

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

SCHEDULE 14A INFORMATION

**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 Pursuant to § 240.14a-12

TOCAGEN 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 (Set forth the amount on which the filing fee is calculated and state how it was determined):

 4. Proposed maximum aggregate value of transaction:

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- Fee paid previously with preliminary materials.
- Check box if any part of the fee is offset as provided by Exchange Act Rule 0-11(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.
 1. Amount Previously Paid:

 2. Form, Schedule or Registration Statement No.:

 3. Filing Party:

 4. Date Filed:

TOCAGEN INC.

4242 Campus Point Court, Suite 500
San Diego, CA 92121



NOTICE OF ANNUAL MEETING OF STOCKHOLDERS

To Be Held On May 29, 2019

Dear Stockholder:

You are cordially invited to attend the 2019 annual meeting of stockholders (the "Annual Meeting") of Tocagen Inc., a Delaware corporation (the "Company"). The meeting will be held on Wednesday, May 29, 2019 at 10:00 a.m. (local time) at the offices of Cooley LLP, 4401 Eastgate Mall, San Diego, CA 92121, for the following purposes:

1. To elect the three Class II directors named herein to hold office until the 2022 annual meeting of stockholders.
2. To ratify the selection by the Audit Committee of the Board of Directors of Ernst & Young LLP as the independent registered public accounting firm of the Company for the fiscal year ending December 31, 2019.
3. To conduct any other business properly brought before the meeting.

These items of business are more fully described in the Proxy Statement accompanying this Notice.

The record date for the Annual Meeting is April 4, 2019. Only stockholders of record at the close of business on that date may vote at the meeting or any adjournment thereof.

By Order of the Board of Directors,
/s/ Martin J. Duvall
Martin J. Duvall
Chief Executive Officer

San Diego, California

April 18, 2019

You are cordially invited to attend the meeting in person. Whether or not you expect to attend the meeting, please complete, date, sign and return the proxy mailed to you, or vote over the telephone or the internet as instructed in these materials, as promptly as possible in order to ensure your representation at the meeting. Even if you have voted by proxy, you may still vote in person if you attend the meeting. Please note, however, that if your shares are held of record by a broker, bank or other nominee and you wish to vote at the meeting, you must obtain a proxy issued in your name from that record holder.

TOCAGEN INC.

**4242 Campus Point Court, Suite 500
San Diego, CA 92121**

**PROXY STATEMENT
FOR THE 2019 ANNUAL MEETING OF STOCKHOLDERS**

To Be Held On May 29, 2019

QUESTIONS AND ANSWERS ABOUT THESE PROXY MATERIALS AND VOTING

Why did I receive a notice regarding the availability of proxy materials on the internet?

Pursuant to rules adopted by the Securities and Exchange Commission (the “SEC”), we have elected to provide access to our proxy materials over the internet. Accordingly, we have sent you a Notice of Internet Availability of Proxy Materials (the “Notice”) because the Board of Directors (sometimes referred to as the “Board”) of Tocagen Inc. (sometimes referred to as “we,” “us,” the “Company” or “Tocagen”) is soliciting your proxy to vote at the 2019 annual meeting of stockholders (the “Annual Meeting”), including at any adjournments or postponements of the Annual Meeting. All stockholders will have the ability to access the proxy materials on the website referred to in the Notice or request to receive a printed set of the proxy materials. Instructions on how to access the proxy materials over the internet or to request a printed copy may be found in the Notice.

We intend to mail the Notice on or about April 19, 2019 to all stockholders of record entitled to vote at the Annual Meeting.

Will I receive any other proxy materials by mail?

We may send you a proxy card, along with a second Notice, on or after April 29, 2019.

How do I attend the Annual Meeting?

The meeting will be held on Wednesday, May 29, 2019 at 10:00 a.m. local time at the offices of Cooley LLP, 4401 Eastgate Mall, San Diego, CA 92121. Directions to the Annual Meeting may be found at <http://goo.gl/maps/6G7tFuZNgAS2>. Information on how to vote in person at the Annual Meeting is discussed below.

Who can vote at the Annual Meeting?

Only stockholders of record at the close of business on April 4, 2019 will be entitled to vote at the Annual Meeting. On this record date, there were 23,270,962 shares of common stock outstanding and entitled to vote.

Stockholder of Record: Shares Registered in Your Name

If, on April 4, 2019, your shares were registered directly in your name with Tocagen’s transfer agent, Computershare Trust Company, N.A., then you are a stockholder of record. As a stockholder of record, you may vote in person at the Annual Meeting or vote by proxy. Whether or not you plan to attend the Annual Meeting, we urge you to fill out and return the proxy card that may be mailed to you, or vote by proxy over the telephone or on the internet as instructed below to ensure your vote is counted.

Beneficial Owner: Shares Registered in the Name of a Broker or Bank

If, on April 4, 2019, your shares were held, not in your name, but rather in an account at a brokerage firm, bank or other similar organization, then you are the beneficial owner of shares held in “street name” and the Notice is being forwarded to you by that organization. The organization holding your account is considered to be 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 agent regarding how to vote the shares in your account. 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 request and obtain a valid proxy from your broker, bank or other agent.

What am I voting on?

There are two matters scheduled for a vote:

- Proposal 1: Election of the three Class II directors named herein to hold office until the 2022 annual meeting of stockholders; and
- Proposal 2: Ratification of the selection by the Audit Committee of the Board of Ernst & Young LLP as the independent registered public accounting firm of the Company for the fiscal year ending December 31, 2019.

What if another matter is properly brought before the Annual Meeting?

The Board knows of no other matters that will be presented for consideration at the Annual Meeting. If any other matters are properly brought before the Annual Meeting, it is the intention of the persons named in the accompanying proxy to vote on those matters in accordance with their best judgment.

How do I vote?

You may either vote “For” all the nominees to the Board or you may “Withhold” your vote for any nominee you specify. For each of the other matters to be voted on, you may vote “For” or “Against” or abstain from voting.

The procedures for voting are as follows:

Stockholder of Record: Shares Registered in Your Name

If you are a stockholder of record, you may vote in person at the Annual Meeting, vote by proxy over the telephone, vote by proxy through the internet or vote by proxy using a proxy card that you may request or that we may elect to deliver at a later time. Whether or not you plan to attend the Annual Meeting, we urge you to vote by proxy to ensure your vote is counted. You may still attend the Annual Meeting and vote in person even if you have already voted by proxy.

- **TO VOTE IN PERSON:** You may come to the Annual Meeting and we will give you a ballot when you arrive.
- **TO VOTE BY PHONE:** To vote over the telephone, dial toll-free 866-390-5389 using any touch-tone telephone and follow the recorded instructions. You will be asked to provide the control number from the Notice. Your telephone vote must be received by 11:59 p.m. Eastern Time on May 28, 2019 to be counted.
- **TO VOTE BY INTERNET:** To vote through the internet, you may complete an electronic proxy card at www.proxypush.com/TOCA. You will be asked to provide the control number from the Notice. Your internet vote must be received by 11:59 p.m. Eastern Time on May 28, 2019 to be counted. **We provide internet proxy voting to allow you to vote your shares online, with procedures designed to ensure the authenticity and correctness of your proxy vote instructions. However, please be aware that you must bear any costs associated with your internet access, such as usage charges from internet access providers and telephone companies.**
- **TO VOTE BY PROXY CARD:** To vote using a proxy card, simply complete, sign and date the proxy card that may be delivered to you and return it promptly in the envelope we have provided or return it to Proxy Tabulator for Tocagen Inc., P.O. Box 8016, Cary, NC 27512. If you return your signed proxy card to us before the Annual Meeting, we will vote your shares as you direct.

Beneficial Owner: Shares Registered in the Name of Broker or Bank

If you are a beneficial owner of shares registered in the name of your brokerage firm, bank or other agent, you should have received the Notice containing voting instructions from that organization rather than from Tocagen. Simply follow the voting instructions in the Notice to ensure that your vote is counted. Alternatively, you may vote by telephone or over the internet as instructed by your broker, bank or other agent. To vote in person at the Annual Meeting, you must obtain a valid proxy from your brokerage firm, bank, dealer or other agent. Follow the instructions from your broker, bank or other agent included with these proxy materials, or contact that organization to request a proxy form.

How many votes do I have?

On each matter to be voted upon, you have one vote for each share of common stock you own as of the close of business on April 4, 2019.

If I am a stockholder of record and I do not vote, or if I return a proxy card or otherwise vote without giving specific voting instructions, what happens?

If you are a stockholder of record and do not vote by completing your proxy card, by telephone, through the internet or in person at the Annual Meeting, your shares will not be voted.

If you return a signed and dated proxy card or otherwise vote without marking voting selections, your shares will be voted, as applicable, "For" the election of all three nominees for director and "For" the ratification of the selection by the Audit Committee of the Board of Ernst & Young LLP as the independent registered public accounting firm of the Company for the fiscal year ending December 31, 2019. If any other matter is properly presented at the meeting, your proxyholder (one of the individuals named on your proxy card) will vote your shares using his or her best judgment.

If I am a beneficial owner of shares held in street name and I do not provide my broker or bank with voting instructions, what happens?

If you are a beneficial owner of shares held in street name and you do not instruct your brokerage firm, bank or other agent how to vote your shares, the question of whether your broker or nominee will still be able to vote your shares depends on whether the particular proposal is considered to be a routine matter under applicable rules. Brokers and nominees can use their discretion to vote uninstructed shares with respect to matters that are considered to be routine under applicable rules, but not with respect to non-routine matters. Under applicable rules and interpretations, non-routine matters are matters that may substantially affect the rights or privileges of stockholders, such as mergers, stockholder proposals, elections of directors (even if not contested), executive compensation (including any advisory stockholder votes on executive compensation and on the frequency of stockholder votes on executive compensation), and certain corporate governance proposals, even if management-supported. Accordingly, without your instructions your broker or nominee may not vote your shares on Proposal 1, but may vote your shares on Proposal 2.

If you are a beneficial owner of shares held in street name, in order to ensure your shares are voted in the way you would prefer, you must provide voting instructions to your broker, bank or other agent by the deadline provided in the materials you receive from your broker, bank or other agent.

Who is paying for this proxy solicitation?

Tocagen will pay for the entire cost of soliciting proxies. In addition to these proxy materials, Tocagen's directors and employees may also solicit proxies in person, by telephone, or by other means of communication. Directors and employees will not be paid any additional compensation for soliciting proxies. We may also reimburse brokerage firms, banks or other agents for the cost of forwarding proxy materials to beneficial owners.

What does it mean if I receive more than one Notice?

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

Can I change my vote after submitting my proxy?

Stockholder of Record: Shares Registered in Your Name

Yes. You can revoke your proxy at any time before the final vote at the Annual Meeting. If you are the record holder of your shares, you may revoke your proxy in any one of the following ways:

- You may submit another properly completed proxy card with a later date.
- You may grant a subsequent proxy by telephone or through the internet.
- You may send a timely written notice that you are revoking your proxy to Tocagen’s Secretary at 4242 Campus Point Court, Suite 500, San Diego, CA 92121.
- You may attend the Annual Meeting and vote in person. Simply attending the meeting will not, by itself, revoke your proxy.

Your most recent proxy card or telephone or internet proxy is the one that is counted.

Beneficial Owner: Shares Registered in the Name of Broker or Bank

If your shares are held by your brokerage firm, bank or other agent, you should follow the instructions provided by your broker, bank or other agent.

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

To be considered for inclusion in the Company’s proxy materials for next year’s annual meeting, your proposal must be submitted in writing by December 21, 2019, to the attention of the Secretary of Tocagen Inc., 4242 Campus Point Court, Suite 500, San Diego, CA 92121. If you wish to submit a proposal (including a director nomination) that is not to be included in the Company’s proxy materials for next year’s annual meeting, you must do so between January 30, 2020 and February 29, 2020. You are also advised to review the Company’s amended and restated bylaws, which contain additional requirements relating to advance notice of stockholder proposals and director nominations.

What are “broker non-votes”?

When a beneficial owner of shares held in “street name” does not give instructions to the brokerage firm, bank or other agent holding the shares as to how to vote on matters deemed to be non-routine under applicable rules, the broker or nominee cannot vote the shares. These unvoted shares are counted as “broker non-votes.”

How are votes counted?

Votes will be counted by the inspector of election appointed for the Annual Meeting, who will separately count, for the proposal to elect directors, votes “For,” “Withhold” and broker non-votes; and, for the proposal to ratify the Audit Committee’s selection of Ernst & Young LLP as our independent registered public accounting firm, votes “For” and “Against,” abstentions and, if applicable, broker non-votes. Abstentions will have no effect on Proposal 1. Abstentions will be counted towards the vote total for Proposal 2 and will have the same effect as “Against” votes. Broker non-votes will be counted towards the presence of a quorum but will not be counted towards the vote total for any proposal.

As a reminder, if you are a beneficial owner of shares held in street name, in order to ensure your shares are voted in the way you would prefer, you must provide voting instructions to your broker, bank or other agent by the deadline provided in the materials you receive from your broker, bank or other agent.

How many votes are needed to approve each proposal?

- For Proposal 1, the election of directors, the three nominees receiving the most “For” votes from the holders of shares present in person or represented by proxy and entitled to vote on the election of directors will be elected. Only votes “For” will affect the outcome.
- To be approved, Proposal 2, the ratification of the selection of Ernst & Young LLP as the Company’s independent registered public accounting firm for its fiscal year ending December 31, 2019, must receive “For” votes from the holders of a majority of shares present in person or represented by proxy and entitled to vote on the matter. If you “Abstain” from voting, it will have the same effect as an “Against” vote.

What is the quorum requirement?

A quorum of stockholders is necessary to hold the Annual Meeting. A quorum will be present if stockholders holding at least a majority of the outstanding shares entitled to vote are present at the Annual Meeting in person or represented by proxy. On the record date, there were 23,270,962 shares outstanding and entitled to vote. **Thus, the holders of 11,635,482 shares must be present in person or represented by proxy at the Annual Meeting to have a quorum.**

Your shares will be counted towards the quorum only if you submit a valid proxy (or one is submitted on your behalf by your brokerage firm, bank or other agent) or if you vote in person at the Annual Meeting. Abstentions and broker non-votes will be counted towards the quorum requirement. If there is no quorum, the holders of a majority of shares present at the Annual Meeting in person or represented by proxy may adjourn the Annual Meeting to another date.

How can I find out the results of the voting at the Annual Meeting?

Preliminary voting results will be announced at the Annual Meeting. In addition, final voting results will be published in a current report on Form 8-K that we expect to file with the SEC within four business days after the Annual Meeting. If final voting results are not available to us in time to file a Form 8-K within four business days after the Annual Meeting, we intend to file a Form 8-K to publish preliminary results and, within four business days after the final results are known to us, file an additional Form 8-K to publish the final results.

PROPOSAL 1

ELECTION OF DIRECTORS

The Board is divided into three classes. Each class consists, as nearly as possible, of one-third of the total number of directors, and each class has a three-year term. Vacancies on the Board may be filled only by persons elected by a majority of the remaining directors. A director elected by the Board to fill a vacancy in a class, including vacancies created by an increase in the number of directors, shall serve for the remainder of the full term of that class and until the director's successor is duly elected and qualified.

The Board presently has eight members. There are three Class II directors whose term of office expires in 2019: Franklin M. Berger, Lori Kunkel, M.D. and David Parkinson, M.D. Proxies may not be voted for a greater number of persons than the number of nominees named in this proxy statement. Mr. Berger, Dr. Kunkel and Dr. Parkinson, each current directors of the Company, were each recommended for reelection to the Board by the Nominating and Corporate Governance Committee of the Board. If reelected at the Annual Meeting, each of these nominees would serve until the 2022 annual meeting of stockholders and until his or her successor has been duly elected and qualified, or, if sooner, until his or her death, resignation or removal. It is the Company's policy to invite directors and nominees for director to attend the Annual Meeting. Five of our directors attended the 2018 Annual Meeting of Stockholders.

Directors are elected by a plurality of the votes of the holders of shares present in person or represented by proxy and entitled to vote on the election of directors. Accordingly, the three nominees receiving the highest number of affirmative votes will be elected. Shares represented by executed proxies will be voted, if authority to do so is not withheld, for the election of Mr. Berger, Dr. Kunkel and Dr. Parkinson. If any nominee becomes unavailable for election as a result of an unexpected occurrence, shares that would have been voted for that nominee instead will be voted for the election of a substitute nominee proposed by the Company. Each of Mr. Berger, Dr. Kunkel and Dr. Parkinson has agreed to serve if elected. The Company's management has no reason to believe that any nominee will be unable to serve.

NOMINEES

The Nominating and Corporate Governance Committee seeks to assemble a Board that, as a whole, possesses the appropriate balance of professional and industry knowledge, financial expertise and high-level management experience necessary to oversee and direct the Company's business. To that end, the Nominating and Corporate Governance Committee has identified and evaluated the nominees in the broader context of the Board's overall composition, with the goal of recruiting members who complement and strengthen the skills of other members and who also exhibit integrity, collegiality, sound business judgment and other qualities that the Nominating and Corporate Governance Committee views as critical to effective functioning of the Board. To provide a mix of experience and perspective on the Board, the Nominating and Corporate Governance Committee also takes into account geographic, gender, age and ethnic diversity. The brief biographies below include information, as of the date of this Proxy Statement, regarding the specific and particular experience, qualifications, attributes or skills of each director or nominee that led the Nominating and Corporate Governance Committee to believe that that nominee should continue to serve on the Board. However, each of the members of the Nominating and Corporate Governance Committee may have a variety of reasons why he believes a particular person would be an appropriate nominee for the Board, and these views may differ from the views of other members.

The Nominating and Corporate Governance Committee is aware that some institutional investors and some institutional shareholder advisory firms have views regarding "overboarding," which refers to a director who sits on an excessive number of boards, due to concerns that "overboarded" directors face excessive time commitments and challenges in fulfilling their duties. In recommending that Mr. Berger and Dr. Parkinson should continue to serve on the Board, the Nominating and Corporate Governance Committee carefully considered the number of other boards on which each of the nominees for reelection serve and determined that the skills, expertise, perspective and other qualities of each of Mr. Berger and Dr. Parkinson outweigh any "overboarding" concerns. Further, the Nominating and Corporate Governance Committee found that each of Mr. Berger and Dr. Parkinson are consistently prepared for meetings of the Board and its committees, are appropriately engaged with management and the other members of the Board outside of meetings of the Board and its committees, and have exemplary attendance records and levels of participation at meetings of the Board and its committees, indicating that neither is "overboarded" in a way that negatively affects his service on our Board.

Nominees for Election for a Three-year Term Expiring at the 2022 Annual Meeting

Franklin M. Berger, 69, has served as a member of our Board since October 2014. Since 2008, Mr. Berger has served as an independent consultant to biopharmaceutical companies rendering strategic and financial advice as the Managing Director of FMB Research. Mr. Berger worked at Sectoral Asset Management as a founder of the small-cap focused NEMO Fund from January 2007 through June 2008. From May 1998 to March 2003, he served at J.P. Morgan Securities Inc., most recently as Managing Director, Equity Research and Senior Biotechnology Analyst. Previously, Mr. Berger served in similar capacities at Salomon Smith Barney and Josephthal & Co. Mr. Berger also serves on the boards of directors of, BELLUS Health, Inc., ESSA Pharma Inc., Proteostasis Therapeutics, Inc., Kezar Life Sciences, Inc. and Five Prime Therapeutics, Inc., each of which is a publicly-held biotechnology company. Mr. Berger previously served as a member of the board of directors of Seattle Genetics, Inc., Asterias Biotherapeutics, Inc. and Aurinia Pharmaceuticals, Inc., publicly-held biopharmaceutical companies, as well as Immune Design Corp., Emisphere Technologies, Inc., BioTime, Inc. and VaxGen, Inc., each of which were publicly-held biopharmaceutical companies during Mr. Berger's service as a director. Mr. Berger received his B.A. in International Relations and his M.A. in International Economics from Johns Hopkins University and received his M.B.A. from the Harvard Business School.

Our Nominating and Corporate Governance Committee and Board believe that Mr. Berger is qualified to serve on our Board due to his financial background and experience as an equity analyst in the biotechnology industry.

Lori Kunkel, M.D., 61, has served as a member of our Board since April 2019 and previously served as a member of our Board from September 2015 until November 2018. Dr. Kunkel previously served as our acting Chief Medical Officer from January 2019 until April 2019 and as a consultant to us from November 2018 through December 2018. From October 2013 to October 2014 she was the acting Chief Medical Officer of Loxo Oncology, Inc., a publicly-held biopharmaceutical company at the time. Prior to that role she was the Chief Medical Officer of Pharmacyclis LLC, the Chief Medical Officer of Proteolix, Inc., and held Vice President positions at Xencor, Inc. and Genitope Corporation, each a biopharmaceutical company. Prior to these positions she held clinical development positions at Genentech and Chiron Corporation, each a biopharmaceutical company. Prior to joining the biotechnology industry, Dr. Kunkel spent ten years in academic medicine and served as a faculty member at the Bone Marrow Transplant Unit in the Division of Hematology/Oncology at University of California, Los Angeles. Dr. Kunkel serves on the board of directors of Curis, Inc., a publicly-held biotechnology company, and Maverick Therapeutics Inc., a privately-held biotechnology company. Dr. Kunkel previously served on the board of directors of Loxo Oncology, Inc., a publicly-held biotechnology company during Dr. Kunkel's service as a director. Dr. Kunkel received her medical degree from University of Southern California and her bachelor's degree in biology from University of California, San Diego. She is board certified in internal medicine and held board certifications in hematology and oncology.

Our Nominating and Corporate Governance Committee and Board believe that Dr. Kunkel is qualified to serve on our Board due to her years of experience with clinical drug development.

David Parkinson, M.D., 68, has served as a member of our Board since April 2015. Since January 2016, Dr. Parkinson has served as the President and Chief Executive Officer of ESSA Pharma, Inc., a publicly-held biopharmaceutical company. Prior to joining ESSA Pharma, Inc., Dr. Parkinson served as a venture advisor at New Enterprise Associates, a venture capital fund, a company he had been with since June 2012. From 2007 to 2012, Dr. Parkinson served as President and Chief Executive Officer of Nodality, Inc., a biotechnology company. Until October 2007, he was Senior Vice-President, Oncology Research and Development at Biogen Idec, Inc., where he oversaw all oncology discovery research efforts and the development of the oncology pipeline. Dr. Parkinson has more than twenty years of experience in oncology clinical development, including leading clinical activities at Amgen and Novartis for the cancer therapeutics Gleevec, Femara, Zometa, Kepivance and Vectibix. Dr. Parkinson presently serves on the board of directors of 3SBio, Inc. and CTI Biopharma, Inc., each a biopharmaceutical company, and previously served on the board of directors of Threshold Pharmaceuticals and Cerulean Pharmaceuticals, each a biopharmaceutical company, Facet Biotech Corporation ("Facet Biotech"), a publicly-held biology driven antibody company acquired by Abbott Pharmaceuticals, and Ambit Biosciences Corporation, a publicly-held biopharmaceutical company acquired by Daiichi Sankyo. Among other prior roles, Dr. Parkinson was Vice President of Oncology Development at Amgen, Vice President of Global Clinical Oncology Development at Novartis and Senior Vice President at Biogen Idec, leading oncology research and development. Previously, Dr. Parkinson worked at the National

Cancer Institute for almost a decade, including serving as chief of the Investigational Drug Branch and acting Associate Director of the Cancer Therapy Evaluation Program. He has also served as the chairman of the FDA Biologics Advisory Committee. He previously served as a member of the board of directors of the Ontario Institute for Cancer Research, and currently serves as a member of the board of directors for the Multiple Myeloma Research Foundation. He served as Chairperson of the American Association of Cancer Research (“AACR”) Finance and Audit Committee for 15 years and is a previously elected member of the board of directors of AACR. Dr. Parkinson received his M.D. from University of Toronto Faculty of Medicine and has held academic positions both at Tufts and the University of Texas MD Anderson Cancer Center.

Our Nominating and Corporate Governance Committee and Board believe that Dr. Parkinson is qualified to serve on our Board due to his years of experience with drug development.

**THE BOARD OF DIRECTORS RECOMMENDS
A VOTE “FOR” EACH NAMED NOMINEE.**

Directors Continuing in Office Until the 2020 Annual Meeting

Martin J. Duvall, 57, has served as our Chief Executive Officer and as a member of our Board since November 2016. Prior to joining us, Mr. Duvall served as Executive Vice President, Chief Commercial Officer of ARIAD Pharmaceuticals, Inc., a publicly-held biotechnology company, from September 2011 to June 2016. From December 2010 to September 2011, he served as Senior Vice President and General Manager for the oncology franchise at Merck & Co., Inc., a publicly-held healthcare company. Prior to that, he served in similar capacities at Abraxis Bioscience, Inc., a publicly-held biotechnology company which was acquired by Celgene Corporation, and MGI Pharma, Inc., a publicly-held biopharmaceutical company which was acquired by Eisai Co., Ltd., and in positions of increasing responsibility at Sanofi US, a publicly-held biotechnology company, and its predecessor companies. Mr. Duvall received his B.S. degree in chemistry from Muhlenberg College, his M.A. degree in chemistry from Johns Hopkins University and his M.B.A. from the University of Kansas.

Our Nominating and Corporate Governance Committee and Board believe that Mr. Duvall’s experience in managing and building biotechnology companies as well as his position of Chief Executive Officer of the Company, qualifies him to serve as a member of our Board.

Faheem Hasnain, 60, has served as the Chairman of our Board since October 2014. Mr. Hasnain has served as Chairman of the Board of Gossamer Bio, Inc., a publicly-held biopharmaceutical company, since January 2018 and served as Chief Executive Officer of Gossamer Bio, Inc. from January 2018 to July 2018. Prior to that, Mr. Hasnain served as President, Chief Executive Officer and as a member of the board of directors of Receptos, Inc. (“Receptos”), a publicly-held biopharmaceutical company, from November 2010 until the company’s acquisition by Celgene Corporation in August 2015. Prior to joining Receptos, Mr. Hasnain was the President and Chief Executive Officer and a director of Facet Biotech, a publicly-held biology driven antibody company. He held that position from December 2008 until the company’s acquisition by Abbott Laboratories in April 2010. Prior to joining Facet Biotech, Mr. Hasnain was President, Chief Executive Officer and a director of PDL BioPharma, Inc. from October 2008 until Facet Biotech was spun off from PDL BioPharma, Inc. in December 2008. From October 2004 to September 2008, Mr. Hasnain served at Biogen Inc., a publicly-held biotechnology company specializing in neurological disorders, autoimmune disorders and cancer, most recently as Executive Vice President in charge of the oncology/rheumatology strategic business unit. Prior to Biogen Inc., Mr. Hasnain held roles with Bristol Myers Squibb, where he was President of the Oncology Therapeutics Network, and for 14 years at GlaxoSmithKline and its predecessor organizations. Mr. Hasnain serves on the board of directors of Kura Oncology, Inc. and Mirati Therapeutics, Inc., publicly held biopharmaceutical companies and Sente, Inc., a privately held biopharmaceutical company, and previously served as a member of the board of directors of Vital Therapies, Inc., Ambit Biosciences Corporation, Seragon Pharmaceuticals, Inc., Tercica, Inc., Aragon Pharmaceuticals, Inc., Pemix Sleep, Inc. and Somaxon Pharmaceuticals, Inc. Mr. Hasnain received a B.H.K. and B.Ed. from the University of Windsor Ontario in Canada.

Our Nominating and Corporate Governance Committee and Board believe that Mr. Hasnain is qualified to serve on our Board due to his years of experience with drug discovery and development and his experience as a biotechnology executive and board member.

Directors Continuing in Office Until the 2021 Annual Meeting

Thomas E. Darcy, 69, has served as a member of our Board since August 2007. Mr. Darcy served as our Chief Financial Officer from August 2007 to February 2017 and as our Executive Vice President from August 2007 to May 2017. Mr. Darcy is a co-founder of Tocagen. Prior to joining us, Mr. Darcy served for over five years as Executive Vice President and Chief Financial Officer of Science Applications International Corporation ("SAIC"), a publicly-held science and technology company. Mr. Darcy also served as a director and chairman of the audit committee of McAfee, Inc., a publicly-held technology company, for over three years until its sale to Intel Corporation in February 2011. Mr. Darcy also currently serves as a director and chairman of the audit committee of Lytx, Inc., a privately-held technology company. Prior to SAIC, he was a Partner in the accounting firm of PricewaterhouseCoopers LLP, where he served as the Managing Partner of both the West and Southwest Region Audit and Business Advisory Service Technology practices, as well as the Managing Partner of the San Diego office. Mr. Darcy is a Certified Public Accountant (inactive) in the state of California and graduated from San Diego State University with a B.S. in Accounting.

Our Nominating and Corporate Governance Committee and Board believe that Mr. Darcy's board, financial and management expertise as well as his experience in founding, managing and building the Company, qualifies him to serve as a member of our Board.

Harry E. Gruber, M.D., 67, has served as our President, Science and Innovation since October 2017 and as a member of our Board since August 2007. During the remainder of 2019, Dr. Gruber's role and responsibilities as our President, Science and Innovation will decrease and he will be transitioning out of our day-to-day operations. Dr. Gruber served as our President, Research and Development from November 2016 to October 2017, as our Chief Executive Officer from August 2007 to November 2016 and served as Chairman of our Board from August 2007 to October 2014. Dr. Gruber is a co-founder of Tocagen and has been the co-founder and/or co-inventor of key technology for the following publicly-held companies: Gensia Inc., a biopharmaceutical company acquired by Teva Pharmaceuticals, Ltd., Viagene Inc., a gene therapy company acquired by Novartis Pharmaceuticals, Aramed, Inc., a biopharmaceutical company, INTERVU Inc., a technology company acquired by Akami Technologies, Inc., and Kintera, Inc., a technology company acquired by Blackbaud. Dr. Gruber previously served as a member of the board of directors of Viagene Inc. and INTERVU Inc. Dr. Gruber holds a B.A. and an M.D. from the University of Pennsylvania and trained in Internal Medicine, Biochemical Genetics and Rheumatology/Immunology at the University of California, San Diego, where he subsequently joined the medical school faculty until founding Gensia Inc.

Our Nominating and Corporate Governance Committee and Board believe that Dr. Gruber's experience in founding, managing and building biotechnology and high tech companies, including the Company, qualifies him to serve on our Board.

Paul Schimmel, Ph.D., 78, has served as a member of our Board since February 2015. Dr. Schimmel is the Hahn Professor of Molecular Medicine and of Chemistry at The Scripps Research Institute, a position he has held since 2001. Dr. Schimmel co-founded Alnylam Pharmaceuticals, a publicly-held biopharmaceutical company, and currently serves as a member of the company's board of directors. He also is a co-founder of and serves as a member of the board of directors of aTyr Pharma, Inc., a publicly-held biopharmaceutical company. In addition, Dr. Schimmel co-founded and served as a director of the following publicly-held companies: Cubist Pharmaceuticals (acquired by Merck and Co.), Alkermes plc, Sirtris Pharmaceuticals (acquired by GlaxoSmithKline) and RepliGen Corporation. Finally, he was a founding director of Momenta Pharmaceuticals, Inc., a publicly-held biopharmaceutical company. Prior to joining The Scripps Research Institute, Dr. Schimmel was the MacArthur professor of biophysics and biochemistry at the Massachusetts Institute of Technology. He also served as chairman for the division of biological chemistry of the American Chemical Society and is an elected member of the American Academy of Arts and Sciences, the National Academy of Sciences, the American Philosophical Society, the National Academy of Medicine and the National Academy of Inventors. Dr. Schimmel received his Ph.D. from the Massachusetts Institute of Technology and his bachelor's degree from Ohio Wesleyan University. He conducted his post-doctoral work at Stanford University and also attended Tufts University Medical School.

Our Nominating and Corporate Governance Committee and Board believe that Dr. Schimmel's years of experience, including board service, with biotechnology enterprises and with cellular mechanisms qualifies him to serve on our Board.

INFORMATION REGARDING THE BOARD OF DIRECTORS AND CORPORATE GOVERNANCE

INDEPENDENCE OF THE BOARD OF DIRECTORS

As required under the Nasdaq Stock Market (“Nasdaq”) listing standards, a majority of the members of a listed company’s board of directors must qualify as “independent,” as affirmatively determined by the board of directors. Our Board consults with the Company’s counsel to ensure that the Board’s determinations are consistent with relevant securities and other laws and regulations regarding the definition of “independent,” including those set forth in pertinent listing standards of Nasdaq, as in effect from time to time.

Consistent with these considerations, after review of all relevant identified transactions or relationships between each director, or any of his or her family members, and the Company, its senior management and its independent auditors, the Board has affirmatively determined that the following five directors are independent directors as defined by Rule 5605(a)(2) of the Nasdaq Listing Rules: Mr. Hasnain, Mr. Berger, Dr. Kunkel, Dr. Parkinson and Dr. Schimmel. In making this determination, the Board found that none of these directors had a material or other disqualifying relationship with the Company. Mr. Duvall and Dr. Gruber are not considered independent because they are executive officers of the Company and Mr. Darcy is not considered independent because of his employment by the Company, which terminated on May 12, 2017.

BOARD LEADERSHIP STRUCTURE

The Board has an independent Chairman, Mr. Hasnain, who has authority, among other things, to call and preside over Board meetings, including meetings of the independent directors, to set meeting agendas and to determine materials to be distributed to the Board. Accordingly, the Chairman has substantial ability to shape the work of the Board. We believe that separation of the positions of Chairman and Chief Executive Officer reinforces the independence of the Board in its oversight of our business and affairs. In addition, we have a separate chair for each committee of the Board. The chair of each committee is expected to report to the Board from time to time, or whenever so requested by the Board, on the activities of his or her committee in fulfilling its responsibilities as detailed in its respective charter or specify any shortcomings should that be the case. In addition, we believe that having a separate Chairman creates an environment that is more conducive to objective evaluation and oversight of management’s performance, increasing management accountability and improving the ability of the Board to monitor whether management’s actions are in the best interests of us and our stockholders. As a result, we believe that having a separate Chairman can enhance the effectiveness of the Board as a whole.

ROLE OF THE BOARD IN RISK OVERSIGHT

One of the key functions of our Board is informed oversight of our risk management process. Our Board does not have a standing risk management committee, but rather administers this oversight function directly through the Board as a whole, as well as through various standing committees of our Board that address risks inherent in their respective areas of oversight. In particular, our Board is responsible for monitoring and assessing strategic risk exposure, including a determination of the nature and level of risk appropriate for the Company. Our Audit Committee has the responsibility to consider and discuss our major financial risk exposures and the steps our management has taken to monitor and control these exposures, including guidelines and policies to govern the process by which risk assessment and management is undertaken. The Audit Committee also monitors compliance with legal and regulatory requirements, in addition to oversight of the performance of our internal audit function. Our Nominating and Corporate Governance Committee monitors the effectiveness of our corporate governance guidelines, including whether they are successful in preventing illegal or improper liability-creating conduct. Our Compensation Committee assesses and monitors whether any of our compensation policies and programs has the potential to encourage excessive risk-taking.

MEETINGS OF THE BOARD OF DIRECTORS

The Board met four times and acted by unanimous written consent three times during 2018. All directors attended at least 75% of the aggregate number of meetings of the Board and of the committees on which they served during 2018.

INFORMATION REGARDING COMMITTEES OF THE BOARD OF DIRECTORS

The Board has an Audit Committee, a Compensation Committee and a Nominating and Corporate Governance Committee. The following table provides membership and meeting information for fiscal year 2018 for each of these committees of the Board:

Name	Audit	Compensation	Nominating and Corporate Governance
Faheem Hasnain	X	X	X*
Franklin M. Berger	X*		X
Lori Kunkel, M.D. (1)		X	
David Parkinson, M.D.	X		
Paul Schimmel, Ph.D.		X*	
Total meetings in 2018	5	3	2

* Committee Chairperson

(1) Dr. Kunkel served on the Compensation Committee until November 2018 and rejoined the Compensation Committee in April 2019.

Below is a description of each committee of the Board.

Each of the committees has authority to engage legal counsel or other experts or consultants, as it deems appropriate to carry out its responsibilities. The Board has determined that each member of each committee meets the applicable Nasdaq rules and regulations regarding “independence” and that each member is free of any relationship that would impair his or her individual exercise of independent judgment with regard to the Company.

Audit Committee

The Audit Committee of the Board was established by the Board in accordance with Section 3(a)(58)(A) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), to oversee the Company’s corporate accounting and financial reporting processes and audits of its financial statements. For this purpose, the Audit Committee performs several functions, including, among other things:

- evaluating the performance, independence and qualifications of our independent auditors and determining whether to retain our existing independent auditors or engage new independent auditors;
- reviewing and approving the engagement of our independent auditors to perform audit services and any permissible non-audit services;
- monitoring the rotation of partners of our independent auditors on our engagement team as required by law;
- prior to engagement of any independent auditor, and at least annually thereafter, reviewing relationships that may reasonably be thought to bear on their independence, and assessing and otherwise taking the appropriate action to oversee the independence of our independent auditor;
- reviewing our annual and quarterly financial statements and reports, including the disclosures contained under the caption “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and discussing the statements and reports with our independent auditors and management;
- reviewing, with our independent auditors and management, significant issues that arise regarding accounting principles and financial statement presentation and matters concerning the scope, adequacy and effectiveness of our financial controls;
- reviewing with management and our independent auditors any earnings announcements and other public announcements regarding material developments;
- establishing procedures for the receipt, retention and treatment of complaints received by us regarding financial controls, accounting or auditing matters and other matters;

- preparing the report that the SEC requires in our annual proxy statement;
- reviewing and providing oversight of any related-person transactions in accordance with our related-person transaction policy and reviewing and monitoring compliance with legal and regulatory responsibilities, including our code of business conduct and ethics;
- reviewing our major financial risk exposures, including the guidelines and policies to govern the process by which risk assessment and risk management are implemented;
- reviewing, on a periodic basis, our investment policy; and
- reviewing and evaluating, on an annual basis, the performance of the Audit Committee and the Audit Committee charter.

The Audit Committee is composed of three directors: Mr. Berger (Chair), Mr. Hasnain and Dr. Parkinson. The Audit Committee met five times during the fiscal year. The Board has adopted a written Audit Committee charter that is available to stockholders on the Company's website at www.tocagen.com. The information on our website is not incorporated by reference into this Proxy Statement or our Annual Report for fiscal year 2018.

The Board reviews the Nasdaq listing standards definition of independence for Audit Committee members on an annual basis and has determined that all members of the Company's Audit Committee are independent (as independence is currently defined in Rule 5605(c)(2)(A)(i) and (ii) of the Nasdaq listing standards and Rule 10A-3 of the Exchange Act).

The Board has also determined that Mr. Berger qualifies as an "audit committee financial expert," as defined in applicable SEC rules. The Board made a qualitative assessment of Mr. Berger's level of knowledge and experience based on a number of factors, including his formal education, prior experience, business acumen and independence.

Report of the Audit Committee of the Board of Directors*

The Audit Committee has reviewed and discussed the audited financial statements for the fiscal year ended December 31, 2018 with management of the Company. The Audit Committee has discussed with the independent registered public accounting firm the matters required to be discussed by Auditing Standard No. 1301, *Communications with Audit Committees*, as adopted by the Public Company Accounting Oversight Board (“PCAOB”). The Audit Committee has also received the written disclosures and the letter from the independent registered public accounting firm required by applicable requirements of the PCAOB regarding the independent registered public accounting firm's communications with the Audit Committee concerning independence, and has discussed with the independent registered public accounting firm the accounting firm's independence. Based on the foregoing, the Audit Committee has recommended to the Board that the audited financial statements be included in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2018.

Franklin M. Berger (Chair)
Faheem Hasnain
David Parkinson, M.D.

** The material in this report is not “soliciting material,” is not deemed “filed” with the SEC and is not to be incorporated by reference in any filing of the Company under the Exchange Act or the Securities Act of 1933, as amended, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.*

Compensation Committee

The Compensation Committee of the Board is composed of three directors: Dr. Schimmel (Chair), Dr. Kunkel and Mr. Hasnain. Our Board has determined that each of the members of our Compensation Committee is a non-employee director, as defined in Rule 16b-3 promulgated under the Exchange Act, and satisfies the Nasdaq independence requirements. The Compensation Committee met three times during the fiscal year. The Board has adopted a written Compensation Committee charter that is available to stockholders on the Company's website at www.tocagen.com. The information on our website is not incorporated by reference into this Proxy Statement or our Annual Report for fiscal year 2018.

The Compensation Committee acts on behalf of the Board to review, adopt or recommend to the Board for adoption, and oversee the Company's compensation strategy, policies, plans and programs. For this purpose, the Compensation Committee performs several functions, including, among other things:

- reviewing, modifying and approving (or if it deems appropriate, making recommendations to the full Board regarding) our overall compensation strategy and policies;
- reviewing and making recommendations to the full Board regarding the compensation and other terms of employment of our executive officers;
- reviewing and approving (or if it deems appropriate, making recommendations to the full Board regarding) performance goals and objectives relevant to the compensation of our executive officers and assessing their performance against these goals and objectives;
- reviewing and approving (or if it deems it appropriate, making recommendations to the full Board regarding) the equity incentive plans, compensation plans and similar programs advisable for us, as well as modifying, amending or terminating existing plans and programs;
- evaluating risks associated with our compensation policies and practices and assessing whether risks arising from our compensation policies and practices for our employees are reasonably likely to have a material adverse effect on us;
- reviewing and making recommendations to the full Board regarding the type and amount of compensation to be paid or awarded to our non-employee board members;
- establishing policies with respect to votes by our stockholders to approve executive compensation to the extent required by Section 14A of the Exchange Act and determining our recommendations regarding the frequency of advisory votes on executive compensation, to the extent required by law;
- reviewing and assessing the independence of compensation consultants, legal counsel and other advisers as required by Section 10C of the Exchange Act;
- administering our equity incentive plans;
- establishing policies with respect to equity compensation arrangements;
- reviewing the competitiveness of our executive compensation programs and evaluating the effectiveness of our compensation policy and strategy in achieving expected benefits to us;
- reviewing and making recommendations to the full Board regarding the terms of any employment agreements, severance arrangements, change in control protections and any other compensatory arrangements for our executive officers;
- reviewing with management and approving our disclosures under the caption "Compensation Discussion and Analysis" in our periodic reports or proxy statements to be filed with the SEC, to the extent such caption is included in any such report or proxy statement;
- preparing the report that the SEC requires in our annual proxy statement; and
- reviewing and evaluating, on an annual basis, the performance of the Compensation Committee and the Compensation Committee charter.

Compensation Committee Processes and Procedures

Typically, the Compensation Committee meets at least three times per year and with greater frequency, if necessary. The agenda for each meeting is usually developed by the Chair of the Compensation Committee, in consultation with management. The Compensation Committee meets regularly in executive session. However, from time to time, various members of management and other employees as well as outside advisors or consultants may be invited by the Compensation Committee to make presentations, to provide financial or other background information or advice or to otherwise participate in Compensation Committee meetings. The Chief Executive Officer does not participate in, and is not present during, any deliberations or determinations of the Compensation Committee regarding his compensation or individual performance objectives. The charter of the Compensation Committee grants the Compensation Committee full access to all books, records, facilities and personnel of the Company. In addition, under its charter, the Compensation Committee has the authority to obtain, at the expense of the Company, advice and assistance from internal and external legal, accounting or other advisers and other external resources that the Compensation Committee considers necessary or appropriate in the performance of its duties. The Compensation Committee has direct responsibility for the oversight of the work of any advisers engaged for the purpose of advising the Compensation Committee. In particular, the Compensation Committee has the sole authority to retain compensation consultants to assist in its evaluation of executive and director compensation, including the authority to approve the consultant's reasonable fees and other retention terms. Under its charter, to the extent required by SEC and Nasdaq rules, the Compensation Committee may select, or receive advice from, a compensation consultant, legal counsel or other adviser to the Compensation Committee, other than in-house legal counsel and certain other types of advisers, only after taking into consideration six factors, prescribed by the SEC and Nasdaq, that bear upon the adviser's independence; however, there is no requirement that any adviser be independent.

In February 2018, after taking into account the six factors prescribed by the SEC and Nasdaq described above, the Company engaged Marsh & McLennan Insurance Agency LLC ("Marsh") as its compensation consultant. Marsh was retained to provide an assessment of the Company's executive and director compensation programs in comparison to executive and director compensation programs at selected publicly-traded peer companies. As part of its engagement, Marsh was requested by the Compensation Committee to develop the peer group of comparative companies and to perform analyses of compensation levels for that group. Marsh developed peer group and related recommendations that were presented to the Compensation Committee for its consideration.

The Compensation Committee holds one or more meetings during the first quarter of the year to discuss and make recommendations to the Board for annual compensation adjustments, annual bonuses, annual equity awards, and new corporate performance objectives. However, the Compensation Committee also considers matters related to individual compensation, such as compensation for new executive hires, as well as high-level strategic issues, such as the efficacy of the Company's compensation strategy, potential modifications to that strategy and new trends, plans or approaches to compensation, at various meetings throughout the year. Generally, the Compensation Committee's process comprises two related elements: the determination of compensation levels and the establishment of performance objectives for the current year. For executives other than the Chief Executive Officer, the Compensation Committee solicits and considers evaluations and recommendations submitted to the Compensation Committee by the Chief Executive Officer. In the case of the Chief Executive Officer, the evaluation of his performance is conducted by the Compensation Committee, which determines recommendations to the Board regarding any adjustments to his compensation as well as awards to be granted. For all executives and directors as part of its deliberations, the Compensation Committee may review and consider, as appropriate, materials such as financial reports and projections, operational data, tax and accounting information, tally sheets that set forth the total compensation that may become payable to executives in various hypothetical scenarios, executive and director stock ownership information, company stock performance data, analyses of historical executive compensation levels and current Company-wide compensation levels, compensation data from comparative companies, compensation surveys, and recommendations of any compensation consultant, if applicable.

Nominating and Corporate Governance Committee

The Nominating and Corporate Governance Committee of the Board is responsible for identifying, reviewing and evaluating candidates to serve as directors of the Company (consistent with criteria approved by the Board), reviewing and evaluating incumbent directors, selecting or recommending to the Board for selection candidates for election to the Board, making recommendations to the Board regarding the membership of the committees of the Board, assessing the performance of the Board, and developing a set of corporate governance principles for the Company.

The Nominating and Corporate Governance Committee is composed of two directors: Mr. Hasnain (Chair) and Mr. Berger. Both members of the Nominating and Corporate Governance Committee are independent (as independence is currently defined in Rule 5605(a)(2) of the Nasdaq listing standards). The Nominating and Corporate Governance Committee met twice during the fiscal year. The Board has adopted a written Nominating and Corporate Governance Committee charter that is available to stockholders on the Company's website at www.tocagen.com. The information on our website is not incorporated by reference into this Proxy Statement or our Annual Report for fiscal year 2018. The functions of this committee include, among other things:

- identifying, reviewing and evaluating candidates to serve on our Board, consistent with criteria approved by our Board;
- determining the minimum qualifications for service on our Board;
- evaluating director performance on the Board and applicable committees of the Board and determining whether continued service on our Board is appropriate;
- evaluating, nominating and recommending individuals for membership on our Board;
- evaluating nominations by stockholders of candidates for election to our Board;
- considering and assessing the independence of members of our Board;
- developing a set of corporate governance policies and principles, including a code of business conduct and ethics, periodically reviewing and assessing these policies and principles and their application and recommending to our Board any changes to such policies and principles;
- considering questions of possible conflicts of interest of directors as such questions arise; and
- reviewing and assessing on an annual basis the performance of the Nominating and Corporate Governance Committee and the Nominating and Corporate Governance Committee charter.

The Nominating and Corporate Governance Committee believes that candidates for director should have certain minimum qualifications, including the ability to read and understand basic financial statements, being over 21 years of age and having the highest personal integrity and ethics. The Nominating and Corporate Governance Committee also considers such factors as possessing relevant expertise upon which to be able to offer advice and guidance to management, having sufficient time to devote to the affairs of the Company, demonstrated excellence in his or her field, having the ability to exercise sound business judgment and having the commitment to rigorously represent the long-term interests of the Company's stockholders. However, the Nominating and Corporate Governance Committee retains the right to modify these qualifications from time to time. Candidates for director nominees are reviewed in the context of the current composition of the Board, the operating requirements of the Company and the long-term interests of stockholders. In conducting this assessment, the Nominating and Corporate Governance Committee typically considers diversity (including gender, racial and ethnic diversity), age, skills and such other factors as it deems appropriate, given the current needs of the Board and the Company, to maintain a balance of knowledge, experience and capability.

The Nominating and Corporate Governance Committee appreciates the value of thoughtful Board refreshment, and regularly identifies and considers qualities, skills and other director attributes that would enhance the composition of the Board. In the case of incumbent directors whose terms of office are set to expire, the Nominating and Corporate Governance Committee reviews these directors' overall service to the Company during their terms, including the number of meetings attended, level of participation, quality of performance and any other relationships and transactions that might impair the directors' independence. The Nominating and Corporate Governance Committee also takes into account the results of the Board's self-evaluation, conducted annually on a group and individual basis. In the case of new director candidates, the Nominating and Corporate Governance Committee also determines whether the nominee is independent for Nasdaq purposes, which determination is based upon applicable Nasdaq listing standards, applicable SEC rules and regulations and the advice of counsel, if necessary. The Nominating and Corporate Governance Committee then uses its network of contacts to compile a list of potential candidates, but may also engage, if it deems appropriate, a professional search firm. The Nominating and Corporate Governance Committee conducts any appropriate and necessary inquiries into the backgrounds and qualifications of possible candidates after considering the function and needs of the Board. The Nominating and Corporate Governance Committee meets to discuss and consider the candidates' qualifications and then selects candidates for recommendation to the Board by majority vote.

The Nominating and Corporate Governance Committee will consider director candidates recommended by stockholders. The Nominating and Corporate Governance Committee does not intend to alter the manner in which it evaluates candidates, including the minimum criteria set forth above, based on whether or not the candidate was recommended by a stockholder. Stockholders who wish to recommend individuals for consideration by the Nominating and Corporate Governance Committee to become nominees for election to the Board may do so by delivering a written recommendation to the Nominating and Corporate Governance Committee at the following address: c/o Tocagen Inc., 4242 Campus Point Court, Suite 500, San Diego, CA 92121, Attn: Secretary, no later than the close of business on the 90th day nor earlier than the close of business on the 120th day prior to the first anniversary of the preceding year's annual meeting. Submissions must include the name and address of the Company stockholder on whose behalf the submission is made; the number of Company shares that are owned beneficially by such stockholder as of the date of the submission; the full name of the proposed candidate; a description of the proposed candidate's business experience for at least the previous five years; complete biographical information for the proposed candidate; and a description of the proposed candidate's qualifications as a director. Any such submission must be accompanied by the written consent of the proposed nominee to be named as a nominee and to serve as a director if elected.

STOCKHOLDER COMMUNICATIONS WITH THE BOARD OF DIRECTORS

The Board has adopted a formal process by which stockholders may communicate with the Board or any of its directors. Stockholders who wish to communicate with the Board may do so by sending written communications addressed to the Secretary of Tocagen Inc., 4242 Campus Point Court, Suite 500, San Diego, CA 92121. These communications will be reviewed by the Secretary of Tocagen who will determine whether the communication is appropriate for presentation to the Board or the relevant director. The purpose of this screening is to allow the Board to avoid having to consider irrelevant or inappropriate communications (such as advertisements, solicitations and hostile communications).

CODE OF ETHICS

The Company has adopted a Code of Business Conduct and Ethics that applies to all officers, directors and employees. The Code of Business Conduct and Ethics is available on the Company's website at www.tocagen.com. The information on our website is not incorporated by reference into this Proxy Statement or our Annual Report for fiscal year 2018. If the Company makes any substantive amendments to the Code of Business Conduct and Ethics or grants any waiver from a provision of the code to any executive officer or director, the Company will promptly disclose the nature of the amendment or waiver on its website.

PROPOSAL 2

RATIFICATION OF SELECTION OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Audit Committee has selected Ernst & Young LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2019 and has further directed that management submit the selection of its independent registered public accounting firm for ratification by the stockholders at the Annual Meeting. Ernst & Young has audited the Company's financial statements since 2008. Representatives of Ernst & Young are expected to be present at the Annual Meeting. They will have an opportunity to make a statement if they so desire and will be available to respond to appropriate questions.

Neither the Company's amended and restated bylaws nor other governing documents or law require stockholder ratification of the selection of Ernst & Young as the Company's independent registered public accounting firm. However, the Audit Committee is submitting the selection of Ernst & Young to the stockholders for ratification as a matter of good corporate practice. If the stockholders fail to ratify the selection, the Audit Committee will reconsider whether or not to retain that firm. Even if the selection is ratified, the Audit Committee in its discretion may direct the appointment of different independent auditors at any time during the year if they determine that such a change would be in the best interests of the Company and its stockholders.

The affirmative vote of the holders of a majority of the shares present in person or represented by proxy and entitled to vote on the matter at the Annual Meeting will be required to ratify the selection of Ernst & Young.

PRINCIPAL ACCOUNTANT FEES AND SERVICES

The following table represents aggregate fees billed to the Company by Ernst & Young for the fiscal years ended December 31, 2018 and 2017:

	Fiscal Year Ended	
	December 31,	
	2018	2017
Audit Fees (1)	\$ 469,900	\$ 574,376
Audit Related Fees	—	—
Tax Fees	—	—
All Other Fees	—	—
Total Fees	\$ 469,900	\$ 574,376

- (1) Audit fees consist of fees billed for professional services by Ernst & Young for audit and quarterly review of our financial statements and review of our registration statements on Form S-1, Form S-3 and Form S-8 and regular services that are normally provided in connection with statutory and regulatory filings or engagements. Included in the 2017 audit fee is \$218,167 of fees billed in connection with our April 2017 public offering.

All fees described above were pre-approved by the Audit Committee.

In connection with the audit of the 2018 financial statements, the Company entered into an engagement agreement with Ernst & Young that sets forth the terms by which Ernst & Young will perform audit services for the Company.

PRE-APPROVAL POLICIES AND PROCEDURES

The Audit Committee must pre-approve the audit and non-audit services rendered by the Company's independent registered public accounting firm.

**THE BOARD OF DIRECTORS RECOMMENDS
A VOTE “FOR” PROPOSAL 2.**

EXECUTIVE OFFICERS

Martin J. Duvall, has served as our Chief Executive Officer and as a member of our Board since November 2016. For additional information regarding Mr. Duvall’s industry experience and education, see above under “Directors Continuing in Office Until the 2020 Annual Meeting.”

Harry E. Gruber, M.D., has served as our President, Science and Innovation since October 2017 and as a member of our Board since August 2007. During the remainder of 2019, Dr. Gruber’s role and responsibilities as our President, Science and Innovation will decrease and he will be transitioning out of our day-to-day operations. For additional information regarding Dr. Gruber’s industry experience and education, see above under “Directors Continuing in Office Until the 2021 Annual Meeting.”

Mark Foletta, 58, has served as our Executive Vice President and Chief Financial Officer since February 2017. Prior to joining us, Mr. Foletta served as the Interim Chief Financial Officer of Biocept, Inc., a publicly-held diagnostics company, from August 2015 to July 2016, as an employee of Biocept, Inc. assisting with the Chief Financial Officer transition in August 2016 and as a consultant to Biocept, Inc. on a part-time basis from September 2016 to October 2016. Mr. Foletta served as Senior Vice President, Finance and Chief Financial Officer of Amylin Pharmaceuticals, Inc. (“Amylin”), a publicly-held biopharmaceutical company, from March 2006 until October 2012 and as Vice President, Finance and Chief Financial Officer of Amylin from March 2000 until March 2006. Mr. Foletta serves as lead director of the board of directors and chairman of the audit committee of DexCom, Inc., a publicly-held medical device company and as a member of the board of directors and chairman of the audit committee of AMN Healthcare Services, Inc., a publicly-held healthcare workforce and staffing company, and Viacyte, Inc., a privately-held biotechnology company. Mr. Foletta previously served as a member of the board of directors of Regulus Therapeutics Inc, Ambit Biosciences Corporation and Anadys Pharmaceuticals, Inc., each a publicly-held biopharmaceutical company. Mr. Foletta received a B.A. from the University of California, Santa Barbara. He is a Certified Public Accountant (inactive) and a member of the Corporate Directors Forum.

Douglas Jolly, Ph.D., 71, has served as our Executive Vice President, Research and Pharmaceutical Development since December 2007. Dr. Jolly is a co-founder of Tocagen and an internationally recognized expert in the field of gene therapy and its pharmaceutical application. Over the last 25 years he has been a senior biotechnology executive involved in translating gene-based products from research through clinical development at the following companies: Viagene, Inc., where he was also a co-founder, Chiron Corporation, Oxford BioMedica plc, where he ran the U.S. subsidiary, BioMedica Inc., and Advantagene, Inc. Before entering the biopharmaceutical industry, Dr. Jolly pursued his academic career in biophysics and molecular biology at the Weizmann Institute, Harvard Medical School, Scripps Clinic, the University of California, San Diego and The French National Institute for Health and Medical Research, INSERM, in Paris, France. Dr. Jolly holds a Ph.D. in Biochemistry from the University of Glasgow. Dr. Jolly is a current board member and past chairman of the Industrial Liaison Committee of the American Society of Gene & Cell Therapy.

Fairooz Kabbinavar, M.D., FACP, 62, has served as our Senior Vice President, Clinical Development since April 2019. Prior to joining us, Dr. Kabbinavar served as a principal medical director at Genentech Inc., a biotechnology company, from November 2016 to April 2019, where he led the development of the cancer immunotherapy TECENTRIQ® (atezolizumab) in the small cell lung cancer registration study and supplemental biologics license application, as well as serving as the clinical lead for the head and neck cancer program. Prior to that, Dr. Kabbinavar held academic appointments at the University of California, Los Angeles (“UCLA”) from July 1994 to October 2016, including professor of medicine and urologic oncology, Henry Alvin and Carrie L. Meinhardt endowed chair in kidney cancer research, director of the medical oncology program in genitourinary and lung cancers and co-director of the brain tumor program. Dr. Kabbinavar is board-certified by the American Board of Internal Medicine in Medical Oncology. Dr. Kabbinavar holds B.Sc., MBBS and M.D. degrees from Nagpur University. He completed his postdoctoral research fellowship at UCLA’s Division of Hematology/Oncology, as well as a clinical hematology/oncology fellowship, internship and residency at Beth Israel Deaconess Medical Center.

SECTION 16(A) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Section 16(a) of the Exchange Act requires the Company's directors and executive officers, and persons who own more than ten percent of a registered class of the Company's equity securities, to file with the SEC initial reports of ownership and reports of changes in ownership of common stock and other equity securities of the Company. Officers, directors and greater than ten percent stockholders are required by SEC regulation to furnish the Company with copies of all Section 16(a) forms they file.

To the Company's knowledge, based solely on a review of the copies of such reports furnished to the Company and written representations that no other reports were required, during the fiscal year ended December 31, 2018, all Section 16(a) filing requirements applicable to its officers, directors and greater than ten percent beneficial owners were complied with.

**SECURITY OWNERSHIP OF
CERTAIN BENEFICIAL OWNERS AND MANAGEMENT**

The following table sets forth certain information regarding the ownership of the Company's common stock as of March 31, 2019 by: (i) each director; (ii) each of our named executive officers; (iii) all executive officers and directors of the Company as a group; and (iv) all those known by the Company to be beneficial owners of more than 5% of its common stock.

The following table is based upon information supplied by officers, directors and principal stockholders and Schedules 13G filed with the SEC. Unless otherwise indicated in the footnotes to this table and subject to community property laws where applicable, the Company believes that each of the stockholders named in this table has sole voting and investment power with respect to the shares indicated as beneficially owned. Applicable percentages are based on 23,210,862 shares outstanding on March 31, 2019, adjusted as required by rules promulgated by the SEC. Unless otherwise indicated, the address for the following stockholders is: c/o Tocagen Inc., 4242 Campus Point Court, Suite 500, San Diego, CA 92121.

Beneficial Owner	Beneficial Ownership	
	Number of Shares (#)	Percent of Total (%)
Greater than 5% stockholders		
BlackRock, Inc. (1) 55 East 52nd Street New York, NY 10055	1,501,501	6.5%
Named Executive Officers and Directors		
Martin J. Duvall (2)	412,138	1.7%
Mark Foletta (3)	116,503	*
Douglas Jolly, Ph.D.(4)	538,435	2.1%
Asha Das, M.D.	—	*
Faheem Hasnain (5)	282,197	1.2%
Franklin M. Berger (6)	84,340	*
Thomas E. Darcy (7)	469,768	2.0%
Harry E. Gruber, M.D. (8)	588,207	2.5%
Paul Schimmel, Ph.D. (9)	83,592	*
David Parkinson, M.D. (10)	42,006	*
Lori Kunkel, M.D. (11)	74,334	*
All current executive officers and directors as a group (11 persons) (12)	2,691,520	10.9%

* Less than one percent.

- (1) Information regarding BlackRock, Inc. ("BlackRock") is based solely on a Schedule 13G/A filed by BlackRock with the SEC on February 6, 2019. BlackRock's address is 55 East 52nd Street, New York, NY 10055. The Schedule 13G/A indicates that BlackRock has sole voting power with respect to 1,469,174 shares of common stock and sole dispositive power with respect to all of its shares of common stock.
- (2) Includes (a) 8,605 shares of common stock owned by Mr. Duvall and (b) 403,533 shares of common stock that Mr. Duvall has the right to acquire from us within 60 days of March 31, 2019 pursuant to the exercise of stock options.
- (3) Includes (a) 10,042 shares of common stock owned by Mr. Foletta and (b) 106,461 shares of common stock that Mr. Foletta has the right to acquire from us within 60 days of March 31, 2019 pursuant to the exercise of stock options.
- (4) Includes (a) 393,478 shares of common stock owned by Dr. Jolly (b) 21,739 shares of common stock owned by Dr. Jolly's son, Alexander Jolly, (c) 21,739 shares of common stock owned by Dr. Jolly's daughter, Marianna Jolly and (d) 101,479 shares of common stock that Dr. Jolly has the right to acquire from us within 60 days of March 31, 2019 pursuant to the exercise of stock options.
- (5) Includes (a) 202,857 shares of common stock owned by Faheem Hasnain and Marie Hasnain Co-Trustees of the Hasnain Revocable Trust, Dated February 19, 2010 and (b) 79,340 shares of common stock that Mr. Hasnain has the right to acquire from us within 60 days of March 31, 2019 pursuant to the exercise of stock options.
- (6) Includes (a) 25,335 shares of common stock owned by Mr. Berger and (b) 59,005 shares of common stock that Mr. Berger has the right to acquire from us within 60 days of March 31, 2019 pursuant to the exercise of stock options.

- (7) Includes (a) 369,565 shares of common stock owned by Thomas Eric Darcy and Janet E. Darcy, Trustees of the Darcy Family Trust dated September 21, 2005 and (b) 100,203 shares of common stock that Mr. Darcy has the right to acquire from us within 60 days of March 31, 2019 pursuant to the exercise of stock options. Mr. Darcy is a member of an investment club which may from time to time hold shares of the Company's stock. Mr. Darcy is only one of dozens of voting members of such club and has confirmed for us that he will not vote on club decisions with respect to any such shares, including votes related to voting the shares or disposition of the shares. Mr. Darcy disclaims beneficial ownership over any such shares and the number of shares set forth in this table does not include any such shares.
- (8) Includes (a) 422,497 shares of common stock owned by The Harry Edward Gruber and Joan Diane Cunningham Trust, dated 7/12/1988 and (b) 165,710 shares of common stock that Dr. Gruber has the right to acquire from us within 60 days of March 31, 2019 pursuant to the exercise of stock options.
- (9) Includes (a) 3,623 shares of common stock owned by Paul Schimmel Prototype PSP Paul R. Schimmel, TTEE U/A dtd 01/01/1999 FBO Paul Schimmel, (b) 37,087 shares of common stock owned by Schimmel Revocable Trust Paul R. Schimmel, Trustee Cleo Schimmel, Trustee U/A dtd 9/6/2000 and (e) 42,882 shares of common stock that Dr. Schimmel has the right to acquire from us within 60 days of March 31, 2019 pursuant to the exercise of stock options.
- (10) Includes 42,006 shares of common stock that Dr. Parkinson has the right to acquire from us within 60 days of March 31, 2019 pursuant to the exercise of stock options.
- (11) Includes 74,334 shares of common stock that Dr. Kunkel has the right to acquire from us within 60 days of March 31, 2019 pursuant to the exercise of stock options.
- (12) Includes the shares described in footnotes (2) through (11).

EXECUTIVE AND DIRECTOR COMPENSATION

Our named executive officers for the year ended December 31, 2018, which consists of our principal executive officer, our two other most highly compensated executive officers and our former Senior Vice President and Chief Medical Officer, are:

- Martin J. Duvall, our Chief Executive Officer
- Mark Foletta, our Executive Vice President and Chief Financial Officer
- Douglas Jolly, Ph.D., our Executive Vice President, Research and Pharmaceutical Development
- Asha Das, M.D., our former Senior Vice President and Chief Medical Officer

Summary Compensation Table

The following table shows the compensation earned by our named executive officers for the fiscal years ended December 31, 2018 and 2017.

Name and principal position	Year	Salary (\$)	Non-equity incentive plan compensation \$(1)	Option awards \$(2)	All other compensation \$(3)	Total (\$)
Martin J. Duvall	2018	511,192	270,932	1,237,155	560	2,019,839
<i>Chief Executive Officer</i>	2017	446,154	265,462	3,625,194	59,914	4,396,724
Mark Foletta(4)	2018	378,981	160,688	701,054	426	1,241,149
<i>Executive Vice President and Chief Financial Officer</i>	2017	304,808	145,088	1,696,383	563	2,146,842
Douglas Jolly, Ph.D.	2018	297,019	119,699	206,192	150	623,060
<i>Executive Vice President, Research and Pharmaceutical Development</i>	2017	266,962	106,751	503,935	489	878,137
Asha Das, M.D. (5)	2018	341,808	—	577,339	427	919,574
<i>Former Senior Vice President and Chief Medical Officer</i>	2017	346,731	140,166	1,559,150	750	2,046,797

- (1) Amounts shown represent performance bonuses earned in 2018 and 2017, which were paid in cash in February 2019 and 2018, respectively.
- (2) In accordance with SEC rules, this column reflects the aggregate grant date fair value of the stock option awards granted during 2018 and 2017, as applicable, computed in accordance with Financial Accounting Standard Board (“FASB”) Accounting Standards Codification Topic 718 for stock-based compensation transactions (“ASC 718”). Assumptions used in the calculation of these amounts are described in Note 7 to our audited financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2018. These amounts do not reflect the actual economic value that will be realized by the named executive officer upon the vesting of the stock options, the exercise of the stock options, or the sale of the common stock underlying such stock options.
- (3) This column reflects term life insurance premiums paid by us on behalf of each of the named executive officers. In addition, this column includes \$59,164 for reimbursed relocation expenses for Mr. Duvall in 2017. The insurance benefits are provided to the named executive officers on the same terms as provided to all of our regular full-time employees. For more information regarding these benefits, see below under “— Perquisites, Health, Welfare and Retirement Benefits.”
- (4) Mr. Foletta joined us on February 27, 2017. Accordingly, the salary and non-equity incentive plan compensation amounts listed for Mr. Foletta for 2017 represent compensation earned from that date through December 31, 2017.
- (5) Dr. Das served as our Senior Vice President and Chief Medical Officer until her resignation effective as of November 23, 2018. Accordingly, the salary amount listed for Dr. Das for 2018 represent compensation earned from January 1, 2018 through November 23, 2018.

Compensation Program Overview

Our compensation program for executive officers is designed to encourage our management team to continually achieve our short-term and long-term corporate objectives while effectively managing business risks and challenges. We provide what we believe is a competitive total compensation package to our management team through a combination of base salary, an annual performance-based bonus and long-term equity-based incentives.

The compensation of our named executive officers other than our chief executive officer is generally determined and approved by the Compensation Committee of our Board, and the compensation of our chief executive officer is approved by our Board based upon the recommendations of the Compensation Committee.

Annual Base Salary

As of December 31, 2018, the annual base salaries for our named executive officers are provided below, which reflect increases that were effective as of March 1, 2018.

Name	2018 Base Salary (\$)
Martin J. Duvall	515,000
Mark Foletta	380,000
Douglas Jolly, Ph.D.	300,000
Asha Das, M.D. (1)	N/A

(1) Dr. Das resigned effective as of November 23, 2018. At the time of her resignation, Dr. Das' annual base salary was \$380,000.

In February 2019, the Board, based upon the recommendation of the Compensation Committee, approved a 2019 base salary for Mr. Duvall of \$515,000, consistent with his 2018 base salary. Also, in February 2019, the Compensation Committee approved an increase in the 2019 annual base salary for Mr. Foletta to \$390,000 and a 2019 annual base salary for Dr. Jolly of \$300,000, consistent with his 2018 base salary. Mr. Foletta's increased annual base salary was effective as of March 1, 2019.

Bonus Compensation

On February 7, 2018, the Compensation Committee approved our 2018 bonus plan (the "2018 Bonus Plan"), *provided*, that Mr. Duvall's target bonus opportunity under the 2018 Bonus Plan was approved by our Board, based on the recommendation of the Compensation Committee, on February 8, 2018. Under the 2018 Bonus Plan, our executive officers are provided with the opportunity to earn bonus payments calculated based upon the achievement of specified corporate and individual goals, with each executive officer being assigned a corporate and individual goal weighting. Under the 2018 Bonus Plan, each executive officer is assigned a target bonus opportunity, which is reflected as a percentage of that individual's 2018 base salary and is based on the individual's role and title in the Company.

Under the 2017 Bonus Plan, the target bonus opportunity as a percentage of 2018 base salary and corporate and individual goal weighting for each of our named executive officers is as follows:

Name	Target Bonus	Corporate Goal Weighting (%)	Individual Goal Weighting (%)
Martin J. Duvall	50%	100	—
Mark Foletta	40%	100	—
Douglas Jolly, Ph.D.	40%	75	25
Asha Das, M.D. (1)	40%	75	25

(1) Dr. Das resigned effective as of November 23, 2018.

The corporate goals under the 2018 Bonus Plan consist of clinical development goals, operational goals, strategic goals and financial goals.

In February 2019, the Board, based on the recommendation of the Compensation Committee, awarded bonuses to our named executive officers (other than Dr. Das) under our 2018 Bonus Plan based on an assessment of both corporate and individual performance, as applicable, during 2018. Mr. Duvall was awarded a \$270,932 bonus, Mr. Foletta was awarded a \$160,688 bonus and Dr. Jolly was awarded \$119,699, in each case in recognition of such achievement.

Equity-Based Incentive Awards

Our equity-based incentive awards are designed to align our interests and those of our stockholders with those of our employees and consultants, including our named executive officers. The Board and Compensation Committee are responsible for approving equity grants to our executive officers. To date, stock option awards are the only form of equity awards we have granted to our named executive officers.

We have historically used stock options as an incentive for long-term compensation to our named executive officers because they are able to profit from stock options only if our stock price increases relative to the stock option's exercise price, which exercise price is set at the fair market value of our common stock on the date of grant. We may grant equity awards to our executive officers at such times as our Board and/or Compensation Committee determines appropriate. Our executives generally are awarded an initial grant in the form of a stock option in connection with their commencement of employment with us. Additional grants may occur periodically in order to specifically incentivize executives with respect to achieving certain corporate goals or to reward executives for exceptional performance.

Prior to our initial public offering in April 2017, we granted all stock options pursuant to our 2009 Equity Incentive Plan, as amended (the "2009 Plan"). Following our initial public offering, we have granted and will grant equity incentive awards under the terms of our 2017 Equity Incentive Plan (the "2017 Plan"). The terms of our equity plans are described below under "— Equity Benefit Plans."

All options are granted with an exercise price per share that is no less than the fair market value of our common stock on the date of grant of such award. Our stock option awards generally vest over a four-year period and may be subject to acceleration of vesting and exercisability under certain termination and change in control events. See "— Outstanding Equity Awards at Fiscal Year-End."

In March 2018, as part of the Board's annual review of executive compensation, the Board granted options to purchase 150,000 shares, 85,000 shares, 25,000 shares and 70,000 shares of common stock to Mr. Duvall, Mr. Foletta, Dr. Jolly and Dr. Das, respectively. Each of these options were granted under our 2017 Plan and have a per share exercise price equal to \$11.19, the closing price of our common stock as reported on The Nasdaq Global Market on March 1, 2018, the date of grant. Each option is subject to a four-year vesting schedule, with 25% vesting one year after the vesting commencement date and the balance vesting monthly over the remaining 36 months, subject to the respective optionholder's continued service with us and provides for (1) vesting acceleration of up to 25% of the shares subject to the option in the event of the respective optionholder's death or disability and (2) full acceleration of all of the shares subject to the option in the event of a change in control.

Securities Authorized for Issuance under Equity Compensation Plans

The following table provides certain information with respect to all of the Company's equity compensation plans in effect as of December 31, 2018.

Plan Category	Equity Compensation Plan Information		
	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 issuance under equity compensation plans, excluding securities reflected in column (a) (c) (1)
Equity compensation plans approved by security holders:	3,469,085	\$ 11.81	777,241
Equity compensation plans not approved by security holders (2):	75,000	\$ 15.59	—
Total	3,544,085		777,241

- (1) Includes the 2017 Plan, the 2009 Plan, and our 2017 Employee Stock Purchase Plan (the "ESPP"). 326,178 shares under column (c) were subject to purchase under our ESPP.
- (2) In September 2018, the Compensation Committee approved an amendment to the 2017 Plan to reserve an additional 75,000 shares of common stock (the "Inducement Pool") to be used exclusively for grants of awards to individuals who were not previously employees or non-employee directors of the Company (or following a bona fide period of non-employment with the Company), as an inducement material to the individual's entry into employment with the Company within the meaning of Rule 5635(c)(4) of the Nasdaq Listing Rules ("Rule 5635(c)(4)"). The 2017 Plan was amended by the Compensation Committee without stockholder approval pursuant to Rule 5635(c)(4). In February 2019, the Compensation Committee approved an additional amendment to the 2017 Plan without stockholder approval pursuant to Rule 5635(c)(4) to increase the number of shares reserved under the Inducement Pool by an additional 100,000 shares of common stock.

Agreements with our Named Executive Officers

In February 2018, we entered into an amended and restated executive employment agreement with Mr. Duvall ("Duvall Agreement"). Mr. Duvall's employment under the Duvall Agreement is at will and may be terminated at any time by us or him. Pursuant to the Duvall Agreement, Mr. Duvall is entitled to: (i) an annual base salary of \$480,000, which increased to \$515,000 effective as of March 1, 2018, and (ii) a discretionary annual bonus of up to 50% of Mr. Duvall's base salary, based on achievement of individual and/or corporate performance targets, metrics and/or objectives to be determined and approved by the Board or the Compensation Committee. In the event we terminate Mr. Duvall's employment without cause (other than due to his death or disability) or if Mr. Duvall resigns for good reason at any time (collectively, an "Involuntary Termination"), Mr. Duvall is entitled to receive (A) severance payments in the form of continuation of his base salary then in effect (ignoring any decrease that forms the basis for his resignation for good reason, if applicable) for 18 months, (B) continued health insurance coverage under our group health plans under the Consolidated Omnibus Budget Reconciliation Act of 1985 or the state equivalent ("COBRA") until the earliest of (1) the end of the 18 month severance period, (2) the expiration of his eligibility for the continuation coverage, or (3) the date when he becomes eligible for substantially equivalent health insurance coverage in connection with new employment or self-employment and (C) an extension of the period of time following which he may exercise vested shares subject to outstanding equity awards until the date that is the earlier of the original expiration date of such award and 18 months following such Involuntary Termination (the "Duvall Severance Benefits"). Additionally, in the event of an Involuntary Termination at any time during the time period commencing three months prior to or 12 months after the effective date of a change in control of us, Mr. Duvall is entitled to receive (x) a cash payment equal to 1.5 times Mr. Duvall's target annual bonus in effect at the time of the Involuntary Termination and (y) full vesting acceleration of all shares subject to time-based vesting stock awards then outstanding and held by Mr. Duvall (the "Duvall Change in Control Severance Benefits"). The Duvall Severance Benefits and Duvall Change in Control Severance Benefits are conditioned upon Mr. Duvall signing and not revoking a general release of legal claims in the form provided by us.

In February 2018, we entered into an amended and restated executive employment agreement with Mr. Foletta (“Foletta Agreement”). Mr. Foletta’s employment under the Foletta Agreement is at will and may be terminated at any time by us or him. Pursuant to the Foletta Agreement, Mr. Foletta is entitled to: (i) an annual base salary of \$365,000, which increased to \$390,000 effective as of March 1, 2019 and (ii) a discretionary annual bonus of up to 40% of Mr. Foletta’s base salary, based on achievement of individual and/or corporate performance targets, metrics and/or objectives to be determined and approved by the Board or the Compensation Committee. In the event of an Involuntary Termination of Mr. Foletta, Mr. Foletta is entitled to receive (A) severance payments in the form of continuation of his base salary then in effect (ignoring any decrease that forms the basis for his resignation for good reason, if applicable) for 12 months, (B) continued health insurance coverage under our group health plans under COBRA until the earliest of (1) the end of the 12 month severance period, (2) the expiration of his eligibility for the continuation coverage, or (3) the date when he becomes eligible for substantially equivalent health insurance coverage in connection with new employment or self-employment and (C) an extension of the period of time following which he may exercise vested shares subject to outstanding equity awards until the date that is the earlier of the original expiration date of such award and 12 months following such Involuntary Termination (the “Foletta Severance Benefits”). Additionally, in the event of an Involuntary Termination at any time during the time period commencing three months prior to or 12 months after the effective date of a change in control of us, Mr. Foletta is entitled to receive (x) a cash payment equal to Mr. Foletta’s target annual bonus in effect at the time of the Involuntary Termination and (y) full vesting acceleration of all shares subject to time-based vesting stock awards then outstanding and held by Mr. Foletta (the “Foletta Change in Control Severance Benefits”). The Foletta Severance Benefits and Foletta Change in Control Severance Benefits are conditioned upon Mr. Foletta signing and not revoking a general release of legal claims in the form provided by us.

In February 2018, we entered into an executive employment agreement with Dr. Jolly (the “Jolly Agreement”). Dr. Jolly’s employment under the Jolly Agreement is at will and may be terminated at any time by us or him. Pursuant to the Jolly Agreement, Dr. Jolly is entitled to: (i) an annual base salary of \$275,000, which increased to \$300,000 effective as of March 1, 2018, and (ii) a discretionary annual bonus of up to 40% of Dr. Jolly’s base salary, based on achievement of individual and/or corporate performance targets, metrics and/or objectives to be determined and approved by the Board or the Compensation Committee. In the event of an Involuntary Termination of Dr. Jolly, Dr. Jolly is entitled to receive (A) severance payments in the form of continuation of his base salary then in effect (ignoring any decrease that forms the basis for his resignation for good reason, if applicable) for 9 months (the “Jolly Severance Period”), and (B) continued health insurance coverage under our group health plans COBRA until the earliest of (1) the end of the Dr. Jolly’s Severance Period, (2) the expiration of his eligibility for the continuation coverage, or (3) the date when he becomes eligible for substantially equivalent health insurance coverage in connection with new employment or self-employment (the “Jolly Severance Benefits”). Additionally, in the event of an Involuntary Termination at any time during the time period commencing three months prior to or 12 months after the effective date of a change in control of us, Dr. Jolly is entitled to receive (x) a cash payment equal to Dr. Jolly’s target annual bonus in effect at the time of the Involuntary Termination, (y) full vesting acceleration of all shares subject to time-based vesting stock awards then outstanding and held by Dr. Jolly and (z) an extension of the Jolly Severance Period such that it is equal to 12 months for purposes of the Jolly Severance Benefits (the “Jolly Change in Control Severance Benefits”). The Jolly Severance Benefits and Jolly Change in Control Severance Benefits are conditioned upon Dr. Jolly signing and not revoking a general release of legal claims in the form provided by us.

In February 2018, we entered into an executive employment agreement with Dr. Das (the “Das Agreement”). Dr. Das’ employment under the Das Agreement was at will and could be terminated at any time by us or her. Pursuant to the Das Agreement, Dr. Das was entitled to: (i) an annual base salary of \$370,000, which increased to \$380,000 effective as of March 1, 2018, and (ii) a discretionary annual bonus of up to 40% of Dr. Das’ base salary, based on achievement of individual and/or corporate performance targets, metrics and/or objectives to be determined and approved by the Board or the Compensation Committee. In the event of an Involuntary Termination of Dr. Das, Dr. Das was entitled to receive (A) severance payments in the form of continuation of her base salary then in effect (ignoring any decrease that forms the basis for her resignation for good reason, if applicable) for 9 months (the “Das Severance Period”), and (B) continued health insurance coverage under our group health plans COBRA until the earliest of (1) the end of the Das Severance Period, (2) the expiration of her eligibility for the continuation coverage, or (3) the date when she becomes eligible for substantially equivalent health insurance coverage in connection with new employment or self-employment (the “Das Severance Benefits”). Additionally, in the event of an Involuntary Termination at any time during the time period commencing three months prior to or 12 months after the effective date of a change in control of us, Dr. Das was entitled to receive (x) a cash payment equal to Dr. Das’ target annual bonus in effect at the time of the Involuntary Termination, (y) full vesting acceleration of all shares subject to time-based vesting stock awards then outstanding and held by Dr. Das and (z) an extension of the Das Severance Period such that it is equal to 12 months for purposes of the Das Severance Benefits (the “Das Change in Control Severance Benefits”). The Das Severance Benefits and Das Change in Control Severance Benefits are conditioned upon Dr. Das signing and not revoking a general release of legal claims in the form provided by us. Dr. Das resigned from the Company effective November 23, 2018.

For the purposes of the Duvall Agreement, Foletta Agreement, Jolly Agreement and Das Agreement, “cause” means the occurrence of any of the following events: (i) executive’s commission of any felony or any crime involving fraud, dishonesty or moral turpitude under the laws of the United States or any state thereof; (ii) executive’s attempted commission of, or participation in, a fraud or act of dishonesty against the Company; (iii) executive’s intentional, material violation of any contract or agreement between executive and the Company or of any statutory duty owed to the Company that has not been cured, if curable, within fifteen (15) days after written notice from the Board of such violation; (iv) executive’s unauthorized use or disclosure of the Company’s confidential information or trade secrets; or (v) executive’s gross misconduct that has not been cured, if curable, within fifteen (15) days after written notice from the Board requesting that the executive cure such misconduct. For purposes of the Duvall Agreement, Foletta Agreement, Jolly Agreement and Das Agreement, “good reason” means voluntary resignation of employment with us within 30 days of the occurrence of one or more of the following undertaken by us without executive’s consent, after we fail to remedy the condition within a 30 day cure period: (1) a material reduction in executive’s base salary (i.e. a reduction of at least 10% of base salary (unless pursuant to a salary reduction program applicable generally to the Company’s similarly situated employees)); (2) a material reduction in executive’s authority, duties or responsibilities; (3) (a) with respect to the Duvall Agreement only, a material reduction in the authority, duties, or responsibilities of the supervisor to whom he is required to report, including a requirement that he reports to a corporate officer or employee instead of reporting directly to the Board, and (b) with respect to the Foletta Agreement, a material reduction in the authority, duties, or responsibilities of the supervisor to whom he is required to report, including a requirement that he reports to a corporate officer or employee instead of reporting directly to the Chief Executive Officer; (4) a relocation of executive’s principal place of employment to a place that increases executive’s one-way commute by more than 50 miles as compared to executive’s then-current principal place of employment immediately prior to such relocation (excluding regular travel in the ordinary course of business); and (5) a breach of a material provision of the employment agreement by the Company.

Any potential payments and benefits due upon a qualifying termination of employment or a change in control are further described below under “— Potential Payments and Benefits upon Termination or Change in Control.”

Potential Payments Upon Termination or Change of Control

Regardless of the manner in which a named executive officer’s service terminates, the named executive officer is entitled to receive amounts earned during his or her term of service, including unpaid salary and unused vacation, as applicable. In addition, our named executive officers are entitled to receive certain benefits upon our termination of their employment without cause or their resignation for good reason, as provided above under “— Agreements with Named Executive Officers.”

Other than Dr. Das, each of our named executive officers holds stock options that were granted subject to the general terms of our 2017 Plan and our 2009 Plan. A description of the termination and change in control provisions in our 2017 Plan and our 2009 Plan and applicable to the stock options granted to our named executive officers is provided below under “— Equity Benefit Plans” and “—Outstanding Equity Awards at Fiscal Year-End” and above under “—Equity-Based Incentive Awards.”

Outstanding Equity Awards at Fiscal Year-End

The following table sets forth certain information regarding equity awards granted to our named executive officers that remain outstanding as of December 31, 2018:

	Option Awards ⁽¹⁾					
	Grant Date	Number of Securities Underlying Unexercised Options Exercisable (#)	Number of Securities Underlying Unexercised Options Unexercisable (#)	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price (\$) ⁽²⁾	Option Expiration Date
Martin J. Duvall	11/16/2016	160,784 (3)	147,922 (3)	—	\$ 16.56	11/15/2026
	11/16/2016	—	—	154,353 (4)	\$ 16.56	11/15/2026
	4/12/2017	19,474 (5)	27,265 (5)	—	\$ 10.00	4/11/2027
	5/26/2017	112,812 (6)	172,188 (6)	—	\$ 16.32	5/25/2027
	3/01/2018	—	150,000 (7)	—	\$ 11.19	2/28/2028
Mark Foletta	3/06/2017	31,916 (8)	37,720 (8)	—	\$ 15.12	3/05/2027
	3/06/2017	—	—	34,298 (4)	\$ 15.12	3/05/2027
	5/26/2017	33,645 (9)	51,355 (9)	—	\$ 16.32	5/25/2027
	3/01/2018	—	85,000 (10)	—	\$ 11.19	2/28/2028
Douglas Jolly, Ph.D.	3/14/2013	57,971 (11)	— (11)	—	\$ 3.94	3/13/2023
	6/10/2016	9,661 (12)	4,831 (12)	—	\$ 14.98	6/9/2026
	4/12/2017	6,038 (13)	8,454 (13)	—	\$ 10.00	4/11/2027
	5/26/2017	13,854 (14)	21,146 (14)	—	\$ 16.32	5/25/2027
	3/01/2018	— (15)	25,000 (15)	—	\$ 11.19	2/28/2028
Asha Das, M.D.	5/12/2015	31,702 (16)	—	—	\$ 11.60	2/23/2019
	6/10/2016	1,403 (17)	—	—	\$ 14.98	2/23/2019
	4/12/2017	2,867 (18)	—	—	\$ 10.00	2/23/2019
	5/26/2017	46,041 (19)	—	—	\$ 16.32	2/23/2019

- (1) All of the outstanding stock option awards were granted under and subject to the terms of the 2009 Plan or 2017 Plan, as applicable, described below under “— Equity Benefit Plans.” As of December 31, 2018, each option award becomes exercisable as it becomes vested and all vesting is subject to the executive’s continuous service with us through the vesting dates and the potential vesting acceleration described above under “— Agreements with our Named Executive Officers” and “— Potential Payments and Benefits upon Termination or Change in Control.”
- (2) All of the stock option awards were granted with a per share exercise price equal to the fair market value of one share of our common stock on the date of grant, as determined in good faith by our Board.
- (3) 77,176 shares vested on November 1, 2017 and 6,431 shares vest on the 1st day of each month commencing thereafter and ending on November 1, 2020.
- (4) The shares shall vest upon the achievement of three separate development and regulatory milestones (with one-third of the shares vesting upon the achievement of each milestone).
- (5) 11,684 shares vested on April 1, 2018 and 973 shares vest on the 1st day of each month commencing thereafter and ending on April 1, 2021.

- (6) 71,250 shares vested on May 26, 2018 and 5,937 shares will vest on the 26th day of each month commencing thereafter and ending on May 26, 2021.
- (7) 37,500 shares vested on March 1, 2019 and 3,125 shares will vest on the 1st day of each month commencing thereafter and ending March 1, 2022.
- (8) 17,409 shares vested on February 27, 2018 and 1,450 shares vest on the 27th day of each month commencing thereafter and ending on February 27, 2021.
- (9) 21,250 shares vested on May 26, 2018 and 1,770 shares will vest on the 26th day of each month commencing thereafter and ending on May 26, 2021.
- (10) 21,250 shares vested on March 1, 2019 and 1,770 shares will vest on the 1st day of each month commencing thereafter and ending March 1, 2022.
- (11) 14,492 shares vested on April 1, 2013 and 1,207 shares vested on the 1st day of each month commencing thereafter and ending April 1, 2016.
- (12) 3,623 shares vested on April 1, 2017 and 301 shares vest on the 10th day of each month commencing thereafter and ending April 1, 2020.
- (13) 3,623 shares vested on April 1, 2018 and 301 shares vest on the 12th day of each month commencing thereafter and ending April 1, 2021.
- (14) 8,750 shares vested on May 26, 2018 and 729 shares vest on the 26th day of each month commencing thereafter and ending May 26, 2021.
- (15) 6,250 shares vested on March 1, 2019 and 520 shares will vest on the 1st day of each month commencing thereafter and ending March 1, 2022.
- (16) 9,057 shares vested on April 29, 2016 and 754 shares vested on the 29th day of each month commencing thereafter and ending November 23, 2018 upon Dr. Das' termination date.
- (17) 543 shares vested on April 1, 2017 and 45 shares vested on the 1st day of each month commencing thereafter and ending on November 23, 2018 upon Dr. Das' termination date.
- (18) 1,811 shares vested on April 1, 2018 and 150 shares vested on the 1st day of each month commencing thereafter and ending November 23, 2018 upon Dr. Das' termination date.
- (19) 32,500 shares vested on May 26, 2018 and 2,708 shares vested on the 26th day of each month commencing thereafter and ending November 23, 2018 upon Dr. Das' termination date.

Option Repricings

We did not engage in any repricings or other modifications or cancellations to any of our named executive officers' outstanding equity awards during the fiscal year ended December 31, 2018.

Perquisites Health, Welfare and Retirement Benefits

Our named executive officers, during their employment with us, are eligible to participate in our employee benefit plans, including our medical, dental, group term 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) plan to our employees, including our 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. We do, however, pay the premiums for medical, dental, group term life, disability and accidental death and dismemberment insurance for all of our employees, including our named executive officers. Our Board may elect to adopt qualified or nonqualified benefit plans in the future if it determines that doing so is in our best interests.

401(k) Plan

We maintain a defined contribution employee retirement plan (“401(k) plan”) for our employees. Our named executive officers are eligible to participate in the 401(k) plan on the same basis as our other employees. The 401(k) plan is intended to qualify as a tax-qualified plan under Section 401(k) of the Internal Revenue Code of 1986, as amended (the “Code”). The 401(k) plan provides that each participant may contribute up to the lesser of 100% of his or her compensation or the statutory limit, which was \$18,500 for calendar year 2018. Participants that are 50 years or older can also make “catch-up” contributions, which in calendar year 2018 was up to an additional \$6,000 above the statutory limit. Beginning January 1, 2019, we provide a \$0.50 match for every \$1.00 our employees elect to defer up to 6% of their eligible compensation. In general, eligible compensation for purposes of the 401(k) plan includes an employee’s wages, salaries, bonuses and other amounts received for personal services actually rendered in the course of employment with us to the extent the amounts are includible in gross income, and subject to certain adjustments and exclusions required under the Code. Participant contributions are held and invested, pursuant to the participant’s instructions, by the plan’s trustee. The 401(k) plan currently does not offer the ability to invest in our securities.

Nonqualified Deferred Compensation

We do not maintain nonqualified defined contribution plans or other nonqualified deferred compensation plans. Our Board may elect to provide our officers and other employees with nonqualified defined contribution or other nonqualified deferred compensation benefits in the future if it determines that doing so is in our best interests.

Prohibition Against Speculative Trading

Our insider trading policy prohibits our officers, directors, other employees or consultants from engaging in short sales, transactions in put or call options, hedging transactions or other inherently speculative transactions with respect to our stock at any time. In addition, none of our executives, directors, other employees or consultants may margin, or make any offer to margin, or otherwise pledge as security, any of our stock, including without limitation, borrowing against such stock, at any time.

Equity Benefit Plans

2017 Equity Incentive Plan

Our Board and stockholders approved and adopted the 2017 Plan in March 2017. The 2017 Plan became effective on April 13, 2017 in connection with our initial public offering. The 2017 Plan is a successor to and a continuation of our 2009 Plan. No further grants will be made under the 2009 Plan.

Awards. The 2017 Plan provides for the grant of incentive stock options (“ISOs”), nonstatutory stock options (“NSOs”), stock appreciation rights, restricted stock awards, restricted stock unit awards, performance-based stock awards, and other forms of equity compensation, which we refer to collectively as stock awards. Additionally, the 2017 Plan provides for the grant of performance cash awards. ISOs may be granted only to employees. All other awards may be granted to employees, including officers, and to non-employee directors and consultants of us and our affiliates.

Share Reserve. As of December 31, 2018, there were outstanding stock options covering a total of 2,187,745 shares granted under our 2017 Plan and outstanding stock options covering a total of 1,289,102 shares that were granted under our 2009 Plan. As of December 31, 2018, there were 451,063 shares remaining available for the grant of stock awards under our 2017 Plan. In September 2018 and February 2019, the Compensation Committee approved amendments to the 2017 Plan pursuant to Rule 5635(c)(4) to reserve an additional 75,000 shares and 100,000 shares of common stock, respectively, to be used exclusively for grants of awards to individuals who were not previously employees or non-employee directors of the Company (or following a bona fide period of non-employment with the Company), as an inducement material to the individual’s entry into employment with the Company within the meaning of Rule 5635(c)(4). The number of shares of our common stock reserved for issuance under our 2017 Plan automatically increases on January 1 of each year through and including January 1, 2027, by 4% of the total number of shares of our capital stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares determined by our Board.

No person may be granted stock awards covering more than 1,000,000 shares of our common stock under our 2017 Plan during any calendar year pursuant to stock options, stock appreciation rights and other stock awards whose value is determined by reference to an increase over an exercise or strike price of at least 100% of the fair market value on the date the stock award is granted. Additionally, no person may be granted in a calendar year a performance stock award covering more than 1,000,000 shares of our common stock or a performance cash award having a maximum value in excess of \$3,000,000. In addition, the maximum number of shares of our common stock subject to stock awards granted under the 2017 Plan with respect to any period commencing on the date of our Annual Meeting of Stockholders for a particular year and ending on the day immediately prior to the date of our Annual Meeting of Stockholders for the next subsequent year to any non-employee director, taken together with any cash fees paid by us to such non-employee director during such period for service on our Board, will not exceed \$400,000 in total value, or, with respect to such period in which a non-employee director is first appointed or elected to our Board, \$500,000. Our Board may make exceptions to this limit in extraordinary circumstances.

If a stock award granted under the 2017 Plan (i) expires or otherwise terminates without all of the shares of our common stock covered by such stock award having been issued or (ii) is settled in cash, the shares of our common stock not acquired pursuant to the stock award again will become available for subsequent issuance under the 2017 Plan. In addition, the following types of shares under the 2017 Plan may become available for the grant of new stock awards under the 2017 Plan: (1) shares that are forfeited to or repurchased by us prior to becoming fully vested; (2) shares withheld to satisfy income or employment withholding taxes; or (3) shares used to pay the exercise or purchase price of a stock award. Shares issued under the 2017 Plan will be authorized but unissued shares or reacquired shares bought by us on the open market.

Administration. Our Board, or a duly authorized committee thereof, has the authority to administer the 2017 Plan. Our Board may also delegate to one or more of our officers the authority to (1) designate employees (other than other officers) to be recipients of certain stock awards, and (2) determine the number of shares of common stock to be subject to such stock awards. Subject to the terms of the 2017 Plan, our Board or the authorized committee, referred to herein as the plan administrator, determines recipients, dates of grant, the numbers and types of stock awards to be granted and the terms and conditions of the stock awards, including the period of their exercisability and vesting schedule applicable to a stock award. Subject to the limitations set forth below, the plan administrator will also determine the exercise price, strike price or purchase price of awards granted and the types of consideration to be paid for the award.

The plan administrator has the authority to modify outstanding awards under our 2017 Plan. Subject to the terms of our 2017 Plan, the plan administrator has the authority to reduce the exercise, purchase or strike price of any outstanding stock award, cancel any outstanding stock award in exchange for new stock awards, cash or other consideration, or take any other action that is treated as a repricing under generally accepted accounting principles, with the consent of any adversely affected participant.

Stock Options. ISOs and NSOs are granted pursuant to stock option agreements adopted by the plan administrator. The plan administrator determines the exercise price for a stock option, within the terms and conditions of the 2017 Plan, provided that the exercise price of a stock option generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Options granted under the 2017 Plan vest at the rate specified by the plan administrator.

The plan administrator determines the term of stock options granted under the 2017 Plan, up to a maximum of 10 years. Unless the terms of an optionholder's stock option agreement provide otherwise, if an optionholder's service relationship with us, or any of our affiliates, ceases for any reason other than disability, death or cause, the optionholder may generally exercise any vested options for a period of three months following the cessation of service. The option term may be extended in the event that exercise of the option following such a termination of service is prohibited by applicable securities laws or our insider trading policy. If an optionholder's service relationship with us or any of our affiliates ceases due to disability or death, or an optionholder dies within a certain period following cessation of service, the optionholder or a beneficiary may generally exercise any vested options for a period of 12 months in the event of disability and 18 months in the event of death. In the event of a termination for cause, options generally terminate immediately upon the termination of the individual for cause. In no event may an option be exercised beyond the expiration of its term.

Acceptable consideration for the purchase of common stock issued upon the exercise of a stock option will be determined by the plan administrator and may include (1) cash, check, bank draft or money order, (2) a broker-assisted cashless exercise, (3) the tender of shares of our common stock previously owned by the optionholder, (4) a net exercise of the option if it is an NSO, and (5) other legal consideration approved by the plan administrator.

Unless the plan administrator provides otherwise, options generally are not transferable except by will, the laws of descent and distribution, or (subject to the approval of the plan administrator or an authorized officer) pursuant to a domestic relations order. Subject to the approval of the plan administrator or an authorized officer, an optionholder may designate a beneficiary, however, who may exercise the option following the optionholder's death.

Tax Limitations On Incentive Stock Options. The aggregate fair market value, determined at the time of grant, of our common stock with respect to ISOs that are exercisable for the first time by an optionholder during any calendar year under all of our stock plans and the stock plans of any of our affiliates may not exceed \$100,000. Options or portions thereof that exceed such limit will generally be treated as NSOs. No ISO may be granted to any person who, at the time of the grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or that of any of our affiliates unless (1) the option exercise price is at least 110% of the fair market value of the stock subject to the option on the date of grant, and (2) the term of the ISO does not exceed five years from the date of grant.

Restricted Stock Awards. Restricted stock awards are granted pursuant to restricted stock award agreements adopted by the plan administrator. Restricted stock awards may be granted in consideration for (1) cash, check, bank draft or money order, (2) services rendered to us or our affiliates, or (3) any other form of legal consideration acceptable to the plan administrator. Common stock acquired under a restricted stock award may, but need not, be subject to a share repurchase option in our favor in accordance with a vesting schedule to be determined by the plan administrator. A restricted stock award may be transferred only upon such terms and conditions as set by the plan administrator. Except as otherwise provided in the applicable award agreement, restricted stock that has not vested will be forfeited or repurchased by us upon the participant's cessation of continuous service for any reason.

Restricted Stock Unit Awards. Restricted stock unit awards are granted pursuant to restricted stock unit award agreements adopted by the plan administrator. Restricted stock unit awards may be granted in consideration for any form of legal consideration acceptable to the plan administrator. A restricted stock unit award may be settled by cash, delivery of stock, a combination of cash and stock as deemed appropriate by the plan administrator, or in any other form of consideration set forth in the restricted stock unit award agreement. Additionally, dividend equivalents may be credited in respect of shares covered by a restricted stock unit award. Except as otherwise provided in the applicable award agreement, restricted stock units that have not vested will be forfeited upon the participant's cessation of continuous service for any reason.

Stock Appreciation Rights. Stock appreciation rights are granted pursuant to stock appreciation grant agreements adopted by the plan administrator. The plan administrator determines the strike price for a stock appreciation right, which generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Upon the exercise of a stock appreciation right, we will pay the participant an amount equal to the product of (1) the excess of the per share fair market value of our common stock on the date of exercise over the strike price, multiplied by (2) the number of shares of common stock with respect to which the stock appreciation right is exercised. A stock appreciation right granted under the 2017 Plan vests at the rate specified in the stock appreciation right agreement as determined by the plan administrator.

The plan administrator determines the term of stock appreciation rights granted under the 2017 Plan, up to a maximum of 10 years. Unless the terms of a participant's stock appreciation right agreement provides otherwise, if a participant's service relationship with us or any of our affiliates ceases for any reason other than cause, disability or death, the participant may generally exercise any vested stock appreciation right for a period of three months following the cessation of service. The stock appreciation right term may be further extended in the event that exercise of the stock appreciation right following such a termination of service is prohibited by applicable securities laws. If a participant's service relationship with us, or any of our affiliates, ceases due to disability or death, or a participant dies within a certain period following cessation of service, the participant or a beneficiary may generally exercise any vested stock appreciation right for a period of 12 months in the event of disability and 18 months in the event of death. In the event of a termination for cause, stock appreciation rights generally terminate immediately upon the occurrence of the event giving rise to the termination of the individual for cause. In no event may a stock appreciation right be exercised beyond the expiration of its term.

Performance Awards. The 2017 Plan permits the grant of performance-based stock and cash awards that vest or become payable subject to attainment of performance goals during a designated performance period.

The performance goals that may be selected include one or more of the following: (1) earnings (including earnings per share and net earnings); (2) earnings before interest, taxes and depreciation; (3) earnings before interest, taxes, depreciation and amortization; (4) earnings before interest, taxes, depreciation, amortization and legal settlements; (5) earnings before interest, taxes, depreciation, amortization, legal settlements and other income (expense); (6) earnings before interest, taxes, depreciation, amortization, legal settlements, other income (expense) and stock-based compensation; (7) earnings before interest, taxes, depreciation, amortization, legal settlements, other income (expense), stock-based compensation and changes in deferred revenue; (8) earnings before interest, taxes, depreciation, amortization, legal settlements, other income (expense), stock-based compensation, other non-cash expenses and changes in deferred revenue; (9) total stockholder return; (10) return on equity or average stockholder's equity; (11) return on assets, investment, or capital employed; (12) stock price; (13) margin (including gross margin); (14) income (before or after taxes); (15) operating income; (16) operating income after taxes; (17) pre-tax profit; (18) operating cash flow; (19) sales or revenue targets; (20) increases in revenue or product revenue; (21) expenses and cost reduction goals; (22) improvement in or attainment of working capital levels; (23) economic value added (or an equivalent metric); (24) market share; (25) cash flow; (26) cash flow per share; (27) cash balance; (28) cash burn; (29) cash collections; (30) share price performance; (31) debt reduction; (32) implementation or completion of projects or processes (including, without limitation, discovery of a preclinical drug candidate, recommendation of a drug candidate to enter a clinical trial, clinical trial initiation, clinical trial enrollment and dates, clinical trial results, regulatory filing submissions (such as IND, BLA and NDA), regulatory filing acceptances, regulatory or advisory committee interactions, regulatory approvals, and product supply); (33) stockholders' equity; (34) capital expenditures; (35) financings; (36) operating profit or net operating profit; (37) workforce diversity; (38) growth of net income or operating income; (39) employee retention; (40) initiation of studies by specific dates; (41) budget management; (42) submission to, or approval by, a regulatory body (including, but not limited to the FDA) of an applicable filing or a product; (43) regulatory milestones; (44) progress of internal research or development programs; (45) progress of partnered programs; (46) partner satisfaction; (47) timely completion of clinical trials; (48) milestones related to research development (including, but not limited to, preclinical and clinical studies), product development and manufacturing; (49) expansion of sales in additional geographies or markets; (50) research progress, including the development of programs; (51) strategic partnerships or transactions (including in-licensing and out-licensing of intellectual property; (52) filing of patent applications and granting of patents; and (53) and other measures of performance selected by our Board.

The performance goals may be based on a company-wide basis, with respect to one or more business units, divisions, affiliates, or business segments, and in either absolute terms or relative to the performance of one or more comparable companies or the performance of one or more relevant indices. Unless specified otherwise (1) in the award agreement at the time the award is granted or (2) in such other document setting forth the performance goals at the time the goals are established, we will appropriately make adjustments in the method of calculating the attainment of performance goals as follows: (a) to exclude restructuring and/or other nonrecurring charges; (b) to exclude exchange rate effects; (c) to exclude the effects of changes to generally accepted accounting principles; (d) to exclude the effects of any statutory adjustments to corporate tax rates; (e) to exclude the effects of items that are "unusual" in nature or occur "infrequently" as determined under generally accepted accounting principles; (f) to exclude the dilutive effects of acquisitions or joint ventures; (g) to assume that any business divested by us achieved performance objectives at targeted levels during the balance of a performance period following such divestiture; (h) to exclude the effect of any change in the outstanding shares of our common stock by reason of any stock dividend or split, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change, or any distributions to common stockholders other than regular cash dividends; (i) to exclude the effects of stock based compensation and the award of bonuses under our bonus plans; (j) to exclude costs incurred in connection with potential acquisitions or divestitures that are required to be expensed under generally accepted accounting principles; (k) to exclude the goodwill and intangible asset impairment charges that are required to be recorded under generally accepted accounting principles; and (l) to exclude the effects of the timing of acceptance for review and/or approval of submissions to the FDA or any other regulatory body. In addition, we retain the discretion to reduce or eliminate the compensation or economic benefit due upon attainment of the goals. The performance goals may differ from participant to participant and from award to award.

Other Stock Awards. The plan administrator may grant other awards based in whole or in part by reference to our common stock. The plan administrator will set the number of shares under the stock award and all other terms and conditions of such awards.

Changes to Capital Structure. In the event that there is a specified type of change in our capital structure, such as a stock split or recapitalization, appropriate adjustments will be made to (1) the class and maximum number of shares reserved for issuance under the 2017 Plan, (2) the class and maximum number of shares by which the share reserve may increase automatically each year, (3) the class and maximum number of shares that may be issued upon the exercise of ISOs, (4) the class and maximum number of shares subject to stock awards that can be granted to any person in a calendar year, and (5) the class and number of shares and exercise price, strike price, or purchase price, if applicable, of all outstanding stock awards.

Corporate Transactions. In the event of certain specified significant corporate transactions (or a change in control, as described below), the plan administrator has the discretion to take any of the following actions with respect to stock awards:

- arrange for the assumption, continuation or substitution of a stock award by a surviving or acquiring entity or parent company;
- arrange for the assignment of any reacquisition or repurchase rights held by us to the surviving or acquiring entity or parent company;
- accelerate the vesting of the stock award and provide for its termination prior to the effective time of the transaction;
- arrange for the lapse of any reacquisition or repurchase right held by us;
- cancel or arrange for the cancellation of the stock award in exchange for such cash consideration, if any, as our Board may deem appropriate; and
- make a payment equal to the excess of (a) the value of the property the participant would have received upon exercise of the stock award immediately prior to the effective time of the transaction, over (b) the exercise price otherwise payable by the participant in connection with such exercise.

Our plan administrator is not obligated to treat all stock awards, even those that are of the same type, in the same manner.

Under the 2017 Plan, a corporate transaction is generally the consummation of (1) a sale or other disposition of all or substantially all of our assets, (2) a sale or other disposition of more than 50% of our outstanding securities, (3) a merger, consolidation or similar transaction following which we are not the surviving corporation, or (4) a merger, consolidation or similar transaction following which we are the surviving corporation but the shares of our common stock outstanding immediately prior to such transaction are converted or exchanged into other property by virtue of the transaction.

Change in Control. In addition to the above, the plan administrator may provide, in an individual award agreement or in any other written agreement between a participant and us that the stock award will be subject to additional acceleration of vesting and exercisability in the event of a change in control. Under the 2017 Plan, a change in control is generally (1) the acquisition by a person or entity of more than 50% of our combined voting power other than by merger, consolidation or similar transaction; (2) a consummated merger, consolidation or similar transaction immediately after which our stockholders cease to own more than 50% of the combined voting power of the surviving entity (or its parent); (3) a consummated sale, lease, exclusive license or other disposition of all or substantially all of our assets; (4) a complete dissolution or liquidation of the Company, except for a liquidation into a parent corporation; or (5) when a majority of our Board becomes comprised of individuals who were not serving on our Board on the date of adoption of the 2017 Plan, or the incumbent board, or whose nomination, appointment, or election was not approved by a majority of the incumbent board then still in office.

Amendment and Termination. Our Board has the authority to amend, suspend, or terminate our 2017 Plan, provided that such action does not materially impair the existing rights of any participant without such participant's written consent. No ISOs may be granted after the 10th anniversary of the date our Board adopted our 2017 Plan.

2009 Equity Incentive Plan

Our Board and our stockholders approved our 2009 Plan in March 2009. The 2009 Plan was subsequently amended by our Board and stockholders, most recently in November 2016. As of December 31, 2018, there were outstanding stock options covering a total of 1,289,102 shares that were granted under our 2009 Plan and there were no additional shares available for grant under the 2009 Plan.

No additional awards will be granted under the 2009 Plan, and all outstanding awards granted under the 2009 Plan that are repurchased, forfeited, expire or are canceled will become available for grant under the 2017 Plan in accordance with its terms.

2017 Employee Stock Purchase Plan

Our Board and stockholders adopted the ESPP in March 2017 and the ESPP became effective on April 13, 2017, in connection with our initial public offering. The purpose of the ESPP is to retain the services of new employees and secure the services of new and existing employees while providing incentives for such individuals to exert maximum efforts toward our success and that of our affiliates.

Share Reserve. As of December 31, 2018, 448,826 shares of our common stock were authorized under the ESPP for issuance pursuant to purchase rights granted to our employees or to employees of any of our designated affiliates. As of December 31, 2018, 122,648 shares of our common stock had been issued under the ESPP and there were 326,178 shares available for future issuance under the ESPP.

The number of shares of our common stock reserved for issuance will automatically increase on January 1 of each calendar year through and including January 1, 2027 by the least of (a) 1% of the total number of shares of our common stock outstanding on December 31 of the preceding calendar year, (b) 300,000 shares, or (c) a number determined by our Board that is less than (a) and (b). The ESPP is intended to qualify as an “employee stock purchase plan” within the meaning of Section 423 of the Code.

Administration. Our Board has delegated its authority to administer the ESPP to our Compensation Committee. The ESPP is implemented through a series of offerings of purchase rights to eligible employees. Under the ESPP, we may specify offerings with durations of not more than 27 months, and may specify shorter purchase periods within each offering. Each offering will have one or more purchase dates on which shares of our common stock will be purchased for employees participating in the offering. An offering may be terminated under certain circumstances.

Payroll Deductions. Generally, all regular employees, including executive officers, employed by us or by any of our designated affiliates, may participate in the ESPP and may contribute, normally through payroll deductions, up to 15% of their earnings for the purchase of our common stock under the ESPP. Unless otherwise determined by our Board, common stock will be purchased for accounts of employees participating in the ESPP at a price per share equal to the lower of (a) 85% of the fair market value of a share of our common stock on the first date of an offering or (b) 85% of the fair market value of a share of our common stock on the date of purchase.

Limitations. Employees may have to satisfy one or more of the following service requirements before participating in the ESPP, as determined by our Board: (a) customarily employed for more than 20 hours per week, (b) customarily employed for more than five months per calendar year or (c) continuous employment with us or one of our affiliates for a period of time (not to exceed two years). No employee may purchase shares under the ESPP at a rate in excess of \$25,000 worth of our common stock based on the fair market value per share of our common stock at the beginning of an offering for each year such a purchase right is outstanding. Finally, no employee will be eligible for the grant of any purchase rights under the ESPP if immediately after such rights are granted, such employee has voting power over 5% or more of our outstanding capital stock measured by vote or value pursuant to Section 424(d) of the Code.

Changes to Capital Structure. In the event that there occurs a change in our capital structure through such actions as a stock split, merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or similar transaction, the Board will make appropriate adjustments to (a) the class and number of shares reserved under the ESPP, (b) the class and maximum number of shares by which the share reserve may increase automatically each year, (c) the class and number of shares and purchase price of all outstanding offerings and purchase rights and (d) the class and number of shares that are the subject of the purchase limits under each ongoing offering.

Corporate Transactions. In the event of certain significant corporate transactions, including the consummation of: (1) a sale or other disposition of all or substantially all of our assets, (2) the sale or other disposition of more than 50% of our outstanding securities, (3) a merger, consolidation or similar transaction where we do not survive the transaction, and (4) a merger, consolidation or similar transaction where we do survive the transaction but the shares of our common stock outstanding immediately prior to such transaction are converted or exchanged into other property by virtue of the transaction, any then-outstanding rights to purchase our stock under the ESPP may be assumed, continued or substituted for by any surviving or acquiring entity (or its parent company). If the surviving or acquiring entity (or its parent company) elects not to assume, continue or substitute for such purchase rights, then the participants' accumulated payroll contributions will be used to purchase shares of our common stock within 10 business days prior to such corporate transaction, and such purchase rights will terminate immediately after such purchase.

Plan Amendments, Termination. Our Board has the authority to amend or terminate our ESPP, provided that except in certain circumstances any such amendment or termination may not materially impair any outstanding purchase rights without the holder's consent. We will obtain stockholder approval of any amendment to our ESPP as required by applicable law or listing requirements.

Non-Employee Director Compensation

The following table sets forth in summary form information concerning the compensation that we paid or awarded during the year ended December 31, 2018 to each of our non-employee directors:

Name ⁽¹⁾	Fees Earned or Paid in Cash (\$)	Option Awards \$(2)(3)	Total (\$)
Faheem Hasnain	89,000	132,036	221,036
Franklin M. Berger	61,500	132,036	193,536
Thomas Darcy	35,000	132,036	167,036
Paul Schimmel, Ph.D.	50,000	132,036	182,036
David Parkinson, M.D.	42,500	132,036	174,536
Lori Kunkel, M.D. ⁽⁴⁾	36,087	132,036	168,123

- (1) Mr. Duvall and Dr. Gruber did not earn compensation during 2018 for their services on the Board. Mr. Duvall's compensation is fully reflected in the "— Summary Compensation Table" above.
- (2) In accordance with SEC rules, this column reflects the aggregate grant date fair value of the stock option awards granted in 2018 computed in accordance with FASB ASC Topic 718. Assumptions used in the calculation of these amounts are described in Note 7 to our audited financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2018. These amounts do not reflect the actual economic value that will be realized by the non-employee director upon the vesting of the stock option awards, the exercise of the stock option awards or the sale of the common stock underlying such stock option awards.
- (3) As of December 31, 2018, the aggregate number of shares outstanding under all options to purchase our common stock held by our non-employee directors were: Mr. Hasnain: 89,745 shares; Mr. Berger: 66,499 shares; Mr. Darcy: 107,860 shares; Dr. Schimmel: 47,932 shares; Dr. Parkinson: 46,795 shares; and Dr. Kunkel: 45,287 shares.
- (4) Dr. Kunkel served on the Board until November 2018 and rejoined the Board in April 2019.

Our Board adopted a director compensation policy in March 2017 that became effective in connection with our initial public offering, which was amended in February 2018, and is applicable to all of our non-employee directors. This compensation policy provides that each such non-employee director will receive the following compensation for service on our Board:

- an annual cash retainer of \$35,000;
- an additional cash retainer of \$30,000 to the chairman of the Board;
- an additional cash retainer of \$20,000 to the lead independent director of the Board;
- an additional annual cash retainer of \$7,500, \$5,000 and \$4,000 for service as a member of the audit committee, compensation committee and the nominating and corporate governance committee, respectively;
- an additional annual cash retainer of \$15,000, \$10,000 and \$7,500 for service as chairman of the audit committee, compensation committee and the nominating and corporate governance committee, respectively;
- an initial option grant to purchase 30,000 shares of our common stock for each non-employee director who first joins our Board, on the date of commencement of service on the Board, vesting over a three year period following the grant date; and
- an annual option grant to purchase 20,000 shares of our common stock for each non-employee director serving on the Board on the date of our annual stockholder meeting, vesting one year following the grant date (in addition, each non-employee director who first joins our Board other than at annual stockholder meeting will receive an annual option grant pro rated for the number of months remaining until the next annual stockholder meeting).

Each of the option grants described above will vest and become exercisable subject to the director's continuous service to us, provided that each option will vest in full upon a change in control (as defined under our 2017 Plan). The term of each option will be 10 years, subject to earlier termination as provided in the 2017 Plan, except that the post-termination exercise period will be for up to 12 months from the date of termination, if such termination is other than for death, disability or cause. The options will be granted under our 2017 Plan, the terms of which are described in more detail above under "— Equity Benefit Plans — 2017 Equity Incentive Plan."

TRANSACTIONS WITH RELATED PERSONS AND INDEMNIFICATION

RELATED-PERSON TRANSACTIONS POLICY AND PROCEDURES

We have adopted a written related-person transactions policy that sets forth our policies and procedures regarding the identification, review, consideration and oversight of “related-person transactions.” For purposes of our policy only, a “related-person transaction” is a transaction, arrangement or relationship (or any series of similar transactions, arrangements or relationships) in which we and any “related person” are participants involving an amount that exceeds \$120,000.

Transactions involving compensation for services provided to us as an employee, consultant or director are not considered related-person transactions under this policy. A related person is any executive officer, director or a holder of more than 5% of our common stock, including any of their immediate family members and any entity owned or controlled by such persons.

Under the policy, where a transaction has been identified as a related-person transaction, management must present information regarding the proposed related-party transaction to our Audit Committee (or, where review by our Audit Committee would be inappropriate, to another independent body of our Board) for review. The presentation must include a description of, among other things, all of the parties, the direct and indirect interests of the related parties, the purpose of the transaction, the material facts, the benefits of the transaction to us and whether any alternative transactions are available, an assessment of whether the terms are comparable to the terms available from unrelated third parties and management’s recommendation. To identify related-party transactions in advance, we rely on information supplied by our executive officers, directors and certain significant stockholders. In considering related-party transactions, our Audit Committee or another independent body of our Board takes into account the relevant available facts and circumstances including, but not limited to: (a) the risks, costs and benefits to us; (b) the impact on a director’s independence in the event the related person is a director, immediate family member of a director or an entity with which a director is affiliated; (c) the terms of the transaction; (d) the availability of other sources for comparable services or products; and (e) the terms available to or from, as the case may be, unrelated third parties.

In the event a director has an interest in the proposed transaction, the director must recuse himself or herself from the deliberations and approval.

CERTAIN RELATED-PERSON TRANSACTIONS

The following includes a summary of transactions with related persons since January 1, 2017 to which we have been a party and in which the amount involved in the transaction exceeds the lesser of \$120,000 or 1% of the average of our total assets at year-end for the last two completed fiscal years:

Employment Arrangements

We currently have written employment agreements with our executive officers. For information about our employment agreements with our named executive officers, refer to “Executive and Director Compensation— Agreements with our Named Executive Officers.”

Lori Kunkel, M.D. served as a consultant to us from November 2018 through December 2018 and as our acting Chief Medical Officer from January 2019 until April 2019. During such periods, Dr. Kunkel received a monthly amount of \$25,000 for her service. In addition, in January 2019, the Compensation Committee granted to Dr. Kunkel an option to purchase 35,000 shares of common stock. The option was granted under our 2017 Plan and has a per share exercise price equal to \$9.27, the closing price of our common stock as reported on The Nasdaq Global Select Market on January 11, 2019, the date of grant. The option became fully vested in connection with the termination of her service as acting Chief Medical Officer on April 15, 2019.

Stock Options Granted to Executive Officers and Directors

We have granted stock options to our executive officers and directors. For information about our stock option awards to our named executive officers and our directors, refer to “Executive and Director Compensation—Outstanding Equity Awards at Fiscal Year-End” and “Executive and Director Compensation—Non-Employee Director Compensation.”

Indemnification Agreements

We have entered, and intend to continue to enter, into separate indemnification agreements with our directors and executive officers, in addition to the indemnification provided for in our amended and restated bylaws. These agreements, among other things, require us to indemnify our directors and executive officers for certain expenses, including attorneys’ fees, judgments, fines and settlement amounts incurred by a director or executive officer in any action or proceeding arising out of their services as one of our directors or executive officers or as a director or executive officer of any other company or enterprise to which the person provides services at our request. We believe that these bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duties. They may also reduce the likelihood of derivative litigation against directors and officers, even though an action, if successful, might benefit us and our stockholders. A stockholder’s investment may decline in value to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions.

HOUSEHOLDING OF PROXY MATERIALS

The SEC has adopted rules that permit companies and intermediaries (e.g., brokers) to satisfy the delivery requirements for Notices of Internet Availability of Proxy Materials or other Annual Meeting materials with respect to two or more stockholders sharing the same address by delivering a single Notice of Internet Availability of Proxy Materials or other Annual Meeting materials addressed to those stockholders. This process, which is commonly referred to as “householding,” potentially means extra convenience for stockholders and cost savings for companies.

This year, a number of brokers with account holders who are Tocagen stockholders will be “householding” the Company’s proxy materials. A single Notice of Internet Availability of Proxy Materials will be delivered to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Once you have received notice from your broker that they will be “householding” communications to your address, “householding” will continue until you are notified otherwise or until you revoke your consent. If, at any time, you no longer wish to participate in “householding” and would prefer to receive a separate Notice of Internet Availability of Proxy Materials, please notify your broker or Tocagen. Direct your written request to Tocagen Inc., Attn: Secretary, 4242 Campus Point Court, Suite 500, San Diego, CA 92121 or call us at (858) 412-8400. Stockholders who currently receive multiple copies of the Notice of Internet Availability of Proxy Materials at their addresses and would like to request “householding” of their communications should contact their brokers.

Other Matters

The Board of Directors knows of no other matters that will be presented for consideration at the Annual Meeting. If any other matters are properly brought before the meeting, it is the intention of the persons named in the accompanying proxy to vote on such matters in accordance with their best judgment.

By Order of the Board of Directors,

/s/ Martin J. Duvall
Martin J. Duvall
Chief Executive Officer

April 18, 2019

A copy of the Company's Annual Report to the Securities and Exchange Commission on Form 10-K for the fiscal year ended December 31, 2018 is available without charge upon written request to: Secretary, Tocagen Inc., 4242 Campus Point Court, Suite 500, San Diego, CA 92121.



ANNUAL MEETING OF TOCAGEN INC.

Date: May 29, 2019
Time: 10:00 A.M. (Local Time)
Place: Cooley LLP, 4401 Eastgate Mall, San Diego, CA 92121

Please make your marks like this: [X] Use dark black pencil or pen only

Board of Directors Recommends a Vote FOR Proposals 1 and 2.

1: Election of Class I Directors.

01 Franklin M. Berger
02 Lori Kunkel, M.D.
03 David Parkinson, M.D.
For Withhold
For Against Abstain

2: To ratify the selection by the Audit Committee of the Board of Directors of Ernst & Young LLP as the independent registered public accounting firm of the Company for the fiscal year ending December 31, 2019.

Director Recommendation
For
For
For
For

Please separate carefully at the perforation and return just this portion in the envelope provided.



Annual Meeting of Tocagen Inc.
to be held on Wednesday, May 29, 2019
for Holders as of April 4, 2019

This proxy is being solicited on behalf of the Board of Directors

VOTED BY: INTERNET TELEPHONE

Go To www.proxypush.com/TOCA
Cast your vote online.
View Meeting Documents.

OR

866-390-5389
Use any touch-tone telephone.
Have your Proxy Card/Voting Instruction Form ready.
Follow the simple recorded instructions.

OR MAIL

Mark, sign and date your Proxy Card/Voting Instruction Form.
Detach your Proxy Card/Voting Instruction Form.
Return your Proxy Card/Voting Instruction Form in the postage-paid envelope provided.

The undersigned hereby appoints Marty J. Duvall and Mark G. Foletta, and each or either of them, as proxies and true and lawful attorneys of the undersigned, with full power of substitution and revocation, and authorizes them, and each of them, to vote all the shares of capital stock of Tocagen Inc. which the undersigned is entitled to vote at said meeting and any adjournment thereof upon the matters specified and upon such other matters as may be properly brought before the meeting or any adjournment thereof, conferring authority upon such true and lawful attorneys to vote in their best judgment on such other matters as may properly come before the meeting and revoking any proxy heretofore given.

THE SHARES REPRESENTED BY THIS PROXY WILL BE VOTED AS DIRECTED OR, IF NO DIRECTION IS GIVEN, SHARES WILL BE VOTED "FOR" THE ELECTION OF EACH NOMINEE FOR DIRECTOR LISTED IN PROPOSAL 1 AND "FOR" PROPOSAL 2.

PROXY TABULATOR FOR
TOCAGEN INC.
P.O. BOX 8016
CARY, NC 27512-9903



Authorized Signatures - This section must be completed for your instructions to be executed.

Please Sign Here Please Date Above
Please Sign Here Please Date Above

Please sign exactly as your name(s) appears on your stock certificate. If held in joint tenancy, all persons should sign. Trustees, administrators, etc., should include title and authority. Corporations should provide full name of corporation and title of authorized officer signing the proxy.

EVENT #

CLIENT #

Signature and date lines for EVENT # and CLIENT #

Proxy — Tocagen Inc.
Annual Meeting of Stockholders
Wednesday, May 29, 2019 10:00 a.m. (Local Time)
This Proxy is Solicited on Behalf of the Board of Directors

The undersigned appoints Marty J. Duvall and Mark G. Foletta (the "Named Proxies") and each of them as proxies and true and lawful attorneys of the undersigned, with full power of substitution, to vote the shares of common stock of Tocagen Inc., a Delaware corporation (the "Company"), the undersigned is entitled to vote, and, in their best judgment, to vote upon such other business as may properly come before the Annual Meeting of Stockholders of the Company to be held at the offices of Cooley LLP, 4401 Eastgate Mall, San Diego, CA 92121 on Wednesday, May 29, 2019 at 10:00 a.m. (Local Time) and all adjournments thereof.

The purpose of the Annual Meeting is to take action on the following:

1. To elect the three Class II directors named in the proxy statement to hold office until the 2022 annual meeting of stockholders.
2. To ratify the selection by the Audit Committee of the Board of Directors of Ernst & Young LLP as the independent registered public accounting firm of the Company for the fiscal year ending December 31, 2019.
3. To conduct any other business properly brought before the meeting.

The directors up for re-election are: Franklin M. Berger, Lori Kunkel, M.D. and David Parkinson, M.D.

The Board of Directors of the Company recommends a vote "FOR" all nominees for director and "FOR" Proposal 2.

This proxy, when properly executed, will be voted in the manner directed herein. If no direction is made but the proxy card is signed, this proxy will be voted "FOR" all nominees for director and "FOR" Proposal 2. In their best judgment, the Named Proxies are authorized to vote upon such other matters that may properly come before the Annual Meeting or any adjournment or postponement thereof.

You are encouraged to specify your choice by marking the appropriate box (SEE REVERSE SIDE) but you need not mark any box if you wish to vote in accordance with the Board of Directors' recommendation. The Named Proxies cannot vote your shares unless you sign and return this card.

To attend the meeting and vote your shares
in person, please mark this box.

← Please separate carefully at the perforation and return just this portion in the envelope provided. →