophy and decision-making process. It discusses the principles underlying the structure of the compensation arrangements for our Chief Executive Officer and our other two most highly compensated executive officers who were serving as executive officers on December 31, 2022 (the “NEOs”). Unless noted otherwise, any reference within the Compensation Discussion and Analysis to decisions made by the board of directors refers to the decisions made by the independent members of the board of directors only. This Compensation Discussion and Analysis primarily focuses on the compensation of our NEOs, as identified in the table below.

Name	Title
Joseph E. Payne	President and Chief Executive Officer
Dr. Padmanabh Chivukula	Chief Scientific Officer, Chief Operating Officer
Andy Sassine	Chief Financial Officer

Our current compensation programs for the NEOs are determined and approved by our board of directors, acting at the recommendation of the compensation committee. As described in more detail above under the caption “Board Meetings and Committees—Compensation Committee,” the compensation committee takes into account Mr. Payne’s recommendations regarding the compensation for our executive officers, although Mr. Payne does not participate in the deliberations or determinations of his own compensation. The other NEOs did not have any role in determining or recommending the form or amount of compensation paid to any of our executive officers.

Company Performance Highlights

In assessing the appropriate level of compensation for our executive officers, we take into account the overall performance of the Company against the specific annual corporate objectives established by the board of directors at the beginning of that year, as well as qualitative considerations related to drug discovery and development, drug commercialization, and financial activities (including financing).

The biotechnology industry is characterized by stock price volatility and, as a result, our focus on pay-for-performance is based on an assessment of the level of the Company's achievement against those specific objectives. For more information, see the section titled "Company Performance Objectives" in this proxy statement. In addition to considering the Company's accomplishments and progress each year, we also think it is important to consider the long-term performance of the executive leadership team. We believe that the skills, creativity and dedication of executive leadership have led to numerous significant accomplishments, including the following from January 2022 through December 2022:

- **LUNAR-COV19; ARCT-154:** Our vaccines franchise, led by our self-amplifying mRNA based COVID-19 program, made significant strides in 2022.
 - o In April 2022, the Phase 1/2/3 study in Vietnam of ARCT-154, our lead self-amplifying mRNA COVID-19 vaccine candidate, completed dosing of over 19,000 participants and we announced that ARCT-154 met its primary efficacy endpoint in the study.
 - o In November 2022, we entered into a Collaboration and License Agreement (the "CSL Collaboration Agreement") with Seqirus, Inc. ("CSL Seqirus"), a part of CSL Limited, and one of the world's leading influenza vaccine providers, for the global exclusive rights to research, develop, manufacture and commercialize self-amplifying mRNA vaccines against COVID-19, influenza and three other respiratory infectious diseases with non-exclusive rights to pandemic pathogens. The CSL Collaboration Agreement became effective on December 8, 2022. The collaboration combines CSL Seqirus' established global vaccine commercial and manufacturing infrastructure with Arcturus' manufacturing expertise and innovative STARR™ self-amplifying mRNA vaccine and LUNAR® delivery platform technologies.
 - o Pursuant to a third party study agreement executed in December 2022 with Meiji Seika Pharma Co., Ltd. ("Meiji"), a Japanese leader in the area of infectious disease, a Phase 3 clinical trial of ARCT-154 was initiated in Japan by Meiji to evaluate safety and immunogenicity of a booster shot of ARCT-154, and to evaluate non-inferiority of ARCT-154 as a booster. The trial targeted a total of 780 adult participants, with half in the ARCT-154 group and half in a comparator group (Comirnaty®, Pfizer-BioNTech), and completed enrollment with 828 participants in February 2023.
- **LUNAR-OTC; ARCT-810:** We continued to advance our rare disease pipeline and collaborations. In our ornithine transcarbamylase (OTC) deficiency program, the Phase 1b single ascending dose study of ARCT-810 (LUNAR-OTC) in adults with OTC deficiency completed dosing of the initial three dose cohorts in November 2022. Furthermore, our Phase 2 multiple ascending dose study of ARCT-810 in OTC-deficient adolescents and adults has been approved in several countries including the UK, Spain, Belgium, France and Sweden and the first patient was dosed in December 2022.
- **LUNAR-CF; ARCT-032:** For the cystic fibrosis program, results from a series of nonclinical studies have led us to an optimized formulation and aerosol delivery system that is being advanced into the clinic. A CTA was filed in December 2022 for the first-in-human study for ARCT-032 (LUNAR-CF), our mRNA therapeutic candidate for cystic fibrosis. The first three cohorts have been successfully dosed.

- **LUNAR-FLU:**
 - o Under the framework of our collaboration with CSL Seqirus, we are evaluating in preclinical studies the efficacy and safety of a seasonal influenza vaccine (our LUNAR-FLU mRNA vaccine candidate).
 - o In August 2023, we entered into an agreement with The Biomedical Advanced Research and Development Authority, an office of the U.S. Department of Health and Human Services, to support the development of a low-dose pandemic influenza candidate based on our proprietary self-amplifying messenger RNA-based vaccine platform.
- **Manufacturing Platform:** We also continued to make significant progress with our platform technologies and with product development, manufacturing processes and operations. In addition to general development of our LUNAR platform, we continued to test and expand enabling technologies of our platform, including genome editing and immuno-oncology. With our sourcing partners, we manufactured cGMP batches (current good manufacturing practices) yielding significant quantities of clinical trial materials for global studies of our candidates, including ARCT-810 (LUNAR-OTC) and ARCT-154 (LUNAR-COV19).

The above accomplishments, milestones and advancements, together with those achieved by the Company since inception, directly resulted in (1) the development, launch and advancement by the Company of a significant drug candidate pipeline; (2) non-clinical and clinical development of the Company's LUNAR-COVID program; (3) the development and launch of an organization and infrastructure designed to execute on the Company's mission of becoming a leading RNA medicines company; and (4) the establishment of a collaboration that has provided significant economic and clinical benefits, and which we believe has significant future economic potential based on anticipated royalties and sales. We believe that the compensation programs and awards to our NEOs should be evaluated within the context of these significant accomplishments and performance over a sustained period of time.

Compensation Program Objectives and Philosophy

In order to continue the execution and growth of our business as described above, we believe that it is vital that we continue to retain and attract experienced and skilled senior leadership by offering competitive base compensation and benefits, significant performance-based incentives, and the potential for long-term equity compensation. Our goal is to structure a meaningful portion of executive compensation such that it will only have value if management is successful in building significant long-term value for our stockholders.

Our current executive compensation programs are intended to achieve the following four fundamental goals and objectives: (1) to incentivize and reward sustained long-term performance by aligning significant elements of executive compensation with our stockholders' interests, (2) to attract and retain an experienced, highly qualified and motivated executive management team to lead our business, (3) to provide economic rewards for achieving high levels of our performance and individual contribution, and (4) to pay compensation that is competitive, taking into account the experience, skills and performance of the executives required to build and maintain the organization necessary to support our mission to become a leading RNA medicines company.

When structuring our executive compensation programs to achieve our goals and objectives, we are guided by the following philosophies:

- **Alignment with Stockholders' Interests.** Our compensation model should be designed to align the economic interests of our executives with those of our stockholders.
- **Pay for Performance.** Our compensation model should deliver compensation at or above industry market levels for exceptional performance and deliver compensation below the market levels of our industry for years in which the Company does not perform well. Further, all of the time-based equity awards are granted as stock options, which we believe are also inherently performance based as they only provide value to the executive if stockholders realize a positive return on their investment.

- Total Rewards Program. The total compensation program must balance pay for performance elements with selected static non-performance based elements in order to create a total rewards program that is competitive and will help us attract and retain highly qualified and motivated executives.
- Flexible Approach. The level of compensation provided to executives must take into account each executive's role, experience, tenure, performance and expected contributions to our future success.
- Focus on Achievement of Business Goals. The compensation program should be structured so that executives are appropriately incentivized to achieve our short- and long-term goals that are viewed as fundamental to driving value in our business.

CEO Compensation

The Company assess executive compensation on an annual basis and makes annual equity grants in December of each year. In 2022, the CEO's total direct compensation value, as reported in the Summary Compensation Table for cash compensation, and the Grants of Plan Based Award Table for the options granted as 2022 compensation, was below the median of the peer group data reviewed, assuming option awards granted in December of 2021, which were at the time contingent on stockholder approval, are treated as 2021 compensation. However, the Summary Compensation Table containing the CEO's 2022 compensation is inflated due to the fact that the December 2021 option grants were granted contingent on stockholder approval in 2021 and subsequently approved by stockholders at the Company's 2022 annual meeting of stockholders. Due to the timing of such stockholder approval, we are required to report such option awards as 2022 option awards. Accordingly, the value of the December 2021 option awards are added to the December 2022 option awards and result in an inflated Summary Compensation Table value for 2022. The December 2021 option awards inflate our CEO's equity award value by approximately \$1,327,500 and therefore also inflate his total compensation value by approximately \$1,327,500. The Company's view of 2022 CEO total compensation is that the approximately \$5,594,000 reported in the Summary Compensation Table should be reduced by an amount equal to the value of the December 2021 option award, resulting in an amount of approximately \$4,266,500. This total compensation value was below the median of the peer data reviewed by the compensation committee in 2022 prior to the December 2021 option grant.

The Company's other NEOs were also granted December 2021 option awards that were contingent on stockholder approval of the 2019 Plan Amendment (as defined below) at the Company's 2022 annual meeting of stockholders. This resulted in the December 2021 option grants being included as 2022 compensation in the Summary Compensation Table, and the amounts shown for all NEOs equity value and total compensation value in 2022 to be inflated.

Relationship between Company Performance and Executive Pay

The biotechnology industry is generally thought to be characterized by a higher risk profile and by more potentially binary business outcomes than more established industries, which historically has led to high stock volatility for biotechnology companies.

The value of equity in the Summary Compensation Table is inflated by option awards issued in December 2021 with a higher exercise price, that are required to be disclosed as 2022 compensation because they were granted contingent on stockholder approval, which approval was obtained at the 2022 annual meeting of stockholders. The aforesaid options have an exercise price that is above the current market price of the Company's common stock and do not provide any immediate in-the-money value to the grantees at the current market price of the Company's common stock. We believe this clearly aligns pay and performance, but the required method of disclosure is misleading to stockholders because these out-of-the-money options with a high exercise price are not viewed by the Company as 2022 compensation. Such options show a value that is higher than if they were granted in 2022 using the Black Scholes option pricing model.

Executive Compensation Practices

Below we provide a summary of our executive compensation practices, including both the practices that we follow and those that we do not follow, in each case based on whether we believe they serve the long-term interests of our stockholders.

Core Compensation Principles and Practices

- ☑ *Pay-for-Performance.* A substantial majority of the compensation awarded to our NEOs is either tied to specific company-wide goals or have been made in the form of stock option awards that will only have value if the price of our stock increases after the grant date. There were no full value equity awards that guarantee value if the stock price does not increase, also known as restricted share or restricted stock units, granted to NEOs in 2022.
- ☑ *Periodic Peer Group Review.* The compensation committee periodically reviews the Company's compensation peer group. This review occurred most recently in April 2022.
- ☑ *Double Trigger.* Our severance policy (the "Severance Policy") only provides our executive officers with acceleration of unvested equity awards held by them if they are terminated (without cause or constructively) in connection with a change of control transaction or within 18 months following a change of control transaction. We do not provide accelerated vesting of equity awards on a change in control alone.
- ☑ *Modest Perquisites.* We provide only modest perquisites and nearly all of those perquisites are in the form of insurance benefits that we believe are in line with industry practice for executive compensation. We do not provide perquisites such as personal travel reimbursement, tax services or financial planning.
- ☑ *Reasonable Post-Employment and Change of Control Severance Arrangements.* We believe that our severance arrangements with our executive officers are reasonable and in line with industry practice.
- ☑ *Regular Review of Share Utilization for Equity Compensation.* We regularly evaluate equity incentive plan share reserve pool utilization by reviewing overhang levels (the dilutive impact of equity compensation on stockholders) and annual run rates (the aggregate shares awarded as a percentage of total outstanding shares).
- ☑ *Mitigate Undue Risk.* We have designed our executive compensation program to mitigate undue risk associated with compensation by, among other things, awarding a substantial portion of executive compensation in the form of long-term compensation with multi-year vesting (i.e. stock options with multi-year vesting requirements).
- ☑ *Utilize Independent Compensation Consulting Firm.* The compensation committee regularly consults with an independent compensation consulting firm which provides no other services to the Company. For more information on our independent compensation consultant, please see "Board Meetings and Committees—Compensation Committee" above.

- ☒ *No Stock Option Repricing.* Our equity incentive plans prohibit us from repricing, exchanging or otherwise providing value for underwater stock options.
- ☒ *No Inclusion of the Value of Equity Awards in Severance Calculations.* Our post-termination and change of control severance arrangements do not include the value of equity awards in annual compensation for purposes of determining cash severance amounts.
- ☒ *No Fixed Employment Terms or Guaranteed Future Compensation.* We do not have employment contracts with our executive officers that provide guaranteed terms of employment or guaranteed future compensation levels.
- ☒ *No Funded Pension or Retirement Plans.* We do not provide any guaranteed or funded retirement plan benefits.
- ☒ *No Hedging Transactions, Share Pledging, or Short Sales by Employees or Directors.* Our insider trading policy prohibits any employee or director from engaging in hedging transactions, short sales or trading in any derivative security of the Company. This policy also prohibits pledging our shares on margin.

Role of Stockholder Say-on-Pay Votes

We provide our stockholders with the opportunity periodically to cast an advisory vote on our executive compensation program (referred to as a “say-on-pay vote”). At our annual meeting of stockholders held in June 2022, approximately 99% of the votes cast on the say-on-pay proposal were voted in favor of the proposal, and a majority of stockholders present at the meeting selected “One Year” for their preference as to how frequently we should seek future advisory votes on the compensation of our named executive officers. As a result, we will be seeking an advisory say-on-pay vote at this year’s annual meeting of stockholders. After considering the 2022 say-on-pay vote, the compensation committee reaffirmed the design and elements of our executive compensation program and did not make any changes to our executive compensation program. The board of directors and compensation committee will continue to consider the outcome of our say-on-pay proposals and direct stockholder feedback when making future compensation decisions for the NEOs.

Design and Elements of Our Compensation Program

The material elements of our current executive compensation programs for NEOs consist primarily of the following:

1. **Base Salary.** Each NEO earned an annual base salary during 2022 as a minimum guarantee of compensation to secure their ongoing employment and dedication.
2. **Short-Term Incentive Compensation.** Each NEO was eligible to earn an incentive cash compensation payment for the 2022 performance period based on qualitative assessment of the Company’s progress against its corporate goals and his individual performance and/or contribution to such progress. The purpose is to drive short-term performance as milestones towards the goal of creating long-term value for stockholders.
3. **Long-Term Incentive Compensation.** Each NEO was awarded a stock option grant during 2022, subject to a time-based vesting schedule. The purpose of the stock option grants to reward growth in the stock price, with a multi-year vesting schedule to support retention of key employees and a long-term value orientation.

We review peer group company data regarding the mix of current and long-term incentive compensation and between cash and non-cash compensation, though we have not adopted any formal policies or guidelines for allocations among these various compensation elements. However, consistent with our pay for performance philosophy, we believe that a greater component of overall direct compensation for the NEOs relative to other employees should be performance-based.

Use of Peer Company Data

We periodically review the compensation practices of our peer group companies identified below in response to the fast-moving nature of the biotechnology industry, including merger and acquisition activity, and changes in product pipeline and business stage. In determining the appropriate peer companies, we consider the following factors: geographical region, company stage of development, company size and market capitalization.

As a result of the Company having a combination of multiple drug candidates in diverse therapeutic areas, a mix of wholly-owned and partnered drug candidates, and a technology platform with the potential to enable multiple drug candidates in future years, it is very challenging to identify truly comparable companies.

The peers from which benchmark compensation information was reviewed were of similar size and commercial stage. The Company's 2022 compensation decisions were made using data from a 2022 study of similar companies with median 2022 market capitalization that was close to our 2022 market capitalization size at the time. Most peer companies reviewed in 2022 were drug development and vaccine companies.

The compensation committee determined the composition of our 2022 peer group, with the assistance of its outside compensation consultant. At the time the peer group decisions were made in April 2022, our market capitalization was approximately \$645 million, which placed our size slightly above the median of the peer group, which had median market cap at the time of approximately \$602 million. The peer group of companies reviewed as context when determining 2022 compensation decisions consisted of the following companies:

AnaptysBio	RegenXBio
Arbutus BioPharma	Sangamo
Cytokinetics	Sorrento Therapeutics
Editas	Sutro BioPharma
Epizyme	Traverse Therapeutics
Geron	Vaxart
Heron Therapeutics	Viking Therapeutics
Inovio Pharmaceuticals	WaVe Life Sci
Kura Oncology	

Although we reviewed and discussed the compensation data for the peer group companies to help inform executive compensation decisions, we do not set compensation at any specific level or percentile based solely on the peer group data. The peer group data is used by us as only one reference point taken into account in making compensation decisions. We do not use peer group or industry survey data as a standalone tool for setting compensation due to the unique aspects of our business and the need to attract and retain particular highly qualified executives with unique experience, skills and other individual facts and circumstances. However, we generally believe that reviewing and analyzing this information is an important component of our executive compensation decision-making process.

Base Salary

Base salary is the initial building block of compensation for the NEOs because it provides the executives with a specified minimum level of cash compensation, which we believe is important to attract and retain executives. We determine base salary by considering competitive pay practices, cost of labor and compensation trends, individual performance and promotions, level and scope of responsibility, experience and internal pay equity. However, we do not use a formula or assign a particular weight to any one factor. Rather, the determination of base salary levels is subjective, and we set base salaries that we believe are reasonably competitive and may also reflect performance in the prior year.

Salary increases reflected the rapid maturation of the Company, as well as industry conditions. The CEO was provided a 5% increase, which resulted in salary that was below the median of similar officers in the 2022 peer group. The base salary earned by each NEO during 2022 is reported below in the Summary Compensation Table.

Base salary increases in late 2021 for 2022 were as follows:

Name and Principal Position	2021 Salary (\$)	2022 Salary (\$)	Increase (\$)	Increase (%)
Joseph E. Payne <i>President and Chief Executive Officer, Director</i>	600,000	630,000	30,000	5%
Dr. Padmanabh Chivukula <i>Chief Scientific Officer, Chief Operating Officer</i>	500,000	525,000	25,000	5%
Andy Sassine <i>Chief Financial Officer</i>	500,000	525,000	25,000	5%

In December 2022, we reviewed the base salaries of the NEOs and increased them by 5%.

Short-Term Incentive Compensation

Incentive Compensation Policy. We believe that our short-term incentive compensation program (“Incentive Compensation Policy”) for the NEOs rewards the achievement of important short-term objectives that advance us toward our long-term strategic objectives. Our Incentive Compensation Policy applies to all executive officers. Consistent with our compensation philosophy of paying for performance and maintaining a flexible approach, we use the Incentive Compensation Policy to incentivize the NEOs to achieve important corporate goals while at the same time encouraging and rewarding excellent individual performance by recognizing and rewarding differences in performance between individual executives.

Plan Design. The board of directors establishes a small number of important annual corporate goals each year that include clinical development, research, manufacturing, organizational and financial goals which we believe are essential to building long-term stockholder value and are used to assess annual corporate performance. The corporate objectives are not weighted formally nor were they formally tied to a cash bonus plan in 2022. At the end of 2022, the progress against the corporate objectives and against unexpected areas of opportunity, specifically the progress toward development of a vaccine for COVID-19, were considered when determining executive bonuses.

After 2022 corporate performance was determined, the individual performance and future contribution of NEOs was reviewed by the compensation committee in consultation with Mr. Payne (other than his own performance). Mr. Payne’s individual performance is separately reviewed by the compensation committee.

Target Annual Short-Term Incentive Compensation for 2022. The NEOs were each assigned a target annual incentive for 2022 ranging from 50% to 60% of base salary. The table below shows the target annual incentive assigned by us to each NEO for 2022 both as a dollar amount and as a percentage of base salary.

Name	Target Annual Incentive for 2022 (\$)	Target Annual Incentive for 2022 (% of Base Salary)
Joseph E. Payne	378,000	60%
Dr. Padmanabh Chivukula	262,500	50%
Andy Sassine	262,500	50%

Company Performance Objectives.

In addition to the corporate performance objectives initially agreed-upon at the beginning of the calendar year 2022 set forth below, the Company entered into the CSL Collaboration Agreement with CSL Seqirus. This collaboration agreement was not among the Company’s 2022 corporate objectives but has been considered together with the original objectives and results in assessing corporate performance.

The Company’s 2022 corporate objectives were as follows:

- ARCT-154: Phase 3 booster trial initiated, approval in Vietnam.
- ARCT-810 (LUNAR-OTC): Biological proof-of-concept.(1)
- ARCT-032 (LUNAR-CF): CTA filing, Phase 1 initiated.
- LUNAR-FLU: CTA filing (contingent upon funding).
- Publish in a high impact peer-reviewed journal.
- \$80 million, non-dilutive financing (includes vaccine doses sold and strategic collaborations, and assumes positive booster data and regulatory approval).
- \$200 million, dilutive financing (assumes pipeline products advance, and are not sold).(2)
- SEC Filings: On-time; SOX404: Compliant.
- Build out key commercial operations functions and personnel (assumes approval of ARCT-154 or ARCT-165, and neither partnered).
- Corporate Policies / Compliance: Development and Implementation.

(1) This objective was partially achieved due to diversion of resources to advance ARCT-154 and to consummate the CSL Collaboration Agreement, as discussed above.

(2) This objective to obtain dilutive financing was deemed unnecessary due to the non-dilutive financing received pursuant to the CSL Collaboration Agreement. The lack of dilutive financing was viewed as a benefit to stockholders.

Actual Annual Incentives Earned for 2022

The board of directors also recognized certain accomplishments directly related to management efforts including those listed above in *Company Performance Highlights*. In particular, the Committee considered the rapid progress towards development of a next-generation COVID-19 vaccine using the Company’s RNA technology and completion of valuable non-dilutive funding for such efforts.

The compensation committee, in consultation with Mr. Payne, determined that the individual contribution of each NEO was critical to the Company's successful 2022 performance. The compensation committee also determined that the ability of the Company to build out its product pipeline without dilutive financing, while maintaining scientific and clinical success, warranted above-target bonus awards for Mr. Payne and Mr. Sassine. As a result, bonuses for 2022 were paid to each of the NEOs as follows: 133% of Mr. Payne's target bonus, 100% of Dr. Chivukula's target bonus, and 115% of Mr. Sassine's target bonus. The amount of each NEO's bonus for the 2022 fiscal year is reported in the Summary Compensation Table.

Long-Term Incentive Compensation: Equity Awards

In accordance with our objective of aligning executive compensation with our stockholders' interests, our current long-term incentive program for the NEOs generally consists of an annual award of equity compensation that is typically subject to a multi-year vesting schedule. We believe that equity compensation is an effective tool for aligning the interests of our NEOs, who are responsible for driving our success, with the interests of our stockholders. Stock options are our preferred form of long-term incentive compensation because we believe they are inherently performance-based, with value delivered only if the price of our common stock appreciates following the grant.

The Summary Compensation Table and the Grants of Plan Based Awards Table includes grants of options in December 2022 as well as certain option grants that were made in December 2021. The December 2021 option value is included as 2022 compensation, despite being awarded in 2021, because such options were contingent on stockholder approval of the 2019 Plan Amendment, which approval was obtained at the Company's 2022 annual meeting of stockholders. Accordingly, the deemed grant date of the December 2021 options was in June 2022. The Company views the December 2022 options as compensation for 2022 and views the December 2021 awards as compensation for 2021.

The December 2022 options that are viewed as reflecting 2022 compensation are as follows:

Name	December 2022 Options	Exercise Price (\$)	2022 Option Grant Date Fair Value
Joseph E. Payne	250,000	16.92	\$3,132,500
Dr. Padmanabh Chivukula	125,000	16.92	\$1,566,250
Andy Sassine	125,000	16.92	\$1,566,250

The December 2021 options that are viewed by the Company as reflecting 2021 compensation, but are reported as 2022 compensation, are as follows:

Name	December 2021 Options	Exercise Price (\$)	2021 Grant Date Fair Value in December 2021	2021 Fair Value on Date Approved by Stockholders (1)
Joseph E. Payne	150,000	34.57	\$3,375,500	\$1,327,500
Dr. Padmanabh Chivukula	85,000	34.57	\$1,913,000	\$752,250
Andy Sassine	85,000	34.57	\$1,913,000	\$752,250

(1) This is the amount added to the Summary Compensation Table.

The December 2022 option fair value granted to our CEO was 5% lower than the December 2021 option fair value on the date of grant, and the December 2022 options fair value granted to our Chief Scientific Officer, Chief Operating Officer, as well as to our CFO were 16% lower than such executives December 2021 options fair values.

In determining the grant levels for these awards, we consider a number of factors, including an assessment of individual performance, overall corporate performance, competitive market practice, the value of unvested stock options held by the executive (i.e., the retention value), the individual's overall contributions to corporate success, and stockholder dilution. We do not use a formula or assign a particular weight to any one factor in determining equity award levels and the CEO is generally viewed as responsible for overall corporate performance. The determination of equity grant levels is subjective, and the compensation committee awards equity grants at levels it believes in its judgment are reasonably competitive and consistent with our philosophy that a substantial portion of our executives' compensation should be performance-based and help to further link the interests of our executives with those of our stockholders. 25% of the annual stock option awards vest on the first anniversary of the grant date, with the remainder vesting in equal increments on each successive one-month anniversary thereafter for the next 36 months. This provides a retention incentive for the executive as well as an additional incentive to help create value for our stockholders. The options are naturally performance-based because they require an increase after grant to be valuable.

Our CEO's December 2022 option grant had a fair value that was below the median of values reviewed by the compensation committee and had value that was lower than his award of options in December 2021.

The Summary Compensation Table reports both the fair value of the contingent December 2021 options as of the date of stockholder approval, as well as the December 2022 options that reflect the compensation committee's view of compensation in 2022. This inflates the appearance of compensation in 2022 because the December 2021 grant values are included as though they were 2022 compensation.

Name	2022 Salary (\$)	2022 Bonus Earned (\$)	2022 Option Fair Value (\$)	2022 Total Direct Compensation (\$)
Joseph E. Payne	630,000	504,000	\$3,132,500	\$4,266,500
				\$2,353,750
Dr. Padmanabh Chivukula	525,000	262,500	\$1,566,250	
Andy Sassine	525,000	301,875	\$1,566,250	\$2,393,125

Severance and Change of Control Benefits

If the employment of an NEO is terminated by us without cause or by the NEO for a designated good reason outside of the context of a change of control transaction, the NEO would be entitled to severance benefits under his employment agreement with the Company. These severance benefits include a cash severance payment based on the NEO's then-current base salary and a pro rata amount of his annual incentive bonus, and payment of COBRA premiums. In order to attract and retain these NEOs in a competitive environment for highly skilled senior executive talent in the biotechnology and pharmaceutical industry and to provide an incentive to obtain a broad release of claims in favor of the Company, we determined it was beneficial to offer each of them severance protection in the case of a termination without cause or constructive termination outside the context of a change of control transaction. These NEOs would also be entitled to certain termination benefits upon a termination of employment because of death or disability.

In April 2021, after consulting with the compensation committee's independent compensation consultant, the Board adopted a written Severance Policy covering all senior executives of the Company. Termination and change of control payments under the Severance Policy are without duplication of any severance payments provided for in an individual employment agreement (such that the higher amount would apply). The primary changes effected by the Severance Policy are to (i) implement new and more internally equitable amounts for cash severance, (ii) make certain clean-up changes to the severance provisions in the NEOs' employment agreements (the "Employment Agreements"), and (iii) require non-solicitation and non-disparagement restrictive covenants as a condition of receiving severance. The Severance Policy became effective May 1, 2021.

Pursuant to the Severance Policy, the NEOs are entitled to certain severance benefits if their employment is terminated in connection with a change of control. Severance benefits under the Severance Policy are structured on a "double-trigger" basis, meaning that the executive must experience a termination without cause or resign for a specifically defined good reason in connection with the change of control in order for severance benefits to become payable under the Severance Policy. Like the severance benefits under the Employment Agreements, we believe that these change of control severance benefits are an important element of a competitive total compensation program. Additionally, we believe that providing change of control benefits should eliminate, or at least reduce, any reluctance of our NEOs and other key employees covered by the Severance Policy to diligently consider and pursue potential change of control opportunities that may be in the best interests of our stockholders. At the same time, by providing change of control benefits only upon the occurrence of an additional triggering event occurring in connection with the change of control transaction resulting in a job loss, we believe that this Severance Policy helps preserve the value of our key personnel for any potential acquiror.

Under the Severance Policy, the executive would be entitled to accelerated equity award vesting if their employment is terminated within 18 months of a change of control. The other severance benefits under the Severance Policy are generally similar to the severance benefits described above, provided that (i) the executive is also entitled to a lump sum payment in an amount equal to his target annual bonus for the year of termination, (ii) pro-rata target bonus for the year of termination, and (iii) Company-paid COBRA coverage is extended by several additional months.

The “Potential Payments Upon Termination or Change of Control” section below describes and quantifies the severance and other benefits potentially payable to the NEOs.

Other Benefits

We believe that establishing competitive benefit packages for employees is an important factor in attracting and retaining highly-qualified personnel, including the NEOs. The NEOs are eligible to participate in all of our employee benefit plans, such as medical, dental, vision, group life, disability insurance, commuting benefits, employee stock purchase plan and the 401(k) plan, in each case generally on the same basis as other employees. We do not offer a tax-qualified defined-benefit pension plan or any non-qualified defined benefit retirement plans, nor do we provide material perquisites to our executives.

Section 162(m) Policy

Generally, Section 162(m) of the Code (“Section 162(m)”) disallows a federal income tax deduction for public corporations of remuneration in excess of \$1 million paid in any fiscal year to certain specified executive officers. For taxable years beginning before January 1, 2018 (i) these executive officers consisted of a public corporation’s chief executive officer and up to three other executive officers (other than the chief financial officer) whose compensation is required to be disclosed to stockholders under the Exchange Act because they are our most highly-compensated executive officers and (ii) qualifying “performance-based compensation” was not subject to this deduction limit if specified requirements are met.

Pursuant to the Tax Cuts and Jobs Act of 2017, which was signed into law on December 22, 2017 (the “Tax Act”), the remuneration of a public corporation’s chief financial officer is also subject to the deduction limit. In addition, subject to certain transition rules (which apply to remuneration provided pursuant to written binding contracts which were in effect on November 2, 2017 and which are not subsequently modified in any material respect), for taxable years beginning after December 31, 2017, the exemption from the deduction limit for “performance-based compensation” is no longer available. In addition, under the Tax Act, once an executive becomes a “covered employee” under Section 162(m), the individual will continue to be a “covered employee” as long as he or she remains employed by the company. Consequently, all remuneration in excess of \$1 million paid to a covered executive will not be deductible unless it qualifies for transitional relief applicable to certain binding, written performance-based compensation arrangements that were in place as November 2, 2017 or transitional relief for applicable to certain newly public companies. These changes will cause more of our compensation to be non-deductible under Section 162(m) and will eliminate the Company’s ability to structure performance-based awards to be exempt from Section 162(m).

In designing our executive compensation program and determining the compensation of our executive officers, including our named executive officers, the compensation committee considers a variety of factors, including the potential impact of the Section 162(m) deduction limit. While the compensation committee is mindful of the benefit of the full deductibility of compensation, it believes that we should not be constrained by the requirements of Section 162(m) where those requirements would impair our flexibility in compensating our executive officers in a manner that can best promote our corporate objectives. Therefore, the compensation committee has not adopted a policy that would require that all compensation be deductible, though it does consider the deductibility of compensation when making compensation decisions. The compensation committee may authorize compensation payments that are not fully tax deductible if it believes that such payments are appropriate to attract and retain executive talent or meet other business objectives.

Processes and Procedures for Executive Compensation

Our compensation committee assists the Board in discharging its responsibilities relating to oversight of the compensation of our chief executive officer and our other executive officers, including reviewing and making recommendations to our Board with respect to the compensation, plans, policies and programs for our chief executive officer and our other executive officers and administering our equity compensation plans for our executive officers and employees.

Our compensation committee annually reviews the compensation, plans, policies and programs for our chief executive officer and our other executive officers. In connection therewith, our compensation committee considers, among other things, each executive officer's performance in light of established individual and corporate goals and objectives and the recommendations of our chief executive officer. In particular, our compensation committee considers the recommendations of our chief executive officer when reviewing base salary and incentive performance compensation levels of our executive officers and when setting specific individual and corporate performance targets under our annual executive incentive bonus plan for our executive officers. Our chief executive officer has no input and is not present during voting or deliberations about his compensation. Our compensation committee may delegate its authority to a subcommittee, but it may not delegate any power or authority required by agreement, law, regulation or listing standard to be exercised by the compensation committee as a whole.

Our nominating and corporate governance committee has authority to review and recommend to the Board compensation programs for our outside directors, although this role has been predominantly undertaken by our compensation committee, in consultation with members of our full Board. Management generally does not have a role in the setting of director compensation. Our nominating and corporate governance committee may delegate its authority to a subcommittee, but it may not delegate any power or authority required by agreement, law, regulation or listing standard to be exercised by the nominating and corporate governance committee as a whole.

Summary Compensation Table

Our named executive officers ("NEOs") for the year ended December 31, 2022 which consist of all individuals who served as our principal executive officer during 2022, and our two most highly compensated executive officers other than the principal executive officer who were serving as executive officers at December 31, 2022, are Joseph E. Payne, our President and Chief Executive Officer; Dr. Padmanabh Chivukula, our Chief Scientific Officer and Chief Operating Officer; and Andy Sassine, our Chief Financial Officer.

Name and Principal Position	Year	Salary (\$)	Bonus (\$)⁽¹⁾	Option Awards (\$)⁽²⁾	All Other Compensation (\$)	Total (\$)
Joseph E. Payne <i>President and Chief Executive Officer, Director</i>	2022	630,000	504,000	4,460,000	—	5,594,000
	2021	600,000	360,000	—	—	960,000
Dr. Padmanabh Chivukula <i>Chief Scientific Officer, Chief Operating Officer</i>	2022	525,000	262,500	2,318,500	—	3,106,000
	2021	500,000	250,000	—	—	750,000
Andy Sassine, <i>Chief Financial Officer, Director</i>	2022	525,000	301,875	2,318,500	—	3,145,375
	2021	500,000	250,000	—	—	750,000

(1) Bonuses in this column represent discretionary cash bonuses approved by the Board and/or compensation committee of the Board.

(2) Amounts shown in this column do not reflect actual compensation received by the named executive officers and the actual economic value that may be realized by the applicable NEO. Includes the value of stock options determined using the grant date fair value computed in accordance with FASB ASC 718. See Note 9 to the consolidated financial statements of the Company for the fiscal years ended December 31, 2021 and December 31, 2022 in the Form 10-K filed by the Company on March 29, 2023, for additional description of the assumptions used in the valuation. On December 10, 2021, based on a review of the 2021 milestones for the Company and each of the NEOs, Mr. Payne, Mr. Sassine and Dr. Chivukula were granted Contingent Grants representing options to purchase 150,000, 85,000 and 85,000 shares of our common stock, respectively, with an exercise price of \$34.57 per share. In June 2022 at the 2022 Annual Meeting, the stockholders of the Company approved an amendment to the Company's 2019 Omnibus Equity Incentive Plan (as amended, the "2019 Plan") which, among other things, increases the aggregate number of shares authorized for use in making awards to eligible persons under the 2019 Plan by 3,750,000 shares, for a total of up to 8,750,000 shares available for issuance. The fair value of the awards granted to Mr. Payne, Mr. Sassine and Dr. Chivukula on December 10, 2021 are included in the value of 2022 Option Awards. This is because the grant of the December 2021 options was contingent on stockholder approval of the 2019 Plan Amendment, which approval was obtained at the Company's 2022 annual meeting of stockholders. This results in additional fair value of \$1,327,500 to the Option Award column for Mr. Payne and adds \$752,300 to the Option Awards column in the Summary Compensation Table for Mr. Sassine and Dr. Chivukula.

2022 GRANTS OF PLAN-BASED AWARDS

The following table provides certain information regarding the December 2021 and December 2022 options which represent equity awards approved and granted to our named executive officers during the fiscal year ended December 31, 2022. These equity awards were granted under the Amended and Restated 2019 Omnibus Equity Incentive Plan, as amended.

Name	Grant Date	All Other Option Awards: Number of Securities Underlying Options (#)	Exercise Price of Option Awards (\$)	Grant Date Fair Value of Option Awards (\$) ⁽¹⁾
Joseph Payne	12/9/2022	250,000	\$16.92	\$3,132,500
	12/10/2021	150,000	\$34.57	\$1,327,500
Dr. Padmanabh Chivukula	12/9/2022	125,000	\$16.92	\$1,566,250
	12/10/2021	85,000	\$34.57	\$752,250
Andy Sassine	12/9/2022	125,000	\$16.92	\$1,566,250
	12/10/2021	85,000	\$34.57	\$752,250

(1) Represents the grant date and approval date fair values of option awards granted during the fiscal years ended December 31, 2022 and 2021, respectively, calculated in accordance with FASB ASC Topic 718. The December 2021 awards were subject to shareholder approval which occurred in June 2022.

2022 OPTION EXERCISES AND STOCK VESTED

None of the NEOs exercised any options during the fiscal year ended December 31, 2022. None of the NEOs held any restricted stock awards during the fiscal year ended December 31, 2022.

Current Agreements With Our Named Executive Officers

The termination and change of control payments provided for under the employment agreements summarized below are without duplication of any severance payments provided for under the Company's Severance Policy (such that the higher amount would apply). For a summary of the Severance Policy, see pages 29, 35 and 36. Effective February 14, 2022, Dr. Steven Hughes stepped down from his position as Chief Medical Officer of the Company and his executive employment agreement terminated on such date. The annual base salary amounts and performance bonus targets provided for under the employment agreements, summarized below, are subject to increase upon approval by the compensation committee of the Board as described elsewhere in this proxy statement. See "Base Salary" and "Short-Term Incentive Compensation."

Joseph E. Payne

On June 13, 2019, we entered into an Employment Agreement (the “Payne Agreement”) with Joseph E. Payne, our President and Chief Executive Officer. The Payne Agreement provides for the following compensation and benefits to Mr. Payne:

- An annual base salary of \$630,000, paid in bi-monthly installments.
- An annual bonus of up to 60% of annual base salary. The bonus will be subject to the achievement of certain criteria, as determined by our Board and compensation committee.
- Reimbursement of travel and other expenses incurred by Mr. Payne in connection with his service as President and Chief Executive Officer.
- For termination without cause or resignation for good reason unrelated to change in control of, Mr. Payne will be entitled to receive (i) severance pay in the form of continuation of payment installments of Mr. Payne’s final base salary for 12 months, (ii) a pro rata portion of his annual bonus (as calculated by the compensation committee and Board at the end of the bonus period and paid in a lump sum when annual bonuses are paid to other executive officers), and (iii) payment of certain health insurance coverage premiums (COBRA) for up to 18 months following his termination of employment.
- For termination without cause or resignation for good reason in connection with a change in control us, Mr. Payne will be entitled to receive a lump sum severance payment equal to (i) one year’s annual base salary, (ii) an amount equal to his target annual bonus for the year of termination and (iii) an amount equal to a pro rata portion of his target annual bonus for the year of termination. Mr. Payne will also be entitled to payment of certain health insurance coverage premiums (COBRA) for up to 18 months following termination. In addition, Mr. Payne’s unvested option awards and any other unvested time-based vesting equity awards then held by him will accelerate and become immediately vested and exercisable, if applicable, and no longer subject to repurchase, if applicable, upon such termination and will remain exercisable, if applicable, following Mr. Payne’s termination as set forth in the applicable equity award.

Andy Sassine

On June 13, 2019, we entered into an Employment Agreement (the “Sassine Agreement”) with Andy Sassine, our Chief Financial Officer. The Sassine Agreement provides for the following compensation and benefits to Mr. Sassine:

- An annual base salary of \$525,000, paid in bi-monthly installments.
- An annual bonus of up to 50% of annual base salary. The bonus will be subject to the achievement of certain criteria, as determined by our Board and compensation committee.
- Reimbursement of travel and other expenses incurred by Mr. Sassine in connection with his service as Chief Financial Officer.
- For termination without cause or resignation for good reason unrelated to change in control of us, Mr. Sassine will be entitled to receive (i) severance pay in the form of continuation of payment installments of Mr. Sassine’s final base salary for 9 months, (ii) a pro rata portion of his annual bonus (as calculated by the compensation committee and Board at the end of the bonus period and paid in a lump sum when annual bonuses are paid to other executive officers), and (iii) payment of certain health insurance coverage premiums (COBRA) for up to 9 months following his termination of employment.
- For termination without cause or resignation for good reason in connection with a change in control of us, Mr. Sassine will be entitled to receive a lump sum severance payment equal to (i) one year’s annual base salary, (ii) an amount equal to his target annual bonus for the year of termination and (iii) an amount equal to a pro rata portion of his target annual bonus for the year of termination. Mr. Sassine will also be entitled to payment of certain health insurance coverage premiums (COBRA) for up to 12 months following termination. In addition, Mr. Sassine’s unvested option awards and any other unvested time-based vesting equity awards then held by him will accelerate and become immediately vested and exercisable, if applicable, and no longer subject to repurchase, if applicable, upon such termination and will remain exercisable, if applicable, following Mr. Sassine’s termination as set forth in the applicable equity award.

Dr. Padmanabh Chivukula

On June 13, 2019, we entered into an Employment Agreement (the “Chivukula Agreement”) with Dr. Padmanabh Chivukula, our Chief Scientific Officer and Chief Operating Officer. The Chivukula Agreement provides for the following compensation and benefits to Dr. Chivukula:

- An annual base salary of \$525,000, paid in bi-monthly installments.
- An annual bonus of up to 50% of annual base salary. The bonus will be subject to the achievement of certain criteria, as determined by the Board and compensation committee.
- Reimbursement of travel and other expenses incurred by Dr. Chivukula in connection with his service as Chief Scientific Officer and Chief Operating Officer.
- For termination without cause or resignation for good reason unrelated to change in control of us, Dr. Chivukula will be entitled to receive (i) severance pay in the form of continuation of payment installments of Dr. Chivukula’s final base salary for 12 months, (ii) a pro rata portion of his annual bonus (as calculated by the compensation committee and Board at the end of the bonus period and paid in a lump sum when annual bonuses are paid to other executive officers), and (iii) payment of certain health insurance coverage premiums (COBRA) for up to 18 months following his termination of employment.
- For termination without cause or resignation for good reason in connection with a change in control of us, Dr. Chivukula will be entitled to receive a lump sum severance payment equal to (i) one year’s annual base salary, (ii) an amount equal to his target annual bonus for the year of termination and (iii) an amount equal to a pro rata portion of his target annual bonus for the year of termination. Dr. Chivukula will also be entitled to payment of certain health insurance coverage premiums (COBRA) for up to eighteen (18) months following termination. In addition, Dr. Chivukula’s unvested option award and any other unvested time-based vesting equity awards then held by him will accelerate and become immediately vested and exercisable, if applicable, and no longer subject to repurchase, if applicable, upon such termination and will remain exercisable, if applicable, following Dr. Chivukula’s termination as set forth in the applicable equity award.

POTENTIAL PAYMENTS UPON TERMINATION OR CHANGE IN CONTROL

See “*Current Agreements With Our Named Executive Officers*” for a description of the circumstances that would trigger payments or the provision of other benefits to each of our named executive officers in connection with their termination without cause or resignation for good reason in connection with a change in control. See page 42 for details on the amounts of such payments.

Under the employment agreements with our named executive officers, “good reason” constitutes a resignation from employment with the Company in connection with the occurrence of any of the following without the executive’s prior written consent: (i) a material reduction in the executive’s base salary, unless pursuant to a salary reduction program applicable generally to the Company’s senior executives; (ii) a material reduction in the executive’s duties (including responsibilities and/or authorities), provided that (A) a change in job position (including a change in title) shall not be deemed a “material reduction” in and of itself unless the executive’s new duties are materially reduced from the prior duties, and (B) a reduction in duties which results from the hiring of an individual not previously employed by the Company to serve as its President and/or Chief Executive Officer shall not be deemed a “material reduction” (e.g., where an executive undertakes temporary additional responsibilities until a President and/or Chief Executive Officer is appointed); or (iii) relocation of the executive’s principal place of employment to a place that increases the executive’s one-way commute by more than 50 miles as compared to the executive’s then-current principal place of employment immediately prior to such relocation.

In order for an executive to resign for good reason, each of the following requirements must be met: (i) the executive must provide written notice to the Board within 30 days after the first occurrence of the event giving rise to good reason setting forth the basis for the executive’s resignation, (ii) the executive must allow the Company at least 30 days from receipt of such written notice to cure such event, (iii) such event is not reasonably cured by the Company within such 30 day period (the “Cure Period”), and (iv) the executive must resign from all positions the executive then holds with the Company not later than 30 days after the expiration of the Cure Period.

Effective May 1, 2021, the Board adopted a written Severance Policy covering all senior executives of the Company. Termination and change of control payments under the Severance Policy will not duplicate any severance payments provided for in an individual employment agreement (such that the higher amount would apply). For a summary of the Severance Policy, see “Severance and Change of Control Benefits.” Pursuant to the Severance Policy, in order to receive any payments upon a termination or change of control, our named executive officers must execute a general release of all known and unknown claims, as drafted in the Company’s discretion, in a severance agreement acceptable to the Company within the applicable deadline set forth therein, but in no event later than twenty-one days following the executive’s termination date, and permit the release to become effective and irrevocable in accordance with its terms.

Options granted to our officers and certain of our directors may contain acceleration provisions upon certain merger, acquisition, or change of control transactions. If the relationship between us and an executive officer or a director is terminated, except for cause (as defined in the various option plan agreements), options that are vested will generally remain exercisable for ninety days or thirty-six months after such termination depending on whether the options were granted to an executive officer or director.

TERMINATION AND CHANGE OF CONTROL POTENTIAL PAYMENTS AND BENEFITS TABLE

The amounts disclosed in the table below are based on the payments and benefit costs that would have been incurred by the Company if the named executive officer’s employment had terminated as of the last business day of the fiscal year ended December 31, 2022. The amounts included below do not include payments and benefits to the extent they are provided on a non-discriminatory basis to salaried employees generally upon termination of employment. Where applicable, the value of one of our shares of common stock on December 31, 2022 was \$16.96, which was the closing market price of our common stock on the Nasdaq on such date.

Name	Change of Control		
	Involuntary Termination without Cause or Resignation for Good Reason (\$)	Involuntary Termination without Cause or Resignation for Good Reason ⁽¹⁾ (\$)	Accelerated Vesting upon termination or if Award not Assumed, Substituted or Continued by the Acquiring Entity ⁽²⁾ (\$)
Joseph Payne^{(4) (5)}			
Cash Severance	\$ 1,134,000	\$ 1,386,000	
Equity Treatment			\$ 8,169,072
Health and Welfare	\$ 39,000	\$ 39,000	
TOTAL	\$ 1,173,000	\$ 1,425,000	\$ 8,169,072
Dr. Padmanabh Chivukula^{(4) (5)}			
Cash Severance	\$ 787,500	\$ 945,000	
Equity Treatment			\$ 4,374,272
Health and Welfare	\$ 39,000	\$ 39,000	
TOTAL	\$ 826,500	\$ 984,000	\$ 4,374,272
Andy Sassine⁽³⁾⁽⁵⁾			
Cash Severance	\$ 695,625	\$ 813,750	
Equity Treatment			\$ 4,480,289
Health and Welfare	\$ 20,000	\$ 26,000	
TOTAL	\$ 715,625	\$ 839,750	\$ 4,480,289

(1) See above in “Potential Payments Upon Termination or Change in Control” for the definition of "good reason" under the employment agreements with our NEOs.

(2) Under the Severance Policy, the NEOs are entitled to accelerated equity award vesting if their employment is terminated or they resign for good reason within 18 months of a change of control.

(3) For Cash Severance, amount represents the payment of an amount equal to nine months of the employee’s annual base salary, as well as (i) for involuntary termination without cause or resignation for good reason not in connection with a change of control, a lump sum payment of the pro rata portion of the executive’s annual bonus for the year of termination or resignation based actual performance (a “Performance Bonus”), and (ii) for involuntary termination without cause or resignation with good reason in connection with a change of control, a Performance Bonus and a lump sum payment in an amount equal to the executive’s target annual bonus for the year of termination or resignation (a “Target Bonus”).

For Health and Welfare, amount represents the estimated value of providing the employee and their dependents with health benefits for nine months following the date of termination or resignation, or 12 months in connection with a change of control. This amount is calculated based on the present value of the maximum liability with respect to the employee and their dependents under our applicable benefit plan in effect as of December 31, 2022.

(4) For Cash Severance, amount represents the payment of an amount equal to 12 months of the employee’s annual base salary, as well as (i) for involuntary termination without cause or resignation for good reason not in connection with a change of control, a Performance Bonus, and (ii) for involuntary termination without cause or resignation with good reason in connection with a change of control, a Performance Bonus and a Target Bonus.

For Health and Welfare, amount represents the estimated value of providing the employee and their dependents with health benefits for 12 months following the date of termination or resignation, or 18 months in connection with a change of control. This amount is calculated based on the present value of the maximum liability with respect to the employee and their dependents under our applicable benefit plan in effect as of December 31, 2022.

(5) For Equity Treatment, amount represents the estimated value of accelerated vesting of stock options subject to outstanding stock options upon a termination or resignation for good reason prior to December 31, 2022.

CEO PAY RATIO

For 2022, Mr. Payne’s total annual compensation as disclosed in the Summary Compensation Table was \$5,594,000, and the total annual compensation for our median employee was \$359,000, resulting in a pay ratio of 15.6 (the “Pay Ratio”).

To identify the median employee and calculate the annual total compensation of the median-paid employee, we determined (i) the total number of part-time and full-time individuals employed at any point during fiscal year 2022, and (ii) the sum of the salary, bonus, and share-based compensation incurred for each employee.

We believe the pay ratio reported above is a reasonable estimate calculated in a manner consistent with SEC rules based on our internal records and the methodology described above. Because the SEC rules for identifying the median compensated employee and calculating pay ratio allow companies to adopt a variety of methodologies, apply certain exclusions, and make reasonable estimates and assumptions that reflect their employee populations and compensation practices, our pay ratio may not be comparable to the pay ratios reported by other companies.

Results

The table below shows the information used for the calculation of the ratio of the estimated annual total compensation of the median employee identified using the methodology described above to the annual total compensation of Mr. Payne as calculated for the Summary Compensation Table.

	Year	Salary (\$)	Bonus (\$)	Option Awards (\$)	All Other Compensation (\$)	Total (\$)
Joseph E. Payne	2022	\$630,000	\$504,000	\$4,460,000	—	\$5,594,000
Median Employee	2022	\$164,000	\$33,000	\$162,000	—	\$359,000

Ratio of Median Employee’s to Mr. Payne’s Annual Total Compensation

Pay Versus Performance

In accordance with SEC rules, set forth below is our analysis of the relationship between the compensation actually paid to our Chief Executive Officer and other named executive officers (NEOs), and certain financial performance measures over the last two fiscal years.

Pay Versus Performance Disclosure

In accordance with rules adopted by the Securities and Exchange Commission pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, we provide the following disclosure regarding executive compensation for our principal executive officer (“PEO”) and Non-PEO NEOs and Company performance for the fiscal years listed below. The Compensation Committee did not consider the pay versus performance disclosure below in making its pay decisions for any of the years shown.

Year (a)	Summary Compensation Table Total for Joseph E. Payne ¹ (\$) (b)	Compensation Actually Paid to Joseph E. Payne ¹ (\$) (c)	Average Summary Compensation Table Total for Non-PEO NEOs ¹ (\$) (d)	Average Compensation Actually Paid to Non-PEO NEOs ^{1,2,3} (\$) (e)	Value of Initial Fixed \$100 Investment based on TSR ⁴ (\$) (f)	Net Income (\$ Millions) (h)
2022	5,594,000	2,673,712	3,125,688	1,256,688	39.10	9.3
2021	960,000	62,056	676,000	232,220	85.32	(203.7)

1. Joseph E. Payne was our PEO for each year presented. The individuals comprising the Non-PEO NEOs for each year presented are listed below.

2021	2022
Andy Sassine	Andy Sassine
Dr. Padmanabh Chivukula	Dr. Padmanabh Chivukula
Lance Kurata	
Dr. Steven Hughes	

2. The amounts shown for Compensation Actually Paid have been calculated in accordance with Item 402(v) of Regulation S-K and do not reflect compensation actually earned, realized, or received by the Company’s NEOs. These amounts reflect the Summary Compensation Table Total with certain adjustments as described in footnote 3 below.

3. Compensation Actually Paid reflects the exclusions and inclusions of certain amounts for the PEO and the Non-PEO NEOs as set forth below. Equity values are calculated in accordance with FASB ASC Topic 718. Amounts in the Exclusion of Option Awards column are the amounts from the Option Awards column set forth in the Summary Compensation Table.

Year	Summary Compensation Table Total for Joseph E. Payne (\$)	Exclusion of Option Awards for Joseph E. Payne (\$)	Inclusion of Equity Values for Joseph E. Payne (\$)	Compensation Actually Paid to Joseph E. Payne (\$)
2022	5,594,000	(4,460,000)	1,539,712	2,673,712
2021	960,000	—	(897,944)	62,056

Year	Average Summary Compensation Table Total for Non-PEO NEOs (\$)	Average Exclusion of Stock Awards and Option Awards for Non-PEO NEOs (\$)	Average Inclusion of Equity Values for Non-PEO NEOs (\$)	Average Compensation Actually Paid to Non-PEO NEOs (\$)
2022	3,125,688	(2,318,500)	449,500	1,256,688
2021	676,000	—	(443,780)	232,220

The amounts in the Inclusion of Equity Values in the tables above are derived from the amounts set forth in the following tables:

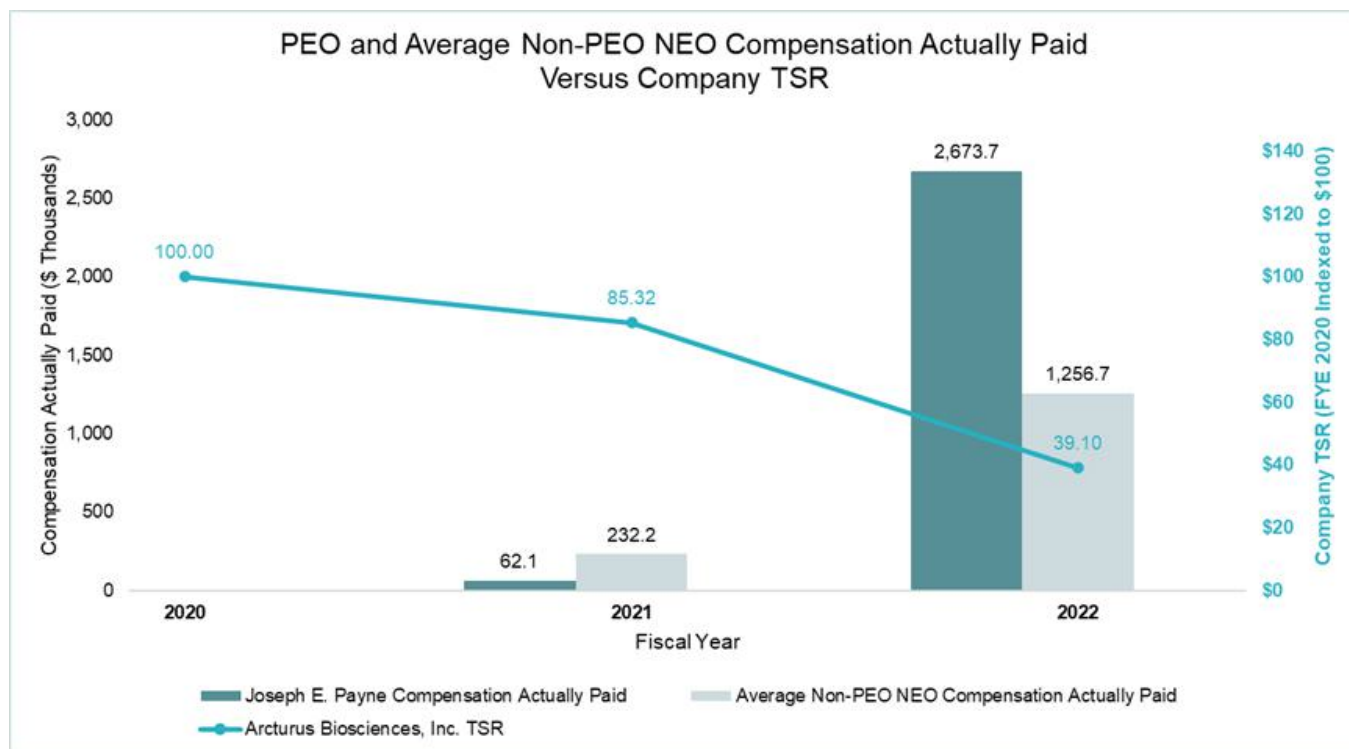
Year	Year-End Fair Value of Equity Awards Granted During Year That Remained Unvested as of Last Day of Year for Joseph E. Payne (\$)	Change in Fair Value from Last Day of Prior Year of Unvested Equity Awards for Joseph E. Payne (\$)	Vesting-Date Fair Value of Equity Awards Granted During Year that Vested During Year for Joseph E. Payne (\$)	Change in Fair Value from Last Day of Prior Year to Vesting Date of Unvested Equity Awards that Vested During Year for Joseph E. Payne (\$)	Fair Value at Last Day of Prior Year of Equity Awards Forfeited During Year for Joseph E. Payne (\$)	Total - Inclusion of Equity Values for Joseph E. Payne (\$)
2022	4,561,826	(1,919,615)	456,861	(1,559,360)	—	1,539,712
2021	—	(1,395,948)	—	498,004	—	(897,944)

Year	Average Year-End Fair Value of Equity Awards Granted During Year That Remained Unvested as of Last Day of Year for Non-PEO NEOs (\$)	Average Change in Fair Value from Last Day of Prior Year to Last Day of Year of Unvested Equity Awards for Non-PEO NEOs (\$)	Average Vesting-Date Fair Value of Equity Awards Granted During Year that Vested During Year for Non-PEO NEOs (\$)	Average Change in Fair Value from Last Day of Prior Year to Vesting Date of Unvested Equity Awards that Vested During Year for Non-PEO NEOs (\$)	Average Fair Value at Last Day of Prior Year of Equity Awards Forfeited During Year for Non-PEO NEOs (\$)	Total - Average Inclusion of Equity Values for Non-PEO NEOs (\$)
2022	2,374,286	(1,174,650)	258,888	(1,009,024)	—	449,500
2021	—	(710,024)	—	266,244	—	(443,780)

4. The Company TSR assumes \$100 was invested in the Company for the period starting December 31, 2020 through the end of the listed year. Historical stock performance is not necessarily indicative of future stock performance.

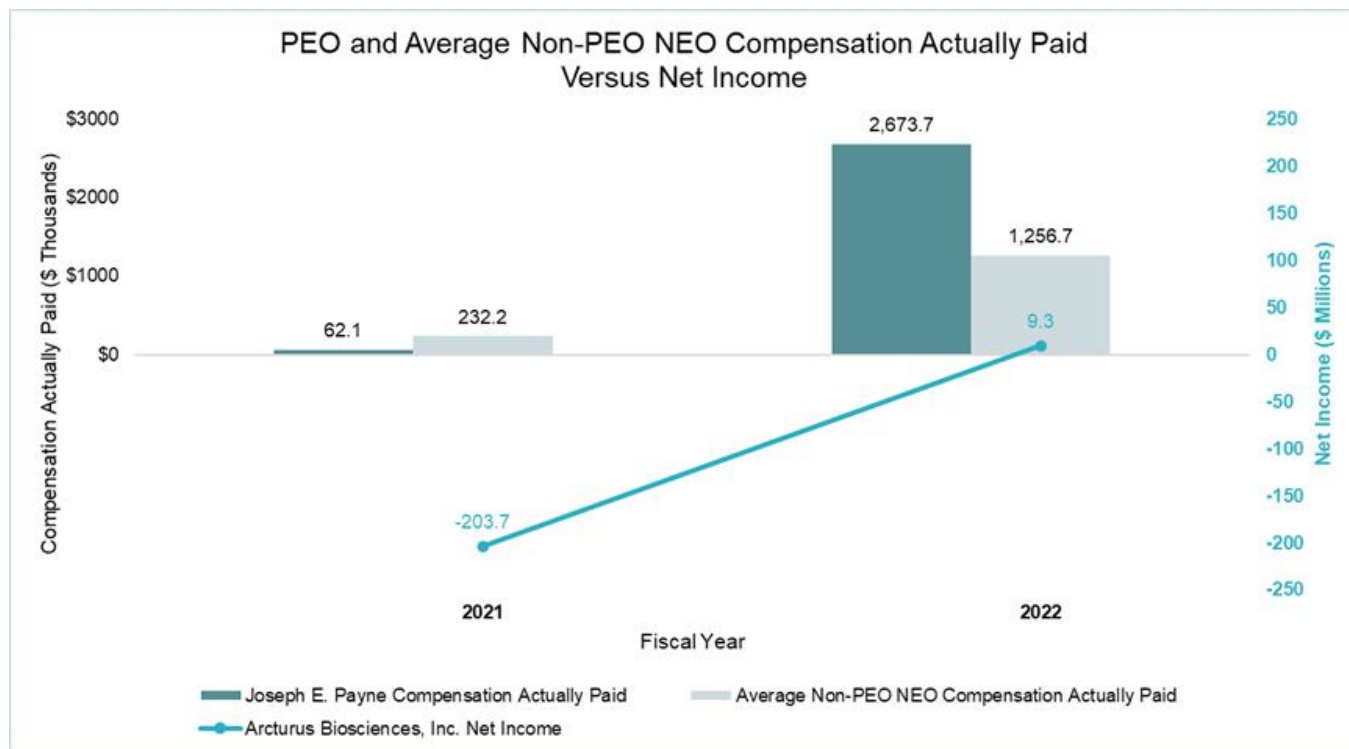
Description of Relationship Between PEO and Non-PEO NEO Compensation Actually Paid and Company Total Shareholder Return (“TSR”)

The following chart sets forth the relationship between Compensation Actually Paid to our PEO, the average of Compensation Actually Paid to our Non-PEO NEOs, and the Company’s cumulative TSR over the two most recently completed fiscal years.



Description of Relationship Between PEO and Non-PEO NEO Compensation Actually Paid and Net Income

The following chart sets forth the relationship between Compensation Actually Paid to our PEO, the average of Compensation Actually Paid to our Non-PEO NEOs, and our Net Income during the two most recently completed fiscal years.



Outstanding Equity Awards at Fiscal Year-End for Fiscal 2022

The following table sets forth certain information regarding all outstanding equity awards held by our named executive officers as of December 31, 2022. None of the outstanding equity awards shown in the table below have been exercised or forfeited as of December 31, 2022. None of our named executive officers held any other equity awards from the Company as of December 31, 2022.

Name	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable (1)	Option Exercise Price (\$)	Option Expiration Date
Joseph Payne	120,000	—	8.00	08/24/2028
	57,500	2,500	4.99	02/07/2029
	70,833	29,167	14.12	02/18/2030
	87,500	87,500	99.29	12/18/2030
	37,500	112,500	34.57	12/10/2031
	—	250,000	16.92	12/09/2032
Dr. Padmanabh Chivukula	80,000	—	8.00	08/24/2028
	38,333	1,667	4.99	02/07/2029
	42,500	17,500	14.12	02/18/2030
	50,000	50,000	99.29	12/18/2030
	21,250	63,750	34.57	12/10/2031
	—	125,000	16.92	12/09/2032
Andy Sassine	36,250	—	8.00	08/24/2028
	97,916	2,084	4.53	01/01/2029
	15,000	—	10.23	10/25/2029
	56,666	23,334	14.12	02/18/2030
	50,000	50,000	99.29	12/18/2030
	21,250	63,750	34.57	12/10/2031
	—	125,000	16.92	12/09/2032

(1) The option award vests 25% on the one-year anniversary of the date of grant, with the remainder vesting in 36 successive equal monthly increments thereafter.

Pension Benefits

None of our named executive officers participate in or have account balances in qualified or non-qualified defined benefit plans sponsored by us.

Non-Qualified Deferred Compensation

None of our named executive officers participate in or have account balances in qualified or non-qualified defined contribution plans or other non-qualified compensation plans sponsored by us.

Perquisites, Health, Welfare and Retirement Benefits

Our named executive officers are eligible to participate in our employee benefit plans, including our medical, dental, vision, group life, disability and accidental death and dismemberment insurance plans, in each case on the same basis as all of our other employees. We provide a 401(k) savings plan to our employees, including our current named executive officers, as discussed in the section below entitled “401(k) Plan.”

We generally do not provide perquisites or personal benefits to our named executive officers, except in limited circumstances and as noted in the Summary Compensation Table above. Our Board may elect to adopt qualified or non-qualified benefit plans in the future if it determines that doing so is in our best interests.

401(k) Plan

We maintain a tax-qualified retirement plan that provides eligible employees, including named executive officers, with an opportunity to save for retirement on a tax advantaged basis. All participants' interests in their deferrals are 100% vested when contributed. Pre-tax and after-tax contributions are allocated to each participant's individual account and are then invested in selected investment alternatives according to the participant's directions. Currently, we match \$0.50 for every \$1.00 on the first \$5,000.00 of contributions made by the employee with an annual maximum match of \$2,500. The 401(k) plan is intended to qualify under Sections 401(a) and 501(a) of the Internal Revenue Code. As a tax-qualified retirement plan, contributions to the 401(k) plan and earnings on those contributions are not taxable to the employees until distributed from the 401(k) plan, and all matching contributions, if any, are deductible by us when made.

2021 Inducement Equity Incentive Plan

In October 2021, the Company adopted the 2021 Inducement Equity Incentive Plan which covered the award of up to 1,000,000 shares of common stock (the "2021 Inducement Plan") effective as of October 15, 2021. Only newly-hired employees are eligible to receive awards under the 2021 Inducement Plan. Approval of the Company's stockholders is not required as a condition to the effectiveness of the 2021 Plan for so long as the plan is in compliance with Nasdaq inducement plan rules. On October 20, 2021, the Company filed a registration statement on Form S-8 with the United States Securities and Exchange Commission to register 1,000,000 awards. In April 2022, the number of shares available for grant under the 2021 Inducement Plan was reduced to 130,000. As of December 31, 2022, a total of 93,142 shares remained available for future issuance under the 2021 Inducement Plan, subject to the terms of the 2021 Inducement Plan.

Equity Compensation Plans

On June 21, 2022, the stockholders of the Company approved the "2019 Plan Amendment", amending the 2019 Plan. The 2019 Plan Amendment (i) increases the maximum number of shares of common stock available to 2019 Plan participants by 3,750,000 shares and (ii) increases the fair market value of cash or share awards a non-employee director may be granted in a calendar year under the 2019 Plan together with any awards granted outside of the 2019 Plan from \$500,000 to \$2,000,000 for newly-appointed directors, any lead independent director and any non-employee chair, or \$1,000,000 for each other non-employee director.

The following information is provided as of December 31, 2022 with respect to our equity compensation plans:

Plan Category	Number of Securities to be Issued upon Exercise of Outstanding Options, Warrants and Rights (a)	Weighted Average Exercise Price of Outstanding Options, Warrants and Rights (b)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column a) (c)
Equity compensation plans approved by security holders	6,622,740	\$ 34.78	1,899,801
Equity compensation plans not approved by security holders	—	\$ —	—
Total	6,622,740	\$ 34.78	1,899,801

Compensation Committee Report

The compensation committee has reviewed and discussed the foregoing "Executive Compensation" section of this proxy statement, including the "Compensation Discussion and Analysis," with management. Based on this review and discussion, the compensation committee recommended to our Board that such information be included in this proxy statement.

Dr. Magda Marquet
James Barlow
Dr. Jing L. Marantz

The information contained in the Compensation Committee Report shall not be deemed to be soliciting material or to be filed with the SEC, nor shall such information be incorporated by reference into any future filing under the Securities Act or the Exchange Act, except to the extent that Arcturus specifically incorporates it by reference in such filing.

RELATED PARTY TRANSACTIONS

Related Party Transactions Policy and Procedures

We have adopted a policy with respect to the review, approval, and ratification of related party transactions. Under the policy, the Audit Committee is responsible for the identification, review, consideration and approval or ratification of related person transactions. A related person includes directors, executive officers, beneficial owners of 5% or more of any class of our voting securities, immediate family members of any of the foregoing persons, and any entities in which any of the foregoing is an executive officer or is an owner of 5% or more ownership interest.

If a transaction has been identified as a related person transaction, including any transaction that was not a related person transaction when originally consummated or any transaction that was not initially identified as a related person transaction prior to consummation, information regarding the related person transaction must be reviewed and approved by the audit committee

In considering related person transactions, our audit committee takes into account the relevant available facts and circumstances including, but not limited to:

- the related person's interest in the related person transaction;
- the approximate dollar value of the amount involved in the related person transaction;
- the approximate dollar value of the amount of the related person's interest in the transaction without regard to the amount of any profit or loss;
- whether the transaction was undertaken in the ordinary course of business;
- whether the transaction with the related person is proposed to be, or was, entered into on terms no less favorable to us than terms that could have been reached with an unrelated third party;
- the purpose of, and the potential benefits to us of, the transaction; and
- any other information regarding the related person transaction or the related person in the context of the proposed transaction that would be material to investors in light of the circumstances of the particular transaction.

In determining whether to approve, ratify or reject a related person transaction, the audit committee reviews all relevant information available to it about such transaction, and it may approve or ratify the related person transaction only if it determines that, under all of the circumstances, the transaction is in, or is not inconsistent with, the best interests of the Company.

Except for the transactions described in this section, there have been no transactions during the year ended December 31, 2022 involving an amount in excess of \$120,000 to which the Company has been a participant and in which any of its directors, executive officers or holders of more than 5% of its share capital, or any members of their immediate family, had or will have a direct or indirect material interest, other than compensation arrangements which are described under "Executive Compensation" and "Director Compensation."

Vallon Pharmaceuticals Inc.

Arcturus Therapeutics, Inc. owns 843,750 shares of Vallon Pharmaceuticals Inc., a public clinical-stage company focused on the development and commercialization of novel abuse-deterrent medications for CNS disorders. Mr. Payne served on Vallon's board of directors and compensation committee until April 2023.

SECURITY OWNERSHIP

The following table sets forth information with respect to the beneficial ownership of our common stock as of April 15, 2023 by:

- each person or entity known by us to own beneficially 5% or more of our outstanding shares;
- each of our directors and executive officers individually; and
- all of our executive officers and directors as a group.

The beneficial ownership of shares of common stock is determined in accordance with the rules of the SEC and generally includes any shares of common stock over which a person exercises sole or shared voting or investment power, or the right to receive the economic benefit of ownership. For purposes of the table below, we deem shares subject to options or warrants that are currently exercisable or exercisable within 60 days of April 15, 2023, to be outstanding and to be beneficially owned by the person holding the options or warrants for the purposes of computing the percentage ownership of that person, but we do not treat them as outstanding for the purpose of computing the percentage ownership of any other person. The percentage of shares beneficially owned is based on 26,562,951 shares of common stock outstanding as of April 15, 2023.

The following table sets forth information regarding the beneficial ownership by each person or entity known to beneficially own more than 5% of our common stock as of April 15, 2023. Except as indicated in footnotes to this table, we believe that the stockholders named in this table have sole voting and investment power with respect to all shares shown to be beneficially owned by them, based on information provided to us by such stockholders. Unless otherwise noted below, each beneficial owner's address is: c/o Arcturus Therapeutics Holdings Inc., 10628 Science Center Drive, Suite 250, San Diego, California, 92121.

Shares of Common Stock Beneficially Owned

	Common Stock Beneficially Owned	
	Number	Percentage
5% or Greater Stockholders		
Federated Hermes, Inc. ⁽¹⁾	4,239,554	16.0%
State Street Corporation ⁽²⁾	2,257,846	8.5%
ARK Investment Management LLC ⁽³⁾	2,012,429	7.5%
BlackRock, Inc. ⁽⁴⁾	1,759,590	6.7%
The Vanguard Group ⁽⁵⁾	1,450,425	5.4%
Sumitomo Mitsui Trust Holdings, Inc. ⁽⁶⁾	1,449,060	5.4%
Directors and Executive Officers		
Joseph E. Payne ⁽⁷⁾	1,909,055	7.1%
Andy Sassine ⁽⁸⁾	581,594	2.2%
Padmanabh Chivukula ⁽⁹⁾	848,823	3.2%
Peter C Farrell ⁽¹⁰⁾	188,065	*
Magda Marquet ⁽¹¹⁾	117,442	*
James Barlow ⁽¹²⁾	102,500	*
Edward. W. Holmes ⁽¹³⁾	80,000	*
Jing L. Marantz ⁽¹⁴⁾	36,699	*
John Markels ⁽¹⁵⁾	8,493	*
All directors and executive officers as a group (9 persons)	3,872,671	13.8%

- (1)Based on an Schedule 13G filed with the SEC on February 2, 2023. The address of Federated Hermes, Inc. is 1001 Liberty Avenue, Pittsburgh, PA 15222-3779.
- (2) Based on a Form 13G/A filed with the SEC on February 8, 2023. The address of State Street Corporation is State Street Financial Center, 1 Lincoln Street, Boston, MA 02111.
- (3) Based on a Form 13G/A filed with the SEC on February 10, 2023. The address of ARK Investment Management LLC is 3 East 28th Street, 7th Floor, New York, NY 10016.
- (4) Based on a Form 13G/A filed with the SEC on February 3, 2022. The address of BlackRock, Inc. is 55 East 52nd Street New York, NY 10055.
- (5) Based on a Form 13G filed with the SEC on February 9, 2023. The address of The Vanguard Group is 100 Vanguard Blvd. Malvern, PA 19355.
- (6) Based on a Form 13G filed jointly with the SEC on February 3, 2023, by Sumitomo Mitsui Trust Holdings, Inc. (“SMTH”) and Nikko Asset Management Co., Ltd (“NAMC”), and a Form 13G filed with the SEC on February 10, 2023 by Nikko Asset Management Americas, Inc. (“NAMA”). The address of SMTH is 1-4-1 Marunouchi, Chiyoda-ku, Tokyo 100-8233, Japan. The address of NAMC is Midtown Tower, 9-7-1 Akasaka, Minato-ku, Tokyo 107-6242, Japan. The address of NAMA is 605 Third Avenue, 38th Floor, New York, NY 10158.
- (7) Includes 428,958 shares issuable upon the exercise of options exercisable within 60 days of April 15, 2023; does not include 426,042 shares issuable upon the exercise of options subject to vesting.
- (8) Includes 312,291 shares issuable upon the exercise of options exercisable within 60 days of April 15, 2023; does not include 228,959 shares issuable upon the exercise of options subject to vesting.
- (9) Includes 264,375 shares issuable upon the exercise of options exercisable within 60 days of April 15, 2023; does not include 225,625 shares issuable upon the exercise of options subject to vesting.
- (10)Includes 92,500 shares issuable upon the exercise of options exercisable within 60 days of April 15, 2023.
- (11)Includes 92,500 shares issuable upon the exercise of options exercisable within 60 days of April 15, 2023.
- (12)Includes 92,500 shares issuable upon the exercise of options exercisable within 60 days of April 15, 2023.
- (13)Includes 80,000 shares issuable upon the exercise of options exercisable within 60 days of April 15, 2023.
- (14)Includes 36,699 shares issuable upon the exercise of options exercisable within 60 days of April 15, 2023; does not include 5,000 shares issuable upon the exercise of options subject to vesting
- (15)Includes 8,493 shares issuable upon the exercise of options exercisable within 60 days of April 15, 2023; does not include 18,493 shares issuable upon the exercise of options subject to vesting

OTHER MATTERS

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Exchange Act requires our executive officers and directors, and persons who own more than 10% of a registered class of our equity securities, to file reports of ownership and changes of ownership on Forms 3, 4 and 5 with the SEC. Such directors, executive officers and 10% stockholders are required by SEC regulations to furnish us with copies of all Section 16(a) forms they file.

Based solely on our review of the copies of such forms we have received and written representations from certain reporting persons that they filed all required reports, we believe that all of our officers, directors and 10% stockholders complied with all Section 16(a) filing requirements applicable to them with respect to transactions during 2022.

Fiscal Year 2022 Annual Report

Our financial statements for our fiscal year ended December 31, 2022 are included in our 2022 annual report, which we will make available to stockholders at the same time as this proxy statement. This proxy statement and our 2022 annual report are posted on our website at <http://www.arcturusrx.com> at the website of the SEC at www.sec.gov. **You may also obtain a copy of our 2022 annual report without charge by sending a written request to us at Arcturus Therapeutics Holdings Inc., 10628 Science Center Drive, Suite 250, San Diego, California 92121, Attention: Investor Relations.**

Company Website

We maintain a website at <http://www.arcturusrx.com>. Information contained on, or that can be accessed through, our website is not intended to be incorporated by reference into this proxy statement.

PROPOSALS OF STOCKHOLDERS FOR 2024 ANNUAL MEETING

Stockholder Proposals for Inclusion in Proxy Statement

Stockholders may present proper proposals for inclusion in our proxy statement and for consideration at the next annual meeting of stockholders by submitting their proposals in writing to our corporate secretary in a timely manner. For a stockholder proposal to be considered for inclusion in our proxy statement for our next annual meeting of stockholders, our corporate secretary must receive the written proposal at our principal executive offices not later than the close of business on January 1, 2024. In addition, stockholder proposals must comply with the requirements of Rule 14a-8 under the Exchange Act regarding the inclusion of stockholder proposals in company-sponsored proxy materials. Proposals should be addressed to:

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

Stockholder Proposals and Director Nominations Not for Inclusion in Proxy Statement

Our bylaws also establish an advance notice procedure for stockholders who wish to (i) present a proposal before an annual meeting of stockholders, but do not intend for the proposal to be included in our proxy statement or (ii) nominate directors for election at an annual meeting of stockholders. In order to be properly brought before our 2024 annual meeting of stockholders, the stockholder must have given timely notice of such proposal or nomination, in proper written form. To be timely for our 2024 annual meeting of stockholders, a stockholder's notice of a matter that the stockholder wishes to present, or the person or persons the stockholder wishes to nominate as a director, must be delivered to the corporate secretary at Arcturus' principal executive offices not less than 45 days and not more than 75 days prior to the first anniversary of the date of the mailing of the materials for the preceding year's annual meeting of stockholders. As a result, any written notice given by a stockholder pursuant to these provisions of our bylaws must be received by our corporate secretary at our principal executive offices:

- not earlier than February 16, 2024, and
- not later than March 18, 2024

In the event that we hold our 2024 annual meeting of stockholders more than 30 days before or more than 30 days after the one-year anniversary date of the 2023 annual meeting, then such written notice must be received no later than the close of business on the later of the following two dates:

- the 90th day prior to such annual meeting, or
- the 10th day following the day on which public announcement of the date of such meeting is first made.

To be in proper written form, a stockholder's notice must include the specified information concerning the proposal or nominee as described in our bylaws. Notices should be addressed to:

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

For additional information regarding stockholder recommendations for director candidates, please see the section entitled "Requirements for Stockholder Recommendations of a Candidate to our Board."

We know of no other matters to be submitted at the 2023 annual meeting. If any other matters properly come before the 2022 annual meeting, it is the intention of the persons named in the proxy to vote the shares they represent as the Board may recommend. Discretionary authority with respect to such other matters is granted by a properly submitted proxy.

It is important that your shares be represented at the 2023 annual meeting, regardless of the number of shares that you hold. You are, therefore, urged to vote as promptly as possible to ensure your vote is recorded.

THE BOARD OF DIRECTORS

San Diego, California
May 1, 2023

YOUR VOTE IS IMPORTANT. PLEASE VOTE TODAY.

**Vote by Internet - QUICK ★★ EASY
IMMEDIATE - 24 Hours a Day, 7 Days a Week or by Mail**

**ARCTURUS THERAPEUTICS
HOLDINGS INC.**

Your Internet vote authorizes the named proxies to vote your shares in the same manner as if you marked, signed and returned your proxy card. Votes submitted electronically over the Internet must be received by 11:59 p.m., Eastern Time, on June 13, 2023.



**INTERNET –
www.cstproxyvote.com**

Use the Internet to vote your proxy. Have your proxy card available when you access the above website. Follow the prompts to vote your shares.



MAIL – Mark, sign and date your proxy card and return it in the postage-paid envelope provided.

**PLEASE DO NOT RETURN THE PROXY CARD
IF YOU ARE VOTING ELECTRONICALLY.**

▲ FOLD HERE • DO NOT SEPARATE • INSERT IN ENVELOPE PROVIDED ▲

PROXY

Please mark
your votes
like this



THIS PROXY, WHEN PROPERLY EXECUTED, WILL BE VOTED IN THE MANNER DIRECTED BY THE UNDERSIGNED STOCKHOLDER. IF NO INSTRUCTIONS ARE GIVEN, THIS PROXY WILL BE VOTED FOR THOSE NOMINEES AND THE PROPOSALS LISTED BELOW. DISCRETIONARY VOTING IS HEREBY CONFERRED AS TO CERTAIN MATTERS DESCRIBED IN THE ACCOMPANYING PROXY STATEMENT. THE BOARD OF DIRECTORS RECOMMENDS A VOTE “FOR” EACH NOMINEE AND “FOR” PROPOSALS 2 AND 3.

1. Approval of the election of the following individuals as directors of the Company, to serve until the next annual meeting of stockholders.

- (1) Dr. Peter Farrell
- (2) Joseph E. Payne
- (3) Andy Sassine
- (4) James Barlow
- (5) Dr. Edward W. Holmes
- (6) Dr. Magda Marquet
- (7) Dr. Jing L. Marantz
- (8) Dr. John Markels

**FOR all
Nominees
listed to the
left**

**WITHHOLD AUTHORITY
to vote (except as marked to
the contrary for all nominees
listed to the left)**

2. Approval, by non-binding advisory vote, of the resolution approving the Company's Named Executive Officer compensation, as provided in Proposal Number 2 of the Proxy Statement.

FOR AGAINST ABSTAIN

3. Ratification of the appointment of Ernst & Young LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2023.

FOR AGAINST ABSTAIN

(INSTRUCTION: To withhold authority to vote for any individual nominee, strike a line through that nominee's name in the list above)

CONTROL NUMBER

Signature _____ Signature if held jointly _____ Date _____, 2023.

Note: Please sign exactly as your name appears on this Proxy. When shares are held jointly, each holder should sign. When signing as an executor, administrator, trustee, or guardian, please give the full title as such. If the signer is a corporation, please sign the full corporate name by a duly authorized officer, giving full title as such. If the signer is a partnership, please sign in partnership name by authorized person.

**Important Notice Regarding the Internet Availability of Proxy
Materials for the Annual Meeting of Stockholders
to be held Wednesday, June 14, 2023
To view the 2023 Proxy Statement and the
2022 Annual Report please go to:
<https://www.cstproxy.com/arcturusrx/2023>**

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PROXY

PROXY FOR ANNUAL MEETING OF STOCKHOLDERS TO BE HELD JUNE 14, 2023

THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS

ARCTURUS THERAPEUTICS HOLDINGS INC.

The undersigned appoints Dr. Peter Farrell and Joseph E. Payne, and each of them, agents and proxies of the undersigned, with full power of substitution to each of them, to represent and to vote on behalf of the undersigned all the Common Stock of Arcturus Therapeutics Holdings Inc. (the “Company”) which the undersigned is entitled to vote at the Annual Meeting of Stockholders (the “Meeting”) to be held at 9:00 a.m. (Pacific Time) on Wednesday, June 14, 2023 at 10628 Science Center Drive, Suite 250, San Diego, California 92121, and at any adjournments or postponements thereof, upon the following matters, which are more fully described in the Proxy Statement relating to the Meeting.

(Continued, and to be marked, dated and signed, on the other side)

