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

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**SCHEDULE 14A**  
**Proxy Statement Pursuant to Section 14(a) of the  
Securities Exchange Act of 1934**  
**(Amendment No. )**

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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

**INTREXON CORPORATION**  
**(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):  
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    - (5) Total fee paid:  
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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:  
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\_\_\_\_\_
    - (3) Filing Party:  
\_\_\_\_\_
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# INTREXON®

INTREXON CORPORATION  
20374 Seneca Meadows Parkway  
Germantown, Maryland 20876

## NOTICE OF 2018 ANNUAL MEETING OF SHAREHOLDERS To Be Held On June 7, 2018

To Our Shareholders:

You are cordially invited to attend the Annual Meeting of Shareholders (the “Annual Meeting”) of Intrexon Corporation (the “Company”) to be held at 9:00 a.m., Eastern Time, Thursday, June 7, 2018, at the Esperante Conference Center, 222 Lakeview Avenue, West Palm Beach, Florida 33401, for the following purposes:

1. To elect the nine nominees named in the accompanying Proxy Statement to the Board of Directors, each to serve a one-year term expiring at the earlier of the next Annual Meeting or until his or her successor is duly elected and qualified;
2. To ratify the appointment by the Audit Committee of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2018;
3. To approve a non-binding advisory resolution approving the compensation of the named executive officers;
4. To approve an amendment to the Amended and Restated Intrexon Corporation 2013 Omnibus Incentive Plan (the “2013 Plan”), which would provide for the availability of an additional two million shares of common stock under the 2013 Plan; and
5. To transact any other business that may properly be brought before the Annual Meeting or any adjournments or postponements thereof.

As of the date of this notice, the Company has received no notice of any matters, other than those set forth above, that may properly be presented at the Annual Meeting. If any other matters are properly presented for consideration at the meeting, the persons named as proxies on the proxy card, or their duly constituted substitutes, will be deemed authorized to receive notice on behalf of and to vote the shares represented by proxy or otherwise act on those matters in accordance with their business judgment.

The Board of Directors has fixed the close of business on April 16, 2018, as the record date for determining those shareholders entitled to notice of and to vote at the Annual Meeting. As permitted by rules adopted by the Securities and Exchange Commission, we are furnishing our Proxy Statement, 2017 Annual Report to Shareholders and proxy card over the Internet to our shareholders. This means that our shareholders will receive only a notice containing instructions on how to access the proxy materials over the Internet. If you would like to receive a paper copy of the proxy materials, the notice contains instructions on how you can request copies of these documents.

**Your vote is very important to us.** Please read the Proxy Statement and then, regardless of whether you plan to attend the Annual Meeting, vote your shares as promptly as possible. Please see page 3 for information about voting by internet, telephone, mail or in person at the Annual Meeting. Please note that in the absence of specific instructions as to how to vote, brokers may not vote your shares on the election of directors, the non-binding proposal regarding the compensation of the named executive officers or the proposal to approve the amendment to the 2013 Plan. You may revoke your proxy at any time before the vote is taken by delivering to the company’s Corporate Secretary a written revocation, submitting a proxy with a later date or by voting your shares in person at the Annual Meeting, in which case your prior proxy will be disregarded. Please note that voting in advance in any of the ways described will not prevent you from attending the Annual Meeting should you choose to do so. I hope that you will attend the Annual Meeting, but even if you cannot, please vote your shares as promptly as possible.

By Order of the Board of Directors,  
DONALD P. LEHR  
*Corporate Secretary*

Germantown, Maryland  
April 27, 2018

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**IMPORTANT NOTICE REGARDING THE AVAILABILITY OF PROXY MATERIALS FOR THE  
ANNUAL MEETING OF SHAREHOLDERS TO BE HELD ON JUNE 7, 2018**

This Proxy Statement, including the accompanying notice and form of proxy, and our Annual Report are available online at <https://www.proxyvote.com>. To obtain directions to the Esperante Conference Center to attend the annual meeting in person, please visit the “Investors” section of our website at [www.dna.com](http://www.dna.com) or contact Investor Relations in writing at 20374 Seneca Meadows Parkway, Germantown, Maryland 20876.

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# INTREXON®

INTREXON CORPORATION  
20374 Seneca Meadows Parkway  
Germantown, Maryland 20876

## PROXY STATEMENT 2018 Annual Meeting of Shareholders

This Proxy Statement and the accompanying proxy card are being furnished to you by the Board of Directors (the “Board”) of Intrexon Corporation to solicit your proxy to vote your shares at our 2018 Annual Meeting of Shareholders (the “Annual Meeting”), or at any adjournments or postponements thereof. The Board has designated the Esperante Conference Center, 222 Lakeview Avenue, West Palm Beach, Florida 33401 as the place of the Annual Meeting. The Annual Meeting will be called to order at 9:00 a.m., Eastern Time, on Thursday, June 7, 2018. To obtain directions to the Esperante Conference Center to attend the Annual Meeting in person, please visit the “Investors” section of our website at [www.dna.com](http://www.dna.com) or contact Investor Relations in writing at 20374 Seneca Meadows Parkway, Germantown, Maryland 20876. Unless the context otherwise indicates, reference to “Intrexon,” “we,” “us,” “our” or the “Company” means Intrexon Corporation.

On or about April 27, 2018, we will mail a notice to shareholders containing instructions on how to access the Proxy Statement, including the accompanying notice and form of proxy, and 2017 Annual Report and how to vote. These materials will be made available to you on the internet, however, we will promptly deliver printed versions of these materials to you by mail upon your request.

### QUESTIONS AND ANSWERS ABOUT THE ANNUAL MEETING

**1. Who is asking for my vote and why am I receiving this document?**

The Board asks that you vote on the matters listed in the Notice of 2018 Annual Meeting of Shareholders, which are more fully described in this Proxy Statement. We are providing this Proxy Statement and related proxy card to our shareholders in connection with the solicitation by the Board of proxies to be voted at the Annual Meeting. A proxy, if duly executed and not revoked, will be voted and, if it contains any specific instructions, will be voted in accordance with those instructions.

**2. Who is entitled to vote?**

Only holders of record of outstanding shares of our common stock at the close of business on April 16, 2018, are entitled to notice of and to vote at the Annual Meeting. At the close of business on April 16, 2018, there were 129,242,304 outstanding shares of common stock. Each share of common stock is entitled to one vote on each matter properly brought before the Annual Meeting.

**3. What is a proxy?**

A proxy is your legal designation of another person to vote the stock you own. If you designate someone as your proxy or proxy holder in a written document, that document is called a proxy or a proxy card. Mr. Randal J. Kirk, Mr. Donald P. Lehr and Mr. Rick L. Sterling have been designated as proxies or proxy holders for the Annual Meeting. A proxy properly executed and received by our Corporate Secretary prior to the Annual Meeting and not revoked will be voted in accordance with the terms thereof.

**4. What is a voting instruction?**

A voting instruction is the instruction form you receive from your bank, broker or its nominee if you hold your shares of common stock in street name. The instruction form instructs you how to direct your bank, broker or its nominee, as record holder, to vote your shares of common stock.

**5. What am I voting on?**

Shareholders are being asked to vote on each of the following items of business:

- The election of the nine nominees named in this Proxy Statement to the Board, each to serve a one-year term expiring at the earlier of the next Annual Meeting or until his or her successor is duly elected and qualified;
- The ratification of the appointment by the Audit Committee of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2018;
- The approval of a non-binding advisory resolution approving the compensation of the named executive officers; and
- The approval of an amendment to the Amended and Restated Intrexon Corporation 2013 Omnibus Incentive Plan (the “2013 Plan”), which would provide for the availability of an additional two million shares of common stock under the 2013 Plan.

In addition, any other matters that properly come before the Annual Meeting or any adjournment or postponement thereof will be considered. Management is presently aware of no other business to come before the Annual Meeting.

**6. How many votes must be present to hold the Annual Meeting?**

A majority of the outstanding shares of common stock entitled to be cast as of the record date must be present in person or represented by proxy at the Annual Meeting. This is referred to as a quorum. Abstentions, withheld votes and shares of record held by a broker or its nominee (“broker shares”) that are voted on any matter are included in determining the existence of a quorum. Broker shares that are not voted on any matter (“broker non-votes”) will not be included in determining whether a quorum is present.

**7. What are the voting requirements to elect directors and approve the other proposals described in the Proxy Statement?**

The vote required to elect directors and approve each of the matters scheduled for a vote at the annual meeting is set forth below:

<u>Proposal</u>	<u>Vote Required</u>
1. Election of directors	Majority of votes cast
2. Ratification of appointment of PricewaterhouseCoopers LLP	Majority of votes cast
3. Advisory vote on executive compensation	Majority of votes cast
4. Amendment to 2013 Plan to increase the number of shares available under the 2013 Plan	Majority of votes cast

Votes may be cast by proxy or in person. A “majority” of votes cast means that more votes were cast “for” the proposal than “against.” Abstentions and broker non-votes (described in Question 13 below) are not considered as votes cast and will have no effect on the vote outcome for these matters. As it relates to the election of our directors, our Corporate Governance Guidelines provide that any nominee for director in an uncontested election who receives a greater number of shareholder votes cast “against” his or her election than votes “for” his or her election must promptly tender his or her resignation to the Board for consideration. For more details regarding the director resignation policy, please see “Election of Directors” on page [15](#).

**8. What are the voting recommendations of the Board?**

For the reasons set forth in more detail later in this Proxy Statement, THE BOARD UNANIMOUSLY RECOMMENDS THAT YOU VOTE:

- **FOR** THE PROPOSED NOMINEES TO THE BOARD NAMED IN THIS PROXY STATEMENT;
- **FOR** THE RATIFICATION OF THE APPOINTMENT OF PRICEWATERHOUSECOOPERS LLP;
- **FOR** THE APPROVAL OF THE NON-BINDING ADVISORY RESOLUTION REGARDING APPROVAL OF THE COMPENSATION OF OUR NAMED EXECUTIVE OFFICERS; and
- **FOR** THE APPROVAL OF AN AMENDMENT TO THE 2013 PLAN.

**9. How do I vote?**

Registered shareholders (shareholders who hold common stock in certificated form or book entry form on the records of our transfer agent as opposed to through a bank, broker or other nominee) may vote in person at the Annual Meeting or by proxy. There are three ways for registered shareholders to vote by proxy:

- By Internet: Connect to the internet at [www.proxyvote.com](http://www.proxyvote.com) and follow the instructions included on the proxy card or voting instruction. Your proxy will be voted according to your instructions. If you vote by internet, you do not need to mail in a proxy card or voting instruction.
- By Telephone: Call 1-800-690-6903 and follow the instructions included on the proxy card or voting instruction. If you vote by telephone, you do not need to mail in a proxy card or voting instruction.
- By Mail: If you received your proxy materials by mail, complete, properly sign, date and mail the enclosed proxy card or voting instruction.

Registered shareholders are urged to deliver proxies or voting instructions by using the internet, calling the toll-free telephone number or by completing and mailing the proxy card or voting instruction. The internet and telephone voting procedures are designed to authenticate shareholders' identities, to allow shareholders to give their proxies or voting instructions and to confirm that such instructions have been recorded properly. Instructions for voting over the internet or by telephone are included on the enclosed proxy card or voting instruction. If you received your proxy materials via mail, registered shareholders may send their proxies or voting instructions by completing, signing and dating the enclosed proxy card or voting instruction and returning it as promptly as possible in the enclosed prepaid envelope.

Shareholders who hold common stock through banks, brokers or other nominees ("street name shareholders") who wish to vote at the Annual Meeting should receive voting instructions from the institution that holds their shares. Please contact the institution that holds your shares if you have not received voting instructions. Street name shareholders may also be eligible to vote their shares electronically by following the voting instructions provided by the bank, broker or other nominee that holds the shares, using either the toll-free telephone number or the internet address provided on the voting instruction; or by completing, dating and signing the voting instruction and returning it promptly in the enclosed prepaid envelope.

The deadline for voting via the internet or telephone is 11:59 p.m., Eastern Time, on June 6, 2018.

**10. Can I attend the Annual Meeting?**

Yes. The Annual Meeting is open to all holders of our common stock as of the record date, April 16, 2018. You may attend the Annual Meeting and vote in person. However, even if you plan to attend the Annual Meeting, we encourage you to vote your shares by proxy.

All shareholders must present a form of personal photo identification in order to be admitted to the meeting. In addition, if you are a street name shareholder and your shares are held in the name of a broker, bank or other nominee, please bring with you a proxy, letter or account statement from your broker, bank or nominee confirming your ownership of Company common stock so that you can be admitted to the Annual Meeting. Cameras, recording devices and other electronic devices are not permitted at the Annual Meeting.

**11. How will my shares be voted if I sign, date and return my proxy or voting instruction, but do not provide complete voting instructions with respect to each proposal?**

Shareholders should specify their vote for each matter on the proxy or voting instruction. The proxies solicited by this Proxy Statement vest in the proxy holders voting rights with respect to the election of directors (unless the shareholder marks the proxy to withhold that authority) and on all other matters voted upon at the Annual Meeting.

Unless otherwise directed in the enclosed proxy card, the persons named as proxies therein will vote all properly executed, returned and not-revoked proxy cards or voting instruction cards (1) "**FOR**" the election of the nine director nominees listed thereon; (2) "**FOR**" the proposal to ratify the appointment by the Audit Committee of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2018; (3) "**FOR**" the non-binding proposal regarding approval of the

compensation of the company's named executive officers; and (4) "**FOR**" the approval of an amendment to the 2013 Plan. As to any other business that may properly come before the Annual Meeting, the persons named in the enclosed proxy card or voting instruction will vote the shares of common stock represented by the proxy in the manner as the Board may recommend, or otherwise at the proxy holders' discretion. The Board does not presently know of any other such business.

**12. How will my shares be voted if I do not return my proxy or my voting instruction?**

It will depend on how your ownership of shares of common stock is registered. If you own your shares as a registered holder, which means that your shares of common stock are registered in your name, your unvoted shares will not be represented at the Annual Meeting and will not count toward the quorum requirement, as explained under "6. *How many votes must be present to hold the Annual Meeting?*" on page 2, unless you attend the Annual Meeting to vote them in person.

If you are a street name shareholder and your shares are registered in the name of your bank, broker or its nominee, your shares may be voted even if you do not provide your bank, broker or other nominee with voting instructions. Under the rules of the New York Stock Exchange (the "NYSE") your bank, broker or other nominee may vote your shares in its discretion on "routine" matters. However, NYSE rules do not permit your bank, broker or other nominee to vote your shares on proposals that are not considered routine. When a proposal is not a routine matter and your bank, broker or other nominee has not received your voting instructions with respect to such proposal, your bank, broker or other nominee cannot vote your shares on that proposal. When a bank, broker or other nominee does not cast a vote for a routine or a non-routine matter, it is called a "broker non-vote."

Therefore, please note that in the absence of your specific instructions as to how to vote, your bank, broker or other nominee may not vote your shares with respect to the election of directors, the non-binding proposal regarding the compensation of the named executive officers or the proposal to approve the amendment to the 2013 Plan. Under NYSE rules, these matters are not considered routine matters. However, the ratification of the appointment by the Audit Committee of PricewaterhouseCoopers LLP is a routine matter under NYSE rules for which brokerage firms may vote on behalf of their clients if no voting instructions are provided. Therefore, if you are a street name shareholder whose shares of common stock are held with a bank, broker or other nominee and you do not return your voting instructions, your bank, broker or other nominee may vote your shares "**FOR**" the ratification of the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm. **Please return your proxy so your vote can be counted.**

**13. How are abstentions and broker non-votes counted?**

Only votes cast "for" or "against" are included in determining the votes cast with respect to any matter presented for consideration at the Annual Meeting. As described above, when brokers do not have discretion to vote or do not exercise such discretion, the inability or failure to vote is referred to as a "broker non-vote." Proxies marked as abstaining, and any proxies returned by brokers as "non-votes" on behalf of shares held in street name because beneficial owners' discretion has been withheld as to one or more matters to be acted upon at the Annual Meeting, will be treated as present for purposes of determining whether a quorum is present at the Annual Meeting. Broker non-votes and abstentions will not be included in the vote total for the proposal to elect the nominees for director and will not affect the outcome of the vote for the proposal. In addition, under Virginia corporate law, abstentions are not counted as votes cast on a proposal. Therefore, abstentions and broker non-votes will not count either in favor of or against (i) the election of directors, (ii) the ratification of the appointment of PricewaterhouseCoopers LLP or (iii) the non-binding proposal regarding the compensation of the named executive officers. Broker non-votes will not count either for or against the proposal to approve the amendment to the 2013 Plan. Abstentions, however, will be considered as votes cast under the rules of the NYSE and will have the effect of a vote against the proposal to approve the amendment to the 2013 Plan.

**14. What if I change my mind after I vote?**

Whether you vote by internet, telephone or by mail, you may later change or revoke your proxy at any time before it is voted by (i) submitting a properly signed proxy with a later date, (ii) voting by telephone or the internet at a later time, or (iii) voting in person at the Annual Meeting. See the proxy card for instructions. Attendance at the Annual Meeting alone without voting will not revoke a previously granted proxy.



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If you are a street name shareholder whose stock is held with a bank, broker or other nominee, you must follow the instructions found on the voting instruction card provided by the bank, broker or other nominee, or contact your bank, broker or other nominee to change or revoke your previously given proxy.

### **15. Who pays the cost of proxy solicitation?**

Intrexon will pay all expenses of soliciting proxies, including clerical work, printing and postage. Our officers and other employees may personally solicit proxies or solicit proxies by internet, telephone, mail or facsimile, but we will not provide any compensation for such solicitations. We will also reimburse banks, brokers and other persons holding shares in their names or in the names of nominees for expenses incurred sending material to beneficial owners and obtaining proxies from beneficial owners.

### **16. Could other matters be decided in the Annual Meeting?**

The Board does not know of any other business that may be brought before the Annual Meeting. However, if any other matters should properly come before the Annual Meeting or at any adjournment or postponement thereof, it is the intention of the persons named in the accompanying proxy to vote on such matters as they, in their discretion, may determine.

### **17. How do I make a shareholder proposal for the 2019 Annual Meeting of Shareholders?**

We must receive proposals from shareholders intended to be presented at the 2019 Annual Meeting of Shareholders, on or before December 28, 2018, to be considered for inclusion in our Proxy Statement and form of proxy/voting instruction card for that meeting pursuant to Rule 14a-8 under the Securities Exchange Act of 1934, as amended ("Exchange Act"), and for consideration at that meeting. Shareholders submitting such proposals are required to be the beneficial owners of shares of the common stock amounting to at least \$2,000 in market value and to have held such shares for at least one year prior to the date of submission.

Our Amended and Restated Bylaws (the "Bylaws") also set forth the procedures a shareholder must follow to nominate directors or to bring other business before shareholder meetings. For a shareholder to nominate a candidate for director or bring other matters from the floor at the 2019 Annual Meeting of Shareholders, we must receive notice of the nomination no later than March 9, 2019 and no earlier than February 7, 2019. For the nomination of a candidate for director, the notice must describe various matters regarding the nominee, including name, address, occupation and shares held. For bringing other matters from the floor at the 2019 Annual Meeting of Shareholders, the notice must include a description of the proposed business, the reasons therefor and other matters specified in our Bylaws. In each case, the notice must be timely given to our Corporate Secretary in writing, whose address is 20374 Seneca Meadows Parkway, Germantown, Maryland 20876. A printed copy of the Bylaws is available free of charge to any shareholder who requests it by contacting the Corporate Secretary in writing at Intrexon Corporation, 20374 Seneca Meadows Parkway, Germantown, Maryland 20876.

## CORPORATE GOVERNANCE

### General

Our business and affairs are managed under the direction of the Board in accordance with the Virginia Stock Corporation Act and our Amended and Restated Articles of Incorporation and Bylaws. Our Bylaws provide that the number of directors shall be fixed from time to time by the Board, but shall not be more than ten. The Board is currently comprised of the following individuals: Randal Kirk, Cesar Alvarez, Steven Frank, Vinita Gupta, Fred Hassan, Jeffrey Kindler, Dean Mitchell, Robert Shapiro and James Turley. For more information regarding the members of our Board, please see “NOMINEES FOR ELECTION AS DIRECTORS” beginning on page [16](#).

Members of the Board are kept informed of our business through discussions with the Chairman and Chief Executive Officer and other officers, by reviewing materials provided to them and by participating in meetings of the Board and its committees. The corporate governance practices we follow are summarized below.

### Corporate Governance Guidelines

The Board has adopted corporate governance guidelines (the “Corporate Governance Guidelines”) that set forth the practices of the Board with respect to the qualification, selection and election of directors, director orientation and continuing education, director responsibilities, Board composition and performance, director access to management and independent advisors, director compensation guidelines, management evaluation and succession, policies regarding the Lead Independent Director, meetings of the non-management directors, the policy on communicating with the non-management directors and various other issues. A copy of our Corporate Governance Guidelines is available on our website at <http://investors.dna.com> under the caption “Corporate Governance.” A printed copy is available free of charge to any shareholder who requests it by contacting the Corporate Secretary in writing at Intrexon Corporation, 20374 Seneca Meadows Parkway, Germantown, Maryland 20876.

### Board Standards of Independence

The Board sets our independence standards in our Corporate Governance Guidelines. The director independence standards provide that a majority of the Board must be independent under the independence standards established by the Corporate Governance Guidelines, the NYSE and the Securities and Exchange Commission (the “SEC”) as in effect from time to time. For a Board member or candidate for election to the Board to qualify as independent, the Board must determine that the person and his or her immediate family members do not have a material relationship with us (either directly or as a partner, shareholder or officer of an organization that has a relationship with us) or any of our affiliates. Under the categorical standards adopted by the Board, a member of the Board is not independent if:

- The director is, or has been within the last three years, our employee, or an immediate family member is, or has been within the last three years, an executive officer of the Company;
- The director has received, or has an immediate family member who has received, during any twelve-month period within the last three years, more than \$120,000 in direct compensation from us, other than director and committee fees and pension or other forms of deferred compensation for prior service (provided such compensation is not contingent in any way on continued service);
- (i) The director is a current partner or employee of a firm that is our internal or external auditor; (ii) the director has an immediate family member who is a current partner of such a firm; (iii) the director has an immediate family member who is a current employee of such a firm and personally works on our audit; or (iv) the director or an immediate family member was within the last three years a partner or employee of such a firm and personally worked on our audit within that time;
- The director or an immediate family member is, or has been within the last three years, employed as an executive officer of another company where any of our present executive officers at the same time serves or served on that company’s compensation committee; or
- The director is a current employee, or an immediate family member is a current executive officer, of a company that has made payments to, or received payments from, us for property or services in an amount which, in any of the last three fiscal years, exceeds the greater of \$1 million, or two percent, of such other company’s consolidated gross revenues.

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The Board will also consider a director's charitable relationships. Contributions to tax-exempt organizations are not considered payments for purposes of the test in the final bullet point above, provided that we are required to disclose in our annual Proxy Statement any such contributions made by us to any tax-exempt organization in which any independent director serves as an executive officer if, within the preceding three years, contributions in any single fiscal year from us to the organization exceeded the greater of \$1 million, or two percent, of such tax-exempt organization's consolidated gross revenues.

For purposes of the above independence standards, an "immediate family member" includes a person's spouse, parents, children, siblings, mothers- and fathers-in-law, sons- and daughters-in-law, brothers- and sisters-in-law and anyone (other than domestic employees) who shares such person's home. When applying the look-back provisions set forth above, the Board need not consider individuals who are no longer immediate family members as a result of legal separation or divorce, or those who have died or become incapacitated.

With the exception of Mr. Kirk, our Chairman of the Board and Chief Executive Officer, the Board has affirmatively determined that each member of the Board is independent in accordance with the above standards.

In determining that Mr. Alvarez is independent, the Board considered that Mr. Alvarez is the Senior Chairman of Greenberg Traurig, LLP ("Greenberg Traurig"). As discussed under "CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS," Greenberg Traurig provides legal services to us from time to time for which it has received, and may continue to receive, customary fees. During 2017, we paid Greenberg Traurig approximately \$1.5 million for legal services, constituting less than 2 percent of Greenberg Traurig's annual gross revenues. As the Senior Chairman, Mr. Alvarez does not participate in the provision of such services, and does not materially benefit from the engagement and his compensation from Greenberg Traurig is not based on such services provided to us. The Board has determined that this relationship is not material and that it does not impair Mr. Alvarez's independence.

In determining that Mr. Turley is independent, the Board considered that Mr. Turley is the former Chairman and Chief Executive Officer of Ernst & Young LLP. From time to time, Ernst & Young provides valuation and technical accounting services to us, for which it receives customary fees. As Mr. Turley retired from Ernst & Young in June 2013, Mr. Turley does not participate in such services and does not materially benefit from the engagement. The Board has determined that this relationship is not material and that it does not impair Mr. Turley's independence.

### **Board Meetings and Attendance at Annual Meeting of Shareholders**

During fiscal year 2017, there were eleven meetings of the Board held either in-person or by teleconference. Each director attended more than 75 percent of the combined meetings of the Board and the committees on which he or she served during the year.

Our Corporate Governance Guidelines provide that all directors are strongly encouraged to attend the Annual Meeting each year. All members of our Board at the time of the 2017 Annual Meeting attended the Annual Meeting, except for one director.

### **Board Leadership Structure**

As provided in the Corporate Governance Guidelines, the Board does not have a policy on whether the role of the Chief Executive Officer and Chairman of the Board should be separate or, if it is to be separate, whether the Chairman should be selected from the non-employee directors or be an employee. We currently operate with one individual, Mr. Kirk, serving as Chairman of the Board and Chief Executive Officer. The Board appointed Mr. Kirk as Chairman of the Board in February 2008 and Chief Executive Officer in April 2009. The Board believes that because Mr. Kirk owns a majority of our common stock and has unique and extensive experience and understanding of our business, he is well-situated to lead and execute strategy and business plans to maximize shareholder value. The Board believes that combining the Chairman of the Board and Chief Executive Officer positions is the right corporate governance structure for us at this time because it most effectively utilizes Mr. Kirk's extensive experience and knowledge regarding the Company, including by allowing him to lead Board discussions regarding our business and strategy and provides us with unified leadership.

To ensure that the independent directors play a leading role in our current leadership structure, the Board established the position of Lead Independent Director in the Corporate Governance Guidelines. Mr. Shapiro currently serves as our Lead Independent Director. The Company currently maintains a significant majority of

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independent directors (Mr. Kirk is the only non-independent director) and independent Board committees. In his role as Lead Independent Director, Mr. Shapiro is in frequent contact with the Chairman of the Board and Chief Executive Officer and is regularly consulted on material matters. The Lead Independent Director is elected by the independent directors and ensures that the Board operates independently of management and directors and shareholders have an independent leadership contact.

The responsibilities of the Lead Independent Director of the Board include the following:

- preside over meetings of the non-management and independent Board members and, as appropriate, provide prompt feedback to the Chief Executive Officer and Chairman;
- together with the Chief Executive Officer and Chairman, and with input from the non-management and independent Board members, prepare the Board's agenda;
- serve as a point of contact between non-management and independent Board members and the Chief Executive Officer and Chairman to report or raise matters;
- call executive sessions of the Board or of the non-management and independent Board members;
- serve as a "sounding board" and mentor to the Chief Executive Officer and Chairman;
- take the lead in assuring that the Board carries out its responsibilities in circumstances where the Chief Executive Officer and Chairman is incapacitated or otherwise unable to act;
- consult with the Chairman of the Compensation Committee to provide performance feedback and compensation information to the Chief Executive Officer and Chairman; and
- perform such other duties and responsibilities as may be delegated to the Lead Independent Director by the Board from time to time.

The Board has three standing committees: the Audit Committee, the Compensation Committee and the Nominating and Governance Committee. Each committee has a separate chairperson and each committee is composed solely of independent directors.

Given our current circumstances and operating strategies, we believe having a combined Chairman of the Board and Chief Executive Officer, as well as having a Lead Independent Director and independent standing Board committees, is the most appropriate structure for our shareholders and the Company. We believe this structure demonstrates clear leadership to our employees, shareholders and other interested parties and eliminates the potential for redundancies and confusion. The Lead Independent Director protects the role of the independent directors by providing leadership to the independent directors and working closely with the Chairman of the Board and Chief Executive Officer.

As part of the Board's annual assessment process, the Board evaluates our Board leadership structure to ensure that it remains appropriate. The Board recognizes that there may be circumstances in the future that would lead it to separate the roles of Chief Executive Officer and Chairman of the Board, but believes that the absence of a policy requiring either the separation or combination of the roles of Chairman and Chief Executive Officer provides the Board with the flexibility to determine the best leadership structure.

### **The Board's Role in Risk Oversight**

The Board is responsible for our risk oversight, and each committee of the Board is responsible for risk oversight within such committee's area of responsibility and regularly reports to the Board. Management is responsible for our risk management, including providing oversight and monitoring to ensure our policies are carried out and processes are executed in accordance with our performance goals and risk tolerance. On a regular basis, our management team identifies, discusses and assesses financial risk from current macro-economic, industry and company perspectives and provides regular reports to the Board and its committees on areas of material risk to the Company, including operational, financial, legal and regulatory as well as strategic and reputational risks.

The Audit Committee charter provides that the Audit Committee is responsible for discussing with management our major financial risk exposures and the steps and processes management has taken to monitor and control such exposures, including our risk assessment and risk management policies. As part of its regular reporting process, management reports and reviews with the Audit Committee our material risks, including, but

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not limited to, proposed risk factors and other public disclosures, mitigation strategies and our internal controls over financial reporting. The Audit Committee also engages in regular periodic discussions with the Chief Financial Officer and other members of management regarding risks as appropriate.

The Compensation Committee considers human resources risks and risks that may result from our executive compensation programs. The Nominating and Governance Committee considers succession planning and corporate governance risks. Each committee regularly reports to the Board. Moreover, the Board reviews and oversees our various financial policies, financing programs, capital and operating plans, benefit plan management and certain risk management policies.

We believe the current leadership structure of the Board supports the risk oversight functions described above by providing independent leadership at the committee level, with ultimate oversight by the full Board as led by the Chairman of the Board and Chief Executive Officer and the Lead Independent Director.

### **Board Committees**

The Board has three standing committees: the Audit Committee, the Compensation Committee and the Nominating and Governance Committee. Each committee operates under a written charter that has been approved by our Board. A current copy of each committee's charter is available on our website at <http://investors.dna.com> under the caption "Corporate Governance." Alternatively, you can request a printed copy of any of these documents free of charge by writing to the Corporate Secretary at Intrexon Corporation, 20374 Seneca Meadows Parkway, Germantown, Maryland 20876.

### ***Audit Committee***

The members of our Audit Committee are Messrs. Kindler, Mitchell and Shapiro. Mr. Kindler is the chair of the Audit Committee. The Board has determined that each member of the Audit Committee is "independent" within the meaning of the enhanced independence standards for audit committee members in the Exchange Act, and the rules thereunder, as incorporated into the listing standards of the NYSE, and the independence standards of our Corporate Governance Guidelines as discussed above under "CORPORATE GOVERNANCE— Board Standards of Independence" on page 6. The Board has further determined that each of the members of the Audit Committee is "financially literate" and that, as required by the NYSE listing standards, at least one member of the Committee has accounting or related financial management expertise, as such terms are interpreted by the Board in its business judgment. Our Board has further determined that Mr. Kindler qualifies as an "audit committee financial expert" within the meaning of SEC regulations and NYSE rules. In making this determination, our Board considered the formal education and nature and scope of his previous experience, coupled with past and present service on various audit committees.

Our Audit Committee assists our Board in its oversight of our accounting and financial reporting process and the audits of our consolidated financial statements. Our Audit Committee's responsibilities include, among other things, overseeing:

- our accounting and financial reporting processes;
- the integrity of our consolidated financial statements;
- our compliance with laws and regulations;
- our independent registered public accounting firms qualifications and independence; and
- the performance of our internal audit functions and independent registered public accounting firm.

The Audit Committee met twelve times during fiscal year 2017 for the purpose of overseeing management's responsibilities for accounting, internal control over financial reporting and financial reporting. The Audit Committee selects, appoints, compensates and oversees the performance of our independent registered public accounting firm for each fiscal year and approves the audit and non-audit fees we pay to such firm. The Audit Committee reviews the scope and the results of the work of the independent registered public accounting firm and internal auditors and reviews the adequacy of internal control over financial reporting. The functions and responsibilities of the Audit Committee are described in the "Audit Committee Report" on page 26.

The Audit Committee has adopted a written policy for the provision of audit services and permitted non-audit services by our independent registered public accounting firm. Our Chief Financial Officer has primary

responsibility to the Audit Committee for administration and enforcement of this policy and for reporting non-compliance. Under the policy, our Audit Committee receives a presentation of an annual budget and plan for audit services and for any proposed audit-related, tax or other non-audit services to be performed by the independent registered public accounting firm, but management may, from time to time, seek approval of certain additional audit or non-audit services not provided for in the budget.

### **Compensation Committee**

The members of our Compensation Committee are Messrs. Hassan, Kindler and Turley. Mr. Turley is the chair of the Compensation Committee. The Compensation Committee met seven times during fiscal year 2017 for the purpose of assisting our Board in the discharge of its responsibilities relating to the compensation of our executive officers. The Compensation Committee's responsibilities include, among other things:

- developing and maintaining an executive compensation policy and monitoring the results of that policy;
- considering the impact of our compensation policy and practices on our risk profile;
- recommending to the Board for approval compensation and benefit plans;
- reviewing and approving annually corporate and personal goals and objectives to serve as the basis for the Chief Executive Officer's compensation, evaluating the Chief Executive Officer's performance in light of those goals and objectives and determining the Chief Executive Officer's compensation based on that evaluation;
- determining and approving the annual compensation for other executive officers;
- approving any grants of stock options, restricted stock, performance shares, stock appreciation rights, and other equity-based incentives to the extent provided under the our equity compensation plans;
- reviewing and making recommendations to the Board regarding the compensation of non-employee directors;
- reviewing and discussing with management the "Compensation Discussion and Analysis" to the extent required by SEC rules;
- preparing the Compensation Committee report when required by SEC rules;
- reviewing and recommending to the Board for approval our approach with respect to the advisory vote on executive compensation, or say-on-pay, and the frequency of the say-on-pay advisory vote; and
- considering the application of Section 162(m) of the Internal Revenue Code to our compensation practices and developing a related policy.

The Board has determined that the members of the Compensation Committee are "non-employee directors" (within the meaning of Rule 16b-3 of the Exchange Act ) and "independent directors" (as defined under the applicable NYSE listing standards and our Corporate Governance Guidelines as discussed above under "CORPORATE GOVERNANCE — Board Standards of Independence" on page [6](#)).

While the Compensation Committee charter does not specify qualifications required for members, the members of the Compensation Committee have been members of other public company boards of directors, are current or former executive officers of public companies or have comparable positions.

The Compensation Committee is authorized to retain experts, consultants and other advisors to aid in the discharge of its duties. In 2017, the Compensation Committee retained F. Daniel Siciliano as its outside compensation consultant. Mr. Siciliano is the co-founder of the Arthur and Toni Rembe Rock Center for Corporate Governance at Stanford Law School, the immediate past Faculty Director and Professor of the Practice at the Center and currently the co-director of Stanford's Directors' College. Mr. Siciliano is a noted authority on matters related to executive compensation and corporate governance. Mr. Siciliano was retained to (1) review the company's historical compensation practices, (2) advise the Compensation Committee on compensation standards and trends, (3) assist in the implementation of policies and programs, and (4) review recommendations from management on compensation matters. In retaining Mr. Siciliano, the Compensation Committee separately considered the six factors set forth in Section 10C-1(b)(4)(i) through (vi) of the Exchange Act and, based on such consideration, determined that the work of Mr. Siciliano did not raise any conflict of interest.

*Compensation Committee Interlocks and Insider Participation*

None of our executive officers serve, or in the past has served, as a member of the board of directors or compensation committee, or other committee serving an equivalent function, of any entity that has one or more executive officers who serve as members of our Board or our Compensation Committee. None of the members of our Compensation Committee is an officer or employee of our Company, nor have any of them ever been an officer or employee of our Company.

*Nominating and Governance Committee*

The members of our Nominating and Governance Committee are Mr. Alvarez, Ms. Gupta and Mr. Shapiro. Mr. Alvarez is the chair of the Nominating and Governance Committee. The Nominating and Governance Committee met four times during fiscal year 2017. The Nominating and Governance Committee's responsibilities include, among other things:

- considering and reviewing periodically the desired composition of the Board and ensuring that the Board is composed so as to satisfy SEC listing requirements and NYSE rules, including the independence of directors and the financial and accounting experience of directors;
- establishing any qualifications and standards for individual directors;
- identifying, nominating and evaluating candidates for election to the Board;
- making recommendations to the Board regarding the size of the Board, the tenure and classifications of directors, and the composition of the Board's committees;
- reviewing and evaluating our various governance policies and guidelines;
- considering chief executive officer succession planning;
- reviewing committee structure and effectiveness; and
- considering other corporate governance and related matters as requested by the Board.

The Board has determined that all members of the Nominating and Governance Committee are "independent" within the meaning of the listing standards of the NYSE and the independence standards set by the Board as discussed in the section entitled "CORPORATE GOVERNANCE — Board Standards of Independence" on page 6 of this Proxy Statement.

*Director Candidate Recommendations and Nominations by Shareholders.* The Nominating and Governance Committee's charter provides that the Nominating and Governance Committee will consider director candidate recommendations by shareholders. Shareholder recommendations for candidates to be nominees will be evaluated under the same standards as potential nominees recommended by management or the non-management members of the Board. Shareholders should submit any such director recommendations to the Nominating and Governance Committee through the method described in "QUESTIONS AND ANSWERS ABOUT THE ANNUAL MEETING — 17. How do I make a shareholder proposal for the 2019 Annual Meeting of Shareholders?" on page 5. The Nominating and Governance Committee did not receive any recommendations from any shareholders in connection with the Annual Meeting.

*Nominating and Governance Committee Process for Identifying and Evaluating Director Candidates.* The Nominating and Governance Committee identifies and evaluates all director candidates in accordance with the director qualification standards described in the Corporate Governance Guidelines. The Nominating and Governance Committee evaluates a candidate's qualifications to serve as a member of the Board based on the background and expertise of individual Board members as well as the background and expertise of the Board as a whole. Nominees will be required to bring the skills, talents, knowledge and expertise to ensure that the composition, structure and operation of the Board serve the best interests of our shareholders. In addition, the Nominating and Governance Committee will evaluate a candidate's independence and his or her background and expertise in the context of the Board's needs.

We have no formal policy regarding Board diversity. Our priority in selection of Board members is identification of members who will further the interests of our shareholders through their established records of professional accomplishment, the ability to contribute positively to the collaborative culture among Board members, knowledge of our business and understanding of the competitive landscape of the industries in which

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we operate. We will consider, in identifying first-time candidates, nominees for director, or evaluating individuals recommended by shareholders, the current composition of the Board in light of the diverse communities and geographies we serve and the interplay of the candidate's or nominee's diverse individual experience, education, skills, background and other qualities and attributes with those of the other Board members. The Nominating and Governance Committee and Board monitor its effectiveness through the Board's self-evaluation process. As described under "NOMINEES FOR ELECTION AS DIRECTORS" beginning on page 16, the Nominating and Governance Committee and the Board believe that the current composition of the Board reflects a group of highly talented individuals with diverse backgrounds, skills, professional and industry experience, and other personal qualities and attributes best suited to perform oversight responsibilities for the Company and its shareholders.

### **Code of Business Conduct and Ethics**

We have adopted a written code of business conduct and ethics that applies to our directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. The code covers a broad range of professional conduct, including employment policies, conflicts of interest, intellectual property and the protection of confidential information, as well as adherence to all laws and regulations applicable to the conduct of our business. A copy of the code is available on our website at <http://investors.dna.com> under the caption "Corporate Governance." If we make any substantive amendments to, or grant any waivers from, the code of business conduct and ethics for any officer or director, we intend to satisfy the disclosure requirement under Item 5.05 of Form 8-K by disclosing the nature of such amendment or waiver on our website or in a current report on Form 8-K.

### **Political Contributions**

In general, it is not our practice to make financial or in-kind political contributions with corporate assets, even when permitted by applicable law. We comply with all applicable state and federal laws related to the disclosure of lobbying activities.

### **Communications with the Board**

Shareholders wishing to communicate with our Board of Directors may do so by writing to the Board, the Chairman, the Lead Independent Director, or the non-employee members of the Board as a group, at: Intrexon Corporation, 20374 Seneca Meadows Parkway, Germantown, Maryland 20876; Attn: Corporate Secretary.

The communication must prominently display the legend "BOARD COMMUNICATION" in order to indicate to the Secretary that it is a communication for the Board. Upon receiving such a communication, the Secretary will promptly forward the communication to the relevant individual or group to which it is addressed. The Board has requested that certain items that are unrelated to the Board's duties and responsibilities be excluded, such as spam, junk mail and mass mailings, resumes and other forms of job inquiries, surveys and business solicitations or advertisements.

The Secretary will not forward any communication determined in his or her good faith belief to be frivolous, unduly hostile, threatening, illegal or similarly unsuitable. Each communication subject to this policy that was not forwarded because it was determined by the Secretary to be frivolous is retained for a reasonable period of time in the Company's files and made available at the request of any member of the Board to whom such communication was addressed.



**BENEFICIAL OWNERSHIP OF COMMON STOCK**

The following table sets forth information regarding beneficial ownership of our share capital as of March 31, 2018 by (1) each of our directors, (2) each of our named executive officers, (3) all of our directors and executive officers as a group and (4) each person, or group of affiliated persons, known by us to beneficially own more than five percent of our shares of common stock.

The percentage ownership information is based on an aggregate 129,239,376 shares of common stock outstanding as of March 31, 2018.

Except as otherwise noted below, the address for each person or entity listed in the table is c/o Intrexon Corporation, 20374 Seneca Meadows Parkway, Germantown, Maryland 20876.

<b>Name of Beneficial Owner</b>	<b>Outstanding Shares Beneficially Owned<sup>(1)</sup></b>	<b>Right to Acquire Beneficial Ownership<sup>(2)</sup></b>	<b>Total Shares Beneficially Owned</b>	<b>Percentage of Shares Beneficially Owned</b>
<b>Directors/director nominees</b>				
Cesar Alvarez	114,489	99,229	213,718	*
Steven Frank	192,257	99,229	291,486	*
Vinita Gupta	9,414 <sup>(3)</sup>	39,246	48,660	*
Fred Hassan	13,281	54,346	67,627	*
Jeffrey Kindler	76,129	105,172	181,301	*
Dean Mitchell	21,678	105,167	126,845	*
Robert Shapiro	130,110 <sup>(4)</sup>	105,172	235,282	*
James Turley	13,550	117,052	130,602	*
<b>Named executive officers</b>				
Randal Kirk <sup>(5)</sup>	59,132,705	—	59,132,705	45.8%
Rick Sterling	74,621	260,722	335,343	*
Donald Lehr	28,249	311,614	339,863	*
Jeffrey Perez	12,537	207,019	219,556	*
Robert Walsh	—	278,948	278,948	*
Executive officers and directors as a group (18 persons)	60,422,669 <sup>(6)</sup>	3,712,334	64,135,003	48.2%

\* Represents beneficial ownership of less than 1 percent of our outstanding shares of common stock

- (1) Beneficial ownership is determined in accordance with the rules and regulations of the SEC and includes sole or shared voting or investment power with respect to shares of our common stock. The information set forth in the table above is not necessarily indicative of beneficial ownership for any other purpose, and the inclusion of any shares deemed beneficially owned in this table does not constitute an admission of beneficial ownership of those shares. Except as otherwise noted, to our knowledge, the persons and entities named in the table above have sole -voting and investment power with respect to all of the shares of common stock beneficially owned by them, subject to community property laws, where applicable.
- (2) Consists of shares of common stock subject to stock options exercisable as of, or within 60 days of March 31, 2018. Shares of common stock subject to stock options that are exercisable as of or within 60 days of March 31, 2018 are deemed to be outstanding and beneficially owned by the person holding the option for the purpose of calculating the percentage ownership of that person, but are not deemed outstanding for the purpose of calculating the percentage ownership of any other person.
- (3) Includes 3,000 shares held in the Sharma-Gupta Marital Property Trust, an affiliate of Vinita Gupta.
- (4) Includes 82,966 shares held in the Robert B. Shapiro Revocable Trust, an affiliate of Robert Shapiro.
- (5) Includes shares held by the following entities over which Mr. Kirk (or an entity over which he exercises exclusive control) exercises exclusive control: 213,805 shares held by ADC 2010, LLC, 139,052 shares held by JPK 2008, LLC, 720,562 shares held by JPK 2009, LLC, 843,044 shares held by JPK 2012, LLC, 7,782,622 shares held by Kapital Joe, LLC, 135,033 shares held by Kellie L. Banks (2009) Long Term Trust, 1,403 shares held by Lotus Capital (2000) Company Inc., 5,483,957 shares held by Mascara Kaboom, LLC, 140,007 shares held by MGK 2008, LLC, 850,355 shares held by MGK 2009, LLC, 940,426 shares held by MGK 2011, LLC, 13,340,645 shares held by NRM VI Holdings I, LLC, 243,001 shares held by NRM VII Holdings I, LLC, 14,777,995 shares held by R.J. Kirk Declaration of Trust, 678,323 shares held by Third Security Incentive 2010 LLC, 19,711 shares held by Third Security Incentive 2006 LLC, 59,133 shares held by Third Security Staff 2006 LLC, 118,266 shares held by Third Security Senior Staff 2006 LLC, 1,356,648 shares held by Third Security Senior Staff 2008 LLC, 58,800 shares held by Third Security Senior Staff LLC, 311,287 shares held by Third Security Staff 2001 LLC, 1,356,648 shares held by Third Security Staff 2010 LLC, 1,047,117 shares held by Third Security, LLC, 8,325,000 shares held by TSCP V LLC, 114,181 shares held by ZSK 2008 LLC, and 75,684 shares held by ZSK 2009 LLC.
- (6) As of March 31, 2018, this amount includes 73,929 shares pledged by an executive as collateral for a loan obligation.

**Section 16(a) Beneficial Ownership Reporting Compliance**

Section 16(a) of the Exchange Act requires our executive officers, directors and persons who beneficially own more than 10 percent of our equity securities, to file reports of ownership and changes in ownership with the SEC and provide us with copies of such reports.

Based solely on a review of the copies of these reports furnished to us, we believe that all filing requirements applicable to such officers and directors and greater than 10 percent shareholders were complied with during fiscal year 2017.

**PROPOSAL 1  
ELECTION OF DIRECTORS**

**ITEM 1 ON PROXY CARD**

**Background**

Our Board currently consists of nine directors, all of whom were elected as directors by our shareholders at our 2017 Annual Meeting. Our directors hold office until their successors have been elected and qualified or until the earlier of their resignation or removal. The Board, upon unanimous recommendation of the Nominating and Governance Committee, unanimously approved the nine persons named below as nominees for election to the Board at the Annual Meeting. Each of the nominees: (i) is currently a member of the Board, (ii) has been nominated for election at the Annual Meeting to hold office until the next Annual Meeting or, if earlier, the election of his or her respective successor and (iii) has consented to being named as such and to serve as such if elected.

Our Bylaws provide that, in uncontested director elections (i.e., an election where the number of nominees is not greater than the number of directors to be elected), a nominee for director will be elected to the Board if the votes cast for such nominee's election exceed the votes cast against such nominee's election. However, directors will be elected by a plurality of the votes cast at any meeting of the shareholders for which (i) the Secretary receives a notice that a shareholder has nominated a person for election to the Board in compliance with the advance notice requirements for shareholder nominees for director set forth in the Bylaws, and (ii) such nomination has not been withdrawn by such shareholder on or prior to the 10<sup>th</sup> day preceding the date we first mail the notice of meeting for such meeting to the shareholders (i.e., if there is a contested director election). If directors are to be elected by a plurality of the votes cast, the shareholders may withhold votes, but will not be permitted to vote against a nominee.

Our Corporate Governance Guidelines provide that any nominee for director in an uncontested election who receives a greater number of shareholder votes cast "against" his or her election than votes "for" his or her election must promptly tender his or her resignation to the Board for consideration. The Nominating and Governance Committee will then evaluate the best interests of the Company and will recommend to the Board whether to accept or reject the tendered resignation. Following the Board's receipt of this recommendation and determination as to whether to accept the resignation, we will disclose the Board's decision and an explanation of how the decision was reached.

There were no nominee recommendations from shareholders or from any group of shareholders submitted in accordance with our Bylaws. Proxies solicited by the Board will be voted in favor of the nominees listed below unless otherwise specified in the proxy. We know of no reason why the nominees would not be available for election or, if elected, would be unable to serve. While we do not anticipate that any of the nominees will be unable to serve, if any should be unable to serve, the proxy holders reserve the right to substitute another person designated by the Board.

**Vote Required and Board Recommendation**

Each director nominee must receive the affirmative vote of a majority of the votes cast in order to be elected. As this proposal is not considered a "routine item," your bank, broker or other nominee cannot vote your shares without receiving your voting instructions. Abstentions and broker non-votes will not count "for" or "against" the election of any nominee.

**THE BOARD UNANIMOUSLY RECOMMENDS THAT SHAREHOLDERS VOTE "FOR" ALL OF THE PROPOSED DIRECTOR NOMINEES LISTED.**

**NOMINEES FOR ELECTION AS DIRECTORS**

Set forth below is information for each nominee concerning the individual’s age, principal occupation, employment and directorships during the past five years, positions with the Company, the year in which he or she first became a director of the Company and his or her term of office as a director. Also set forth below is a brief discussion of the specific experience, qualifications, attributes or skills that led to the Board’s conclusion that, in light of our business and structure, each nominee should serve as a director as of the date of this Proxy Statement.

Name Period Served as Director Age	Business Experience During Past Five Years and Other Affiliations
<p>Randal J. Kirk Director since 2008 Age 64</p>	<p><b>Randal J. Kirk, Chief Executive Officer and Chairman of the Board.</b> Mr. Kirk has served as our Chairman of the Board since February 2008 and as our Chief Executive Officer since April of 2009. Mr. Kirk provides a wealth of strategic, operational and management experience. Mr. Kirk currently serves as the Senior Managing Director and Chief Executive Officer of Third Security, LLC, an investment management firm founded by Mr. Kirk in March 1999. Additionally, Mr. Kirk founded and became Chairman of the Board of New River Pharmaceuticals Inc. (a biopharmaceutical company previously traded on NASDAQ prior to its acquisition by Shire plc in 2007) in 1996, and was President and Chief Executive Officer between October 2001 and April 2007. Mr. Kirk currently serves in a number of additional capacities including as a member of the board of directors of Halozyme Therapeutics, Inc. (NASDAQ: HALO), a clinical stage biotechnology company, since May 2007, as a member of the board of directors of ZIOPHARM Oncology, Inc. (NASDAQ: ZIOP), a biotechnology company, since January 2011 and as a member of the board of directors of the Edward Via College of Osteopathic Medicine since May 2015. Previously, Mr. Kirk served as a member of the board of directors of Scios, Inc. (previously traded on NASDAQ prior to its acquisition by Johnson &amp; Johnson) between February 2000 and May 2002, and as a member of the board of directors of Clinical Data, Inc. (previously traded on NASDAQ prior to its acquisition by Forest Laboratories, Inc. in April 2011) from September 2002 to April 2011, and was Chairman of the board of directors from December 2004 to April 2011. Mr. Kirk served on the board of visitors of Radford University from July 2003 to June 2009, was Rector of the board of directors from September 2006 to September 2008, and served on the board of directors of the Radford University Foundation, Inc. from September 1998 to May 2011. He served on the board of visitors of the University of Virginia and Affiliated Schools from July 2009 to October 2012, on the Virginia Advisory Council on Revenue Estimates from July 2006 to October 2012 and on the Governor’s Economic Development and Jobs Creation Commission from April 2010 to October 2012. Mr. Kirk received a B.A. in Business from Radford University and a J.D. from the University of Virginia. We believe that Mr. Kirk’s business experience, including his extensive business experience as chief executive officer of multiple companies, his experience as an investor, his service on committees of academic institutions and other public company boards, combined with his business acumen and judgment, provide our board of directors with valuable strategic and operational expertise and leadership skills.</p>
<p>Cesar L. Alvarez Director since 2008 Age 70</p>	<p><b>Cesar L. Alvarez.</b> Mr. Alvarez has served as a Board member since 2008. Mr. Alvarez is the Senior Chairman of the international law firm of Greenberg Traurig, LLP. He previously served as the law firm’s Executive Chairman for more than three years, beginning in 2012, and as its Chief Executive Officer from 1997 until his election as Executive Chairman. During his 15 year tenure as Chief Executive Officer, Mr. Alvarez led the firm to become one of the top ten law firms</p>

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Name  
Period Served as Director  
Age

Business Experience During Past Five Years and Other Affiliations

in the United States by leading its growth from 325 lawyers in eight offices to approximately 1,850 attorneys in more than 36 locations in the United States, Europe, Asia and Latin America. Mr. Alvarez also serves as: Chairman of the board of directors of Mednax, Inc. (NYSE: MD), a provider of physician services, including newborn, maternal-fetal, pediatric subspecialties, anesthesia care; Vice Chairman of the board of directors of Watsco, Inc. (NYSE: WSO), a distributor of air conditioning, heating and refrigeration equipment and related parts and supplies; and director of Fairholme Funds, Inc. (FAIRX), a family of publicly traded focused investment funds; and The St. Joe Company (NYSE: JOE), a real estate development company.

Mr. Alvarez holds a Bachelor of Science, a Masters of Business Administration, and a Juris Doctor from the University of Florida. Mr. Alvarez's qualifications to serve on the board of directors, include his experience as Chief Executive Officer, Executive Chairman, and Senior Chairman of one of the nation's largest law firms with approximately \$1.4 billion in revenues with professionals providing services in 38 locations across the country and abroad, as well as his many years of corporate experience, both advising clients in the fields of corporate and securities and serving on the boards of directors of publicly traded and private companies.

Steven R. Frank  
Director since 2008  
Age 58

**Steven R. Frank.** Mr. Frank has served as a Board member since February 2008. Mr. Frank joined J.P. Morgan Securities LLC, an investment bank, in June 2008 and currently serves as Chairman of Global Healthcare Investment Banking. Mr. Frank had previously been the head of Bear Stearns' Worldwide Health Care Investment Banking group in New York for sixteen years and has provided general investment banking services to all types of health care companies. Specifically, Mr. Frank has led or played major roles in hundreds of mergers and acquisitions and financing transactions across the spectrum of deal structures. He has specialized in transactions involving pharmaceutical, medical device and biotechnology companies. Prior to joining Bear Stearns in 1993, Mr. Frank served over ten years as an institutional investor, primarily at State Farm Insurance Company, where he focused on a multi-billion dollar life-sciences portfolio. Mr. Frank holds a B.S. from Illinois State University and an M.B.A. from the University of Chicago. We believe Mr. Frank's extensive knowledge of our industry and of finance and capital structure strengthen the Board's collective qualifications, skills and experience.

Vinita D. Gupta  
Director since 2017  
Age 50

**Vinita D. Gupta.** Ms. Gupta has served as a Board member since April 2017. Since September 2012, Ms. Gupta has served as the chief executive officer of Lupin Limited ("Lupin"). Lupin, headquartered in Mumbai, India, is an innovation led global pharmaceutical company developing and delivering a wide range of branded and generic formulations, biotechnology products and APIs. Ms. Gupta has served as a director of Lupin since 2001 and serves on its Risk Management Committee. In addition, Ms. Gupta has served as the chief executive officer and chairperson of its U.S. subsidiary Lupin Pharmaceuticals, Inc., the U.S. wholly owned subsidiary of Lupin, since 2003 and as director on the board of Lupin's Japanese subsidiary Kyowa Pharmaceuticals since 2007. Ms. Gupta has held various positions at Lupin since joining the company in 1993.

Ms. Gupta was named 2015 Ernst & Young Entrepreneur of the Year and won the 2016 Forbes India Leadership Awards — Entrepreneur of the Year. Ms. Gupta is regularly named in Forbes Asia Top 50 Power Business women listings for Asia Pacific. Ms. Gupta graduated from the University of Mumbai with a degree in

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pharmacy and received her MBA from the Kellogg School of Management at Northwestern University. We believe Ms. Gupta's qualifications to serve on our board of directors include her strong leadership and management experience within the pharmaceutical industry, including serving as the chief executive officer of a global pharmaceutical corporation and her significant knowledge of operations, strategy, government relations, regulatory, finance and investments and mergers and acquisitions, including the fact that she was not only been responsible for setting up Lupin's business in the U.S and Europe but was instrumental in formulating and executing strategy that has helped Lupin emerge as a global pharmaceutical corporation.

Fred Hassan  
Director since 2016  
Age 72

**Fred Hassan.** Mr. Hassan has served as a Board member since June 2016. Mr. Hassan joined Warburg Pincus LLC, a global private equity investment institution, in 2010 and currently serves as Special Limited Partner. Previously, Mr. Hassan served as Chairman and Chief Executive Officer of Schering-Plough from 2003 to 2009. Before assuming these roles, from 2001 to 2003, Mr. Hassan was Chairman and Chief Executive Officer of Pharmacia Corporation, a company formed as a result of the merger of Monsanto Company and Pharmacia & Upjohn, Inc. He joined Pharmacia & Upjohn, Inc. as Chief Executive Officer in 1997. Mr. Hassan previously held leadership positions with Wyeth serving as Executive Vice President, and was a member of the board from 1995 to 1997. Earlier in his career, he spent a significant tenure with Sandoz Pharmaceuticals and headed the company's U.S. pharmaceuticals business.

Mr. Hassan has served as a director of Time Warner Inc. (NYSE:TWX), a global leader in media and entertainment, since October 2009 and as a director of Amgen, Inc. (Nasdaq: AMGN), a leading biotechnology company, since July 2015. In the course of his career, he has held numerous directorships, including those at Avon Products, Inc. from 1999 to 2013, Bausch & Lomb from 2010 until its acquisition by Valeant Pharmaceuticals International, Inc. in 2013, and Valeant Pharmaceuticals International, Inc. (NYSE: VRX) from 2013 to 2014. Mr. Hassan has chaired notable pharmaceutical industry organizations including The Pharmaceutical Research and Manufacturers of America (PhRMA) and The International Federation of Pharmaceutical Manufacturers Associations (IFPMA). He received a B.S. degree in chemical engineering from the Imperial College of Science and Technology at the University of London and an M.B.A. from Harvard Business School. We believe Mr. Hassan's qualifications to serve on our board of director include his strong leadership and management experience within our industry, including significant knowledge of operations, strategy, government relations, regulatory, finance and investments and mergers and acquisitions.

Jeffrey B. Kindler  
Director since 2011  
Age 62

**Jeffrey B. Kindler.** Mr. Kindler has served as a Board member since November 2011. He is the Chief Executive Officer of Centrexion Corporation, a privately held clinical stage biopharmaceutical company; a Venture Partner at Lux Capital, a leading venture capital firm; and a managing director at Starboard Capital Partners, a private equity firm. Mr. Kindler was Chief Executive Officer and Chairman of the Board of Pfizer, Inc. (NYSE: PFE), a pharmaceutical company, from 2006 until his retirement in December 2010. He joined Pfizer in 2002 as Executive Vice President and General Counsel and assumed positions of increasing responsibility until being named Chief Executive Officer in 2006. Prior to joining Pfizer, he was Chairman of Boston Market Corporation from 2000 to 2001, and President of the Partner Brands group of McDonald's Corporation during 2001. Mr. Kindler previously served on

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the board of Chipotle Mexican Grill, Inc. (NYSE: CMG), a chain of Mexican restaurants, from 2012 to 2014. In addition to serving on Intrexon's Board, Mr. Kindler currently serves on the board of Siga Technologies, Inc. (Nasdaq:SIGA), a developer of novel antiviral therapeutics, vTV Therapeutics (Nasdaq:VTVT), a development stage biopharmaceutical company and Perrigo Company (NYSE:PRGO), a healthcare company. Mr. Kindler also serves as a board member for a number of privately held companies and for several civic, charitable, educational and other organizations. Mr. Kindler received a B.A. from Tufts University and a J.D. from Harvard Law School. He brings leadership, extensive business, operating, legal and policy, and corporate strategy experience to our Board, along with tremendous knowledge of several of the industries in which we operate as well as the fundamentals of our business.

Dean J. Mitchell  
Director since 2009  
Age 62

**Dean J. Mitchell.** Mr. Mitchell has served as a Board member since March 2009. In July 2013, Mr. Mitchell was appointed Executive Chairman and board member of Covis Pharma Holdings S.a.r.l., a private specialty pharmaceutical company based in Luxembourg. Since 2012, he has served as a non-executive board member of ImmunoGen, Inc. (Nasdaq:IMGN), a public oncology company, and in July 2014 he joined the board of Theravance Biopharma, Inc. (Nasdaq:TBPH), a public specialty pharmaceutical company. In December 2015, Mr. Mitchell was appointed Chairman and board member of PaxVax Inc., a specialty vaccine company. In the past five years he has also been a non-executive board member of ISTA Pharmaceuticals, Inc. and Talecris Biotherapeutics, Inc., until their respective acquisitions. He was previously President and Chief Executive Officer and a board member of Lux Biosciences, Inc., a privately held ophthalmology company, from July 2010 until June 2013. Prior to that he was President and Chief Executive Officer of Alpharma Inc., a global specialty pharmaceutical company, and also was appointed a member of its board of directors in July 2006. Alpharma Inc. was acquired by King Pharmaceuticals, Inc. in December 2008, and Mr. Mitchell ceased to be an officer and a director of Alpharma Inc. on December 29, 2008. Prior to this, he was President and Chief Executive Officer of Guilford Pharmaceuticals Inc., a public company, from December 2004 until its acquisition by MGI Pharma Inc., a public biopharmaceutical company focused in oncology and acute care, in October 2005, and was a non-executive director of MGI Pharma Inc. until its acquisition by Eisai Co., Ltd. in January 2008. Mr. Mitchell was at Bristol-Myers Squibb, a public company, from 2001 until 2004 in several roles including President International, President U.S. Primary Care and Vice President, Strategy. He also spent fifteen years at Glaxo SmithKline, a public company, and its predecessor companies, most recently as Senior Vice President, Clinical Development and Product Strategy from 1999 to 2001, and prior to that as Vice President and General Manager, Specialty Divisions, Strategic Planning and Business Development, from 1995 to 1999. He received an M.B.A. from City University Business School, in London, U.K., and a B.Sc. degree in Biology from Coventry University, U.K. Mr. Mitchell brings to our Board extensive experience in the pharmaceutical industry, specifically in the areas of management, business and corporate development, sales and marketing and clinical development, as well as his significant experience serving on boards of directors of companies in our industry.

Robert B. Shapiro  
Director since 2011  
Age 79

**Robert B. Shapiro.** Mr. Shapiro has served as a Board member since November 2011. Mr. Shapiro is Chairman, Managing Director and Co-Founder of Sandbox Industries, a development firm that creates, launches and manages new business concepts. Sandbox Industries also manages venture funds, including the BlueCross

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BlueShield Venture Partners fund. Mr. Shapiro has served as Managing Director of Sandbox Industries since its formation in 2004. He was formerly Chairman and Chief Executive Officer of Monsanto from 1995 to 2000. Upon the merger of Monsanto with Pharmacia & Upjohn, he served as Chairman of the newly-formed Pharmacia Corporation. Previously, Mr. Shapiro was President and Chief Operating Officer of Monsanto from 1992 to 1995 and President of Monsanto's Agriculture Group from 1990 to 1992, Chairman and Chief Executive Officer of The NutraSweet Company, a subsidiary of Monsanto, from 1985 to 1990 and President of the NutraSweet Group of G.D. Searle & Co., or Searle, from 1982 to 1985, where he previously served as Vice President and General Counsel. Before joining Searle, Mr. Shapiro was Vice President and General Counsel of General Instrument Corporation from 1972 to 1979. Prior to this, he practiced law in New York City; served in government as Special Assistant to the General Counsel and later to the Undersecretary of the U.S. Department of Transportation; and served as a professor of law at Northeastern University in Boston and the University of Wisconsin in Madison. Mr. Shapiro has served on the boards of directors of the New York Stock Exchange (later NYSE Euronext), Citigroup Inc., Rockwell International, Silicon Graphics Inc. and Sapphire Energy, Inc. He currently serves as a director of Advanced Animal Diagnostics, Inc., a privately-held corporation. Mr. Shapiro has served on the President's Advisory Committee on Trade Policy, and on the White House Domestic Policy Review of Industrial Innovation. He is a Fellow of the American Academy of Arts and Sciences. Mr. Shapiro is a graduate of Harvard College and holds a J.D. from Columbia University School of Law. As a result of these and other professional experiences, we believe Mr. Shapiro possesses particular knowledge and experience in: strategic planning and leadership of complex organizations; accounting, finance and capital structure; legal, regulatory and government affairs; people management; and board practices of other entities.

James S. Turley  
Director since 2014  
Age 62

**James S. Turley.** Mr. Turley has served as a Board member since April 2014. Mr. Turley is retired having served as the Chairman and Chief Executive Officer of Ernst & Young LLP ("Ernst & Young") from 2001 to June 2013. From 1994 to 2001, Mr. Turley served as Regional Managing Partner of Ernst & Young. Mr. Turley serves on the board of directors of Citigroup Inc., a leading global bank, Citibank, N.A., the commercial banking operations of Citigroup Inc., Emerson Electric Co., a global leader in bringing technology and engineering together to provide innovative solutions for customers in industrial, commercial, and consumer markets around the world, and Northrop Grumman Corporation, a leading global security company providing innovative systems, products and solutions to government and commercial customers worldwide. Mr. Turley is also a board member of the Boy Scouts of America, a board member of Kohler Company and a board member of the MUNY Theatre of St. Louis and Theatre Forward. Mr. Turley holds an undergraduate degree and a master's degree in accounting from Rice University. We believe Mr. Turley's extensive management experience as the former Chairman and Chief Executive Officer of one of the world's largest accounting firms, his accounting and financial expertise, and his experience in serving on the boards of directors of publicly traded companies make him well-qualified to serve on our Board. Mr. Turley has been nominated to serve on the Board because of his extensive knowledge and expertise in the areas of financial reporting, business, and risk management. Having served as Chair and CEO of Ernst & Young, Mr. Turley has developed significant expertise in the areas of compensation, litigation, corporate affairs, and corporate governance.



**DIRECTOR COMPENSATION**

**Non-Employee Director Compensation**

The compensation of our non-employee directors is established by our Compensation Committee. This compensation is periodically reviewed by the committee based on market practice information provided by our outside compensation consultant, F. Daniel Siciliano, to ensure continued alignment with company goals and shareholder interest.

The following table discloses all compensation provided to the non-employee directors for the most recently completed fiscal year ended December 31, 2017:

Name <sup>(1)</sup>	Fees Earned or Paid in Cash <sup>(2)</sup> (\$)	Stock Awards <sup>(2,3)</sup> (\$)	Option Awards <sup>(4,5)</sup> (\$)	Total (\$)
Cesar Alvarez	\$ 75,000	\$ —	\$ 181,268	\$ 256,268
Steven Frank	\$ —	\$ 59,992	\$ 181,268	\$ 241,260
Vinita Gupta	\$ —	\$ 59,988	\$ 653,455	\$ 713,443
Fred Hassan	\$ —	\$ 59,992	\$ 181,268	\$ 241,260
Jeffrey Kindler	\$ —	\$ 74,980	\$ 181,268	\$ 256,248
Dean Mitchell	\$ —	\$ 69,998	\$ 181,268	\$ 251,266
Robert Shapiro	\$ —	\$ 69,998	\$ 181,268	\$ 251,266
James Turley	\$ —	\$ 69,998	\$ 181,268	\$ 251,266

- (1) Randal Kirk, our Chief Executive Officer and Chairman of the Board, is not included in this table. He is an employee of the Company and receives no compensation for service as a director. The compensation received by Mr. Kirk is shown in the Summary Compensation Table on page 45.
- (2) Our directors may elect to receive any portion of their director fees in shares of our common stock instead of cash. During 2017, Mr. Alvarez elected to receive all director fees in cash and our remaining directors elected to receive all director fees in shares of our common stock.
- (3) Represents the grant date fair market value of such director fees paid in shares of our common stock computed in accordance with FASB Accounting Standards Codification Topic 718 (“ASC Topic 718”). This amount does not reflect the actual cash value that may be recognized by each of the non-employee directors if such shares are sold.
- (4) Represents the grant date fair market value of such stock awards computed in accordance with ASC Topic 718, based on the closing price of our common stock on the date of grant. This amount does not reflect the actual cash value that will be recognized by each of the non-employee directors if such options are exercised and the underlying shares are sold. For a full description of the assumptions we use in computing this amount, see Note 2 to our consolidated financial statements for the year ended December 31, 2017, which are included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017, as filed with the SEC on March 1, 2018.
- (5) As of December 31, 2017, our directors had outstanding unexercisable stock options as follows: Vinita Gupta, 40,000 stock options; Fred Hassan, 30,120 stock options; and James Turley, 10,393 stock options.

In December 2017, the compensation committee reviewed our non-employee director compensation program and, based upon market data and the recommendations of our outside compensation consultant, F. Daniel Siciliano, determined it was appropriate to revise the program in order to better align with market practices. Under the revised director compensation program, our non-employee directors will receive the compensation set forth in the table below beginning in fiscal year 2018. We also reimburse our non-employee directors for reasonable out-of-pocket expenses incurred in connection with attending our Board and committee meetings.

Element	Compensation Program Through Fiscal 2017 <sup>(1)</sup>	Compensation Program Beginning Fiscal 2018 <sup>(1)</sup>
Annual Retainer <sup>(2)</sup>	\$60,000	\$50,000
Committee Chair Additional Retainer <sup>(2)</sup>	\$10,000	\$12,500
Committee Member Additional Retainer <sup>(2)</sup>	\$5,000	\$6,500
Annual Equity Awards	15,000 options <sup>(3)</sup>	\$125,000 fixed value options <sup>(3)</sup> \$125,000 fixed value RSU’s <sup>(4)</sup>
Initial Appointment Equity Awards	40,000 options <sup>(5)</sup>	\$180,000 fixed value options <sup>(5)</sup> \$180,000 fixed value RSU’s <sup>(6)</sup>

- (1) Non-employee directors have the option to receive shares of common stock, valued at the fair market value at the time of issuance, in lieu of cash retainers. We do not issue, nor do we pay cash for, fractional shares.

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- (2) Annual retainer fees are payable in advance at the first regularly scheduled meeting of the Board for the calendar year.
- (3) All non-employee directors are entitled to an annual grant of options to purchase shares of common stock (with an exercise price equal to the fair market value on the date of grant), granted at the first regularly scheduled meeting of the Board for the calendar year and which are fully vested at the time of grant.
- (4) All non-employee directors are entitled to an annual grant of restricted stock units (“RSUs”), granted at the first regularly scheduled meeting of the Board for the calendar year and which vest in full on the one year anniversary of the date of the grant.
- (5) Any newly appointed non-employee director receives, upon appointment, a one-time grant of options to purchase shares of common stock (with an exercise price equal to the fair market value on the date of grant) with one quarter of such options vesting each year on the anniversary of appointment to the Board, subject to continued Board service.
- (6) Any newly appointed non-employee director receives, upon appointment, a one-time grant of RSUs, which vest in full on the one year anniversary of appointment to the Board, subject to continued Board service.

All outstanding option-based awards for the non-employee directors as of December 31, 2017, are set forth in the following table:

Name	Option Awards				
	Grant Date	Number of Securities Underlying Options Exercisable (#)	Number of Securities Underlying Unexercised Options (#)	Option Exercise Price (\$) <sup>(1)</sup>	Option Expiration Date
Cesar Alvarez	2/20/2008	8,906	—	\$ 2.64	2/20/2018
	2/20/2009	2,968	—	\$ 3.17	2/20/2019
	6/30/2010	2,968	—	\$ 3.17	6/30/2020
	3/7/2011	2,968	—	\$ 5.69	3/7/2021
	12/2/2011	8,906	—	\$ 6.85	12/2/2021
	3/15/2012	2,968	—	\$ 6.85	3/15/2022
	5/28/2013	2,969	—	\$ 9.30	5/28/2023
	3/20/2014	15,588	—	\$ 29.56	3/20/2024
	3/12/2015	15,588	—	\$ 45.69	3/12/2025
	3/10/2016	15,060	—	\$ 34.85	3/10/2026
3/16/2017	15,000	—	\$ 21.38	3/16/2027	
Steven Frank	2/20/2008	8,906	—	\$ 2.64	2/20/2018
	2/20/2009	2,968	—	\$ 3.17	2/20/2019
	6/30/2010	2,968	—	\$ 3.17	6/30/2020
	3/7/2011	2,968	—	\$ 5.69	3/7/2021
	12/2/2011	8,906	—	\$ 6.85	12/2/2021
	3/15/2012	2,968	—	\$ 6.85	3/15/2022
	5/28/2013	2,969	—	\$ 9.30	5/28/2023
	3/20/2014	15,588	—	\$ 29.56	3/20/2024
	3/12/2015	15,588	—	\$ 45.69	3/12/2025
	3/10/2016	15,060	—	\$ 34.85	3/10/2026
3/16/2017	15,000	—	\$ 21.38	3/16/2027	
Vinita Gupta	4/25/2017	15,000	—	\$ 21.13	4/25/2027
	4/25/2017	—	40,000	\$ 21.13	4/25/2027
Fred Hassan	6/30/2016	10,040	30,120	\$ 24.51	6/30/2026
	6/30/2016	15,060	—	\$ 24.51	6/30/2026
	3/16/2017	15,000	—	\$ 21.38	3/16/2027

Option Awards					
Name	Grant Date	Number of Securities Underlying Options Exercisable (#)	Number of Securities Underlying Unexercised Options Unexercisable (#)	Option Exercise Price (\$) <sup>(1)</sup>	Option Expiration Date
Jeffrey Kindler	12/2/2011	23,754	—	\$ 6.85	12/2/2021
	3/15/2012	2,968	—	\$ 6.85	3/15/2022
	5/28/2013	2,968	—	\$ 9.30	5/28/2023
	3/20/2014	15,588	—	\$ 29.56	3/20/2024
	3/12/2015	15,588	—	\$ 45.69	3/12/2025
	3/10/2016	15,060	—	\$ 34.85	3/10/2026
	3/16/2017	15,000	—	\$ 21.38	3/16/2027
Dean Mitchell	3/17/2009	8,906	—	\$ 3.17	3/17/2019
	6/30/2010	2,968	—	\$ 3.17	6/30/2020
	3/7/2011	2,968	—	\$ 5.69	3/7/2021
	12/2/2011	8,906	—	\$ 6.85	12/2/2021
	3/15/2012	2,968	—	\$ 6.85	3/15/2022
	5/28/2013	2,969	—	\$ 9.30	5/28/2023
	3/20/2014	15,588	—	\$ 29.56	3/20/2024
	3/12/2015	15,588	—	\$ 45.69	3/12/2025
	3/10/2016	15,060	—	\$ 34.85	3/10/2026
3/16/2017	15,000	—	\$ 21.38	3/16/2027	
Robert Shapiro	12/2/2011	23,754	—	\$ 6.85	12/2/2021
	3/15/2012	2,968	—	\$ 6.85	3/15/2022
	5/28/2013	2,968	—	\$ 9.30	5/28/2023
	3/20/2014	15,588	—	\$ 29.56	3/20/2024
	3/12/2015	15,588	—	\$ 45.69	3/12/2025
	3/10/2016	15,060	—	\$ 34.85	3/10/2026
	3/16/2017	15,000	—	\$ 21.38	3/16/2027
James Turley	4/16/2014	31,177	10,393	\$ 18.87	4/16/2024
	4/16/2014	15,588	—	\$ 18.87	4/16/2024
	3/12/2015	15,588	—	\$ 45.69	3/12/2025
	3/10/2016	15,060	—	\$ 34.85	3/10/2026
	3/16/2017	15,000	—	\$ 21.38	3/16/2027

**PROPOSAL 2  
RATIFICATION OF APPOINTMENT OF INDEPENDENT  
REGISTERED PUBLIC ACCOUNTING FIRM**

**ITEM 2 ON PROXY CARD**

**Background**

After consideration of the firm’s qualifications and past performance, the Board, through the Audit Committee, has appointed PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2018. PricewaterhouseCoopers LLP also served as independent registered public accounting firm for the fiscal year ended December 31, 2017. Pursuant to its charter, the Audit Committee of our Board approved in advance each professional service performed by PricewaterhouseCoopers LLP during fiscal year 2017 and considered the possible effect of the provision of such service on the auditors’ independence. Information relating to fees paid to PricewaterhouseCoopers LLP over the past two years is set forth in the table below.

Under the Sarbanes-Oxley Act of 2002 and the rules of the SEC promulgated thereunder, the Audit Committee is solely responsible for the selection, appointment, compensation and oversight of the work of our independent registered public accounting firm. Although submission of the appointment of an independent registered public accounting firm to shareholders for ratification is not required by law, the Board considers the appointment of our independent registered public accounting firm to be an important matter of shareholder concern and is submitting the appointment of PricewaterhouseCoopers LLP for ratification by our shareholders, as a matter of good corporate practice. One or more representatives of PricewaterhouseCoopers LLP are expected to be present at the Annual Meeting with the opportunity to make a statement if they so desire and to be available to respond to appropriate questions.

If shareholders do not ratify the selection of PricewaterhouseCoopers LLP, the Board may, but is not required to, reconsider its selection if the shareholders’ action so warrants. Even if the selection is ratified, the Audit Committee, exercising its own discretion, may select different auditors at any time during the year if it determines that such a change would be in our best interests and in the best interests of our shareholders.

**Required Vote and Board Recommendation**

The affirmative vote of a majority of the votes cast on the matter is required for the approval of this item. As this proposal is considered a “routine item,” your bank, broker or other nominee may vote your shares “FOR” the proposal without receiving your voting instructions. Abstentions and broker non-votes will not count either in favor of or against the proposal.

**THE BOARD UNANIMOUSLY RECOMMENDS THAT SHAREHOLDERS VOTE “FOR” THE RATIFICATION OF THE APPOINTMENT OF PRICEWATERHOUSECOOPERS LLP.**

**INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

**Principal Accountant Fees**

The following table summarizes the aggregate fees of PricewaterhouseCoopers LLP, our independent registered public accounting firm, billed to us for the fiscal years ended December 31, 2017 and 2016 for audit and other services:

	Fiscal Year Ended December 31,	
	2017	2016
Audit Fees	\$ 1,716,117	\$ 1,536,578
Audit-Related Fees	53,000	—
Tax Fees	115,588	51,287
All Other Fees	—	—
<b>Total Fees</b>	<b>\$ 1,884,705</b>	<b>\$ 1,587,865</b>

*Audit Fees.* Audit fees include professional services rendered by PricewaterhouseCoopers LLP for the audit of our annual financial statements, including the reviews of the financial statements included in our quarterly reports on Form 10-Q. This category also includes fees for assistance with complex accounting transactions, fees for audits provided in connection with subsidiaries and statutory filings or services that generally only the principal auditor can reasonably provide to a client, and consents and assistance with and review of documents filed with the SEC.

*Audit-Related Fees.* Audit-related fees consist of amounts for assurance and related services for expanded audit procedures and reporting consultations for recent accounting pronouncements to be adopted.

*Tax Fees.* Tax fees include original and amended tax returns, studies supporting tax return amounts as may be required by Internal Revenue Service regulations, claims for refunds, assistance with tax audits and other work directly affecting or supporting the payment of taxes, planning, research and advice supporting our efforts to maximize the tax efficiency of our operations for fiscal years 2017 and 2016.

*All Other Fees.* All other fees are fees for products or services other than those in the above three categories. In fiscal years 2017 and 2016, PricewaterhouseCoopers LLP did not provide any services other than those described above.

**Pre-Approval Policy**

The Audit Committee has adopted a written policy for the provision of audit services and permitted non-audit services by our independent registered public accounting firm. Our Chief Financial Officer has primary responsibility to the Audit Committee for administration and enforcement of this policy and for reporting non-compliance. Under the policy, our Audit Committee receives a presentation of an annual budget and plan for audit services and for any proposed audit-related, tax or other non-audit services to be performed by the independent registered public accounting firm, but management may, from time to time, seek approval of certain additional audit or non-audit services not provided for in the budget.

## AUDIT COMMITTEE REPORT

In accordance with the Audit Committee Charter, the Audit Committee assists the Board in fulfilling its responsibility for oversight of the integrity of the accounting, auditing and financial reporting practices of the Company. During the fiscal year ended December 31, 2017, the Audit Committee met twelve times. The Audit Committee reviewed and discussed the interim financial information contained in the Company’s Quarterly Reports on Form 10-Q with our Chief Financial Officer, our Chief Legal Officer and the independent registered public accounting firm prior to public release.

In discharging its oversight responsibility as to the audit process, the Audit Committee has received the written disclosures and the letter from the independent registered public accounting firm required by applicable requirements of the Public Company Accounting Oversight Board 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 independent registered public accounting firm’s independence. The Audit Committee also discussed with management the quality and adequacy of the Company’s internal controls. The Audit Committee reviewed with the independent registered public accounting firm their audit plans, audit scope and identification of audit risks.

The Audit Committee members are not professional accountants or auditors, and their functions are not intended to duplicate or to certify the activities of management or the Company’s independent registered public accounting firm. The Audit Committee oversees the Company’s financial reporting process on behalf of the Board. The Company’s management has primary responsibility for the financial statements and reporting process, including the Company’s internal control over financial reporting. The independent registered public accounting firm is responsible for performing an integrated audit of the Company’s financial statements and internal control over financial reporting in accordance with the auditing standards of the Public Company Accounting Oversight Board.

The Audit Committee reviewed and discussed with the independent registered public accounting firm all communications required by generally accepted auditing standards, including those described in Statement on Auditing Standards No. 1301 (“Communication with Audit Committees”) as adopted by the Public Company Accounting Oversight Board and, with and without management present, discussed and reviewed the results of the independent registered public accounting firm’s audit of the financial statements. The Audit Committee also considered, as it determined appropriate, tax matters and other areas of financial reporting and the audit process over which the Audit Committee has oversight.

The Audit Committee reviewed and discussed the audited financial statements of the Company as of and for the fiscal year ended December 31, 2017, with management and the independent registered public accounting firm. Management has the responsibility for the preparation of the Company’s financial statements and the independent registered public accounting firm has the responsibility for the audit of those statements.

Based on the above-mentioned review and discussions with management and the independent registered public accounting firm, the Audit Committee recommended to the Board that the Company’s audited financial statements be included in its Annual Report on Form 10-K for the fiscal year ended December 31, 2017, for filing with the SEC. The Audit Committee also reappointed PricewaterhouseCoopers LLP as the Company’s independent registered public accounting firm for the fiscal year ending December 31, 2018.

### THE AUDIT COMMITTEE

Jeffrey Kindler, Chair  
Dean Mitchell  
Robert Shapiro

*The “Audit Committee Report” above shall not be deemed incorporated by reference by any general statement incorporating this Proxy Statement into any filing under the Securities Act of 1933, as amended, or under the Securities Exchange Act of 1934, as amended, except to the extent that we specifically incorporate this information by reference, and shall not otherwise be deemed filed under such Acts.*

**PROPOSAL 3  
NON-BINDING PROPOSAL TO APPROVE THE COMPENSATION OF THE  
NAMED EXECUTIVE OFFICERS**

**ITEM 3 ON PROXY CARD**

**General**

Our Board has determined to provide our shareholders the opportunity to vote each year to approve, on an advisory basis, the compensation of our named executive officers, as disclosed in this Proxy Statement. The compensation of our named executive officers is described in the Compensation Discussion and Analysis, the compensation tables and the accompanying narrative on pages [34](#) to [60](#) of this Proxy Statement.

The Compensation Committee designs our executive compensation program to attract, motivate, and retain executive officers, who are critical to our success. Under these programs, our named executive officers are rewarded for the achievement of our near-term and longer-term financial and strategic goals and for driving corporate financial performance and stability. The programs contain elements of cash and equity-based compensation and are designed to align the interests of our executives with those of our shareholders.

Our compensation program reflects competition and best practices in the marketplace. The mix of compensation components is competitive with that of other companies of similar size and operational characteristics, links compensation to individual and corporate performance and encourages stock ownership by senior management. Based on its review of the total compensation of our named executive officers for fiscal year 2017, the Compensation Committee believes that the total compensation for each of the named executive officers is reasonable and effectively achieves the objective of aligning compensation with performance measures directly related to our financial goals and creation of shareholder value without encouraging our named executive officers to take unnecessary or excessive risks.

The Compensation Discussion and Analysis section of this Proxy Statement and the accompanying tables and narrative provide a comprehensive review of our named executive officer compensation objectives, program and rationale. We urge you to read this disclosure before voting on this proposal.

Pursuant to Section 14A of the Exchange Act, our Board is requesting shareholders approve an advisory vote on the following resolution:

**“RESOLVED, that our shareholders approve, on a non-binding advisory basis, the compensation of the named executive officers as disclosed in the Proxy Statement for the 2018 Annual Meeting of Shareholders pursuant to the compensation disclosure rules of the Securities and Exchange Commission, including the Compensation Discussion and Analysis, the Summary Compensation Table, the other related tables and the accompanying narrative.”**

As an advisory vote, your vote on this proposal will be non-binding on the Board. However, the Board values the opinions that our shareholders express in their votes and will consider the outcome of the vote when making future executive compensation decisions as it deems appropriate.

The next opportunity for our shareholders to approve on a non-binding basis the compensation of our named executive officers will be at our 2019 Annual Meeting.

**Vote Required and Board Recommendation**

The affirmative vote of a majority of the votes cast on the matter is required for the approval of this item. As this proposal is not considered a “routine item,” your bank, broker or other nominee cannot vote your shares without receiving your voting instructions. Abstentions and broker non-votes will not count either in favor of or against the proposal.

**THE BOARD UNANIMOUSLY RECOMMENDS THAT SHAREHOLDERS VOTE TO APPROVE THE NON-BINDING ADVISORY PROPOSAL APPROVING THE COMPENSATION OF OUR NAMED EXECUTIVE OFFICERS.**

**PROPOSAL 4**  
**APPROVAL OF AN AMENDMENT TO THE AMENDED AND RESTATED INTREXON**  
**CORPORATION 2013 OMNIBUS INCENTIVE PLAN**

**ITEM 4 ON PROXY CARD**

**Overview**

The Board requests that shareholders approve the proposed amendment (the “Amendment”) to the Amended and Restated Intrexon Corporation 2013 Omnibus Incentive Plan (the “2013 Plan”) to increase the number of shares of common stock authorized for issuance under the 2013 Plan by 2,000,000 shares. Other than the increase in the number of shares authorized for issuance under the 2013 Plan reflected in the proposed Amendment, there are no other changes proposed to the 2013 Plan. A summary of the material terms of the 2013 Plan appears in “EQUITY COMPENSATION PLANS AND OTHER BENEFIT PLANS” beginning on page 49 and a copy of the 2013 Plan and the Amendment are attached as an appendix to this Proxy Statement, all of which are incorporated herein by reference.

**Share Increase**

The 2013 Plan was approved by the shareholders shortly before our initial public offering in August 2013 and has served as an important part of our overall compensation program. The 2013 Plan enables us to grant equity-based compensation awards designed to provide an additional incentive for our officers, employees, non-employee directors and other service providers who are critical to the achievement of our long-term financial and strategic goals. We believe that the Amendment, which amends the 2013 Plan to increase by 2,000,000 the shares of common stock authorized for issuance under the 2013 Plan, supports our ability to attract, motivate and retain the most competent and skilled officers, employees, non-employee directors and other service providers which is a significant factor for our long-term success. Awards made under the 2013 Plan, including annual cash incentive awards and long-term incentive equity grants, are designed to align the individual interests of our officers, employees, non-employee directors and other service providers with the interests of our shareholders and reward them for the creation of long-term shareholder value.

We believe that the number of shares currently available for issuance under the 2013 Plan may not be sufficient in view of our compensation structure and strategy and that the availability of the additional shares sought in this proposal will help us to continue to have a sufficient number of shares of common stock authorized for issuance of awards under the 2013 Plan. As a result, the Compensation Committee and the Board have approved the Amendment, subject to the approval of our shareholders at the Annual Meeting.

As of March 31, 2018, there were 129,239,376 shares of our common stock outstanding. As of March 31, 2018, there were options to purchase an aggregate of 11,114,785 shares of common stock outstanding under the 2013 Plan at a weighted-average exercise price of \$29.13 per share and a weighted-average remaining term of 7.46 years. As of March 31, 2018, there were 1,052,182 RSUs outstanding under the 2013 Plan. As of March 31, 2018, there were 3,279,291 shares of common stock reserved for future issuance under the 2013 Plan, which is our only plan under which equity awards can currently be made to officers, employees, non-employee directors and other service providers.

In making the recommendation to increase the 2013 Plan’s share reserve by an additional 2,000,000 shares, we considered a number of factors, including:

*Importance of Long-Term Equity Incentives.* Long-term equity incentives are an important component of our executive compensation program, motivating officers, employees, non-employee directors and other service providers to make decisions that focus on creating long-term value for shareholders, aligning their interests with the interests of shareholders and serving as an effective recruitment and retention tool. Since our initial public offering in August 2013, we have grown rapidly and we consider our ability to have the capacity to provide long-term equity incentives to be critical to our success in those respects.

*Historical Burn Rate.* We are committed to managing the use of our equity incentives prudently to balance the benefits equity compensation brings to our compensation program with the dilution it causes our shareholders. As part of our analysis when considering the proposed share increase, we considered the 2013 Plan’s “burn rate,” or the number of shares subject to equity awards granted since our initial public offering in



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August 2013, divided by the weighted average number of shares outstanding for that period. We also considered that in 2017 we made equity grants from the 2013 Plan in connection with the following: leadership appointments to advance efforts in the company and within our operating subsidiaries; the compensation of employees who we believe are critical to furthering our business strategy; incentivizing key officers and employees of the company and those we have acquired; and our Services Agreement with Third Security and the RSU Agreement with Mr. Kirk. We believe these new hires and compensation decisions are critical to the development and strength of our senior management team to attract the experience and talent necessary to further implement our strategy.

*Shareholder Value Transfer Test.* When evaluating the appropriate number of shares to increase the share reserve under the Plan, we reviewed the shareholder value transfer of the proposed increase, calculated as the value of available shares and plan awards as a percentage of our market capitalization, and determined that the addition of 2,000,000 shares to the 2013 Plan share reserve was reasonable and consistent with industry guidelines.

*Expected Duration.* We expect that the shares available for future awards, including the additional shares if this proposal is approved by our shareholders, will be sufficient for currently-anticipated awards under the 2013 Plan for the foreseeable future. Expectations regarding future share usage could be impacted by a number of factors such as hiring and promotion activity at the executive level; the rate at which shares are returned to the 2013 Plan reserve upon awards' expiration, forfeiture or cash settlement; the future performance of our stock price; consequences of acquiring other companies; and other factors. While we believe that the assumptions we used are reasonable, future share usage may differ from current expectations. If, however, the shareholders do not approve the Amendment to increase the number of shares reserved for issuance under the 2013 Plan, there may not be a sufficient number of shares of our common stock available to achieve our recruiting and retention objectives.

*Internal Revenue Code Section 162(m).* As discussed above in the summary of the material terms of the 2013 Plan in "EQUITY COMPENSATION PLANS AND OTHER BENEFIT PLANS" beginning on page 49, Internal Revenue Code Section 162(m) generally disallows the Company's tax deduction for compensation to the named executive officers in excess of \$1 million in any year. Prior to the enactment of the Tax Cuts and Jobs Act, which was signed into law on December 22, 2017 (the "Tax Act"), a public corporation's covered employees included its chief executive officer and three other most highly compensated executive officers (other than the chief financial officer), and certain "qualified performance-based compensation" was excluded from the \$1 million deduction limit. The Tax Act made certain changes to Section 162(m), effective for taxable years beginning after December 31, 2017, including, among others, expanding the definition of "covered employee" to include the chief financial officer and repealing the qualified performance-based compensation exemption, subject to a transition rule for remuneration provided pursuant to a written binding contract in effect on November 2, 2017, and which was not modified in any material respect on or after that date. Our policy is to qualify compensation paid to our executive officers for deductibility for federal income tax purposes to the extent feasible. However, to retain highly skilled executives and remain competitive with other employers, our Compensation Committee may authorize compensation that would not be deductible under Section 162(m) of the Code or otherwise if it determines that such compensation is in the best interests of us and our shareholders.

### **Text of the Amendment**

The first paragraph of Section 6.02 of the 2013 Plan would be revised as follows:

#### **"6.02 Aggregate Limit**

**The maximum aggregate number (the "Maximum Aggregate Number") of shares of Common Stock which may be subject to Awards under this Plan is 18,000,00020,000,000 shares of Common Stock."**

**New Plan Benefits**

The future benefits that will be awarded or paid under the 2013 Plan are not currently determinable as they are within the discretion of the Compensation Committee. The following table sets forth the awards granted under the 2013 Plan during fiscal 2017:

<b>Name and Principal Position</b>	<b>Dollar Value (\$)<sup>(1)</sup></b>	<b>Options (#)</b>	<b>Shares of common stock (#)</b>
Randal Kirk, Chairman and Chief Executive Officer	1,907,879	—	129,977
Rick Sterling, Chief Financial Officer	2,702,880	225,000	—
Donald Lehr, Chief Legal Officer	2,702,880	225,000	—
Jeffrey Perez, SVP Intellectual Property Affairs	2,702,880	225,000	—
Robert Walsh, SVP, Energy & Fine Chemicals	2,702,880	225,000	—
Named Executive Officers as a Group	12,719,399	900,000	—
Non-Employee Directors as a Group	2,387,277	160,000	21,780
Non-Named Executive Officers as a Group	3,105,860	250,000	—

- (1) Dollar value is based, with respect to shares of common stock granted to non-employee directors, on the closing price of our common stock on the day the shares of common stock were granted and, with respect to option awards and share awards granted to Randal Kirk, on the grant date fair market value of the option and share awards computed in accordance with ASC Topic 718. For the option awards, this amount does not reflect the actual cash value that will be recognized when such options are exercised and the underlying shares are sold.

The last reported closing price of Intrexon's common stock as reported by the NYSE on April 16, 2018 was \$18.86 per share.

**Vote Required and Board Recommendation**

The affirmative vote of a majority of the votes cast on the matter is required for the approval of this item. As this proposal is not considered a "routine item," your bank, broker or other nominee cannot vote your shares without receiving your voting instructions. Abstentions will have the effect of a vote against the proposal while broker non-votes will have no effect on the vote.

**THE BOARD UNANIMOUSLY RECOMMENDS THAT THE SHAREHOLDERS VOTE "FOR" THE APPROVAL OF THE AMENDMENT TO THE 2013 PLAN.**

## IDENTIFICATION OF EXECUTIVE OFFICERS

Set forth below is information regarding the positions, ages and business experience of each of our executive officers.

**Randal Kirk, age 64, Chief Executive Officer and Chairman of the Board.** For more information about Mr. Kirk, please see his biography under the caption “NOMINEES FOR ELECTION AS DIRECTORS” on page [16](#).

**Rick Sterling, age 54, Chief Financial Officer.** Mr. Sterling has served as our Chief Financial Officer since 2007. Prior to joining us, he was with KPMG where he worked in the audit practice for over 17 years, with a client base primarily in the healthcare, technology and manufacturing industries. Mr. Sterling is currently a member of the board of directors of AquaBounty Technologies Inc., a public biotechnology company (Nasdaq: AQB) and a majority-owned subsidiary of Intrexon. Mr. Sterling’s experience includes serving clients in both the private and public sector, including significant experience with SEC filings and Sarbanes-Oxley compliance. He received a B.S. in Accounting and Finance from Virginia Tech and is a licensed Certified Public Accountant.

**Lt. Gen (Ret.) Thomas P. Bostick Ph.D., P.E., age 61, Chief Operating Officer.** Dr. Bostick has served as our Chief Operating Officer since November 2017. Prior to this, Dr. Bostick served as our Senior Vice President, Environment Sector from September 2016 to November 2017. Dr. Bostick brings to Intrexon extensive experience in environmental sustainability, significant leadership skills and an established track record in engineering solutions for the nation’s toughest challenges. After 38 years of distinguished service to the U.S. Army, he retired in 2016 as the 53rd U.S. Army Chief of Engineers and the Commanding General of the U.S. Army Corps of Engineers (USACE). In this position, he served as the senior military officer overseeing and supervising most of the nation’s civil works infrastructure and military construction, hundreds of environmental protection projects, as well as managing 34,000 civilian employees and military personnel in over 110 countries around the world. Before his command of USACE, Lt. Gen. Bostick served in a variety of command and staff assignments with the U.S. Army both in the U.S. and abroad including the Deputy Chief of Staff, G-1, Personnel, U.S. Army, Commanding General, U.S. Army Recruiting Command, Assistant Division Commander, 1<sup>st</sup> Cavalry Division, Executive Officer to the Chief of Engineers, Executive Officer to the Army Chief of Staff, and Deputy Director of Operations for the National Military Command Center, J-3, the Joint Staff in the Pentagon. Additionally, he was a special assistant to the Secretary of Veterans Affairs during his time as a White House Fellow. Dr. Bostick graduated with a Bachelor’s of Science degree from the U.S. Military Academy at West Point and later returned to the Academy to serve as an Assistant Professor of Mechanical Engineering. He holds Master’s degrees in Civil Engineering and Mechanical Engineering from Stanford University and a Doctorate in Systems Engineering from George Washington University.

**Donald Lehr, age 43, Chief Legal Officer.** Mr. Lehr has served as our Chief Legal Officer since 2011. From 2009 to 2011 he served as our Associate General Counsel. Mr. Lehr has broad experience in the areas of corporate, securities, and general business law. Prior to joining us, he was at Hogan Lovells LLP (formerly Hogan & Hartson, LLP) in Baltimore, Maryland from 2002 to 2009. While at Hogan Lovells, his practice included the representation of privately and publicly held corporations across many industries, including biotechnology, pharmaceuticals, health care, software, technology, and manufacturing. Prior to his time at Hogan Lovells, Mr. Lehr served as a judicial clerk for the Honorable Irma S. Raker of the Court of Appeals of Maryland. Mr. Lehr received a B.A. from Swarthmore College and received a J.D. from the University of Maryland School of Law.

**Joel Liffmann, age 57, Senior Vice President, Finance.** Mr. Liffmann has served as our Senior Vice President, Finance since July 2015. Prior to Intrexon, from January 2013 to May 2015, he served as Executive Vice President of Corporate Development at Health Grades, Inc. Prior to Health Grades, from November 2010 to December 2012, Mr. Liffmann was a Senior Advisor to Vestar Capital Partners and was previously a Partner at Oracle Investment Management, Inc., where he specialized in private company investing and merchant banking in health care, bioscience, and related industries. Mr. Liffmann holds a Bachelor’s degree in Business Administration from Boston University.

**Nir Nimrodi, age 49, Chief Business Officer.** Mr. Nimrodi has served as our Chief Business Officer since November 2017. Prior to this, from October 2014 to November 2017, Mr. Nimrodi served as an executive officer of the company, including as our Senior Vice President, Corporate Development and our Senior Vice President, Environment Sector. Mr. Nimrodi brings to Intrexon over 20 years of diverse international experience in large

global businesses in the life sciences, pharmaceutical, biotechnology and diagnostics industries. Prior to joining Intrexon, Mr. Nimrodi was most recently the Vice President and General Manager of Life Technologies, Inc. Food Safety and Animal Health Business, now part of Thermo Fisher Scientific, and also served in numerous executive roles, including Chief Executive Officer and Board Member of Life Technologies Israel and Head of Protein Technologies. Previously, Mr. Nimrodi held leadership positions as CEO of Proneuron Biotechnologies, Inc. and also Mindsense Biosystems, as well as Director of Finance of Teva Pharmaceutical Industries, Ltd. Before joining the life sciences industry, he served in the Israeli Navy and worked for the Israeli Ministry of Defense. Mr. Nimrodi earned a B.A. in Economics and an M.B.A in Finance from Tel-Aviv University.

**Jeffrey Perez, age 46, Senior Vice President, Intellectual Property Affairs.** Mr. Perez has served as Senior Vice President, Intellectual Property Affairs since August 2014. Before joining Intrexon, Mr. Perez was Managing Director and Associate General Counsel and Intellectual Property at Third Security, LLC, where he evaluated potential investments of Third Security's managed investment funds. Additionally, Mr. Perez worked with Third Security portfolio companies in evaluating and developing their intellectual property strategies and general corporate activities. Prior to joining Third Security, Mr. Perez practiced law in the area of intellectual property with the law firm of Hunton & Williams LLP in Washington D.C. Mr. Perez's previous work involved client consultation, litigation, agreement work, opinion drafting and patent procurement. Mr. Perez received a B.S. from Cornell University and his J.D. from George Mason University School of Law.

**Thomas D. Reed, Ph.D., age 52, Founder and Chief Science Officer.** Dr. Reed co-founded Intrexon in 1998 and has served as Chief Science Officer since 2001. Dr. Reed is a molecular geneticist with over 30 years of experience spanning many aspects of molecular and cellular biology. Dr. Reed envisioned and built Intrexon's proprietary UltraVector platform that enables design and assembly of gene programs which facilitate control over the quality, function, and performance of living cells. He has developed sophisticated transgenic model systems for studying the role of gene products in neuronal, cardiovascular, and cancer systems. Dr. Reed is actively involved in seeking out and assessing new biotechnologies and innovative companies that complement the portfolio of Intrexon products. Dr. Reed has published numerous peer-reviewed articles in the fields of subcellular modulation, gene regulation and cardiac function and is an inventor on numerous patents. Dr. Reed earned his B.S. in Genetics from the University of California-Davis, his M.S. in Biological Science from Wright State University, and his Ph.D. in Molecular and Developmental Biology from the University of Cincinnati College of Medicine.

**Helen Sabzevari, age 56, President, Precigen, Inc.** Dr. Sabzevari has served as President of Precigen, Inc. a wholly-owned subsidiary of the company, since November 2017. Prior to this, Dr. Sabzevari served as our Senior Vice President, Intrexon Health Therapeutics as well as Head of Research and Development of Precigen Inc. from June 2017 to November of 2017. Dr. Sabzevari brings extensive expertise in research and development of immunotherapy-based therapeutics as well as experience translating novel treatments from pre-clinical stage into the clinic. Prior to Intrexon, from 2015 to 2017, Dr. Sabzevari co-founded and served as Chief Scientific Officer of Compass Therapeutics LLC, a fully-integrated drug discovery and development company focused on manipulating the immune system to treat human disease. From 2008 to 2014, Dr. Sabzevari served as Senior Vice President of Immuno-Oncology as well as Global Head of Immunotherapy, Oncology, Global Research and Early Development at EMD Serono (a subsidiary of Merck KGaA, Darmstadt, Germany). During her tenure, she led the immuno-oncology discovery and early development translational innovation platform and brought forward numerous pre-clinical and clinical assets including Avelumab, an approved programmed death ligand-1 (PD-L1) checkpoint inhibitor. From 1998 to 2008, Dr. Sabzevari led the Molecular Immunology Group at the Laboratory of Tumor Immunology and Biology at the US National Cancer Institute (LTIB-NCI), where she was focused on design, development and delivery of novel vaccines and immunotherapies for a range of human cancers. Dr. Sabzevari's contributions in the field of tumor immunology earned her the National Institutes of Health (NIH) merit award for major contribution to the field of cancer immunotherapy, and she also received the Mass High Tech's Women to Watch Award and the PharmaVOICE 100 Award. Dr. Sabzevari received her doctorate degree in cell and molecular immunology and completed her postdoctoral work at the department of immunology at the Scripps Research Institute working on various immunotherapeutic modalities in the treatment of cancer and autoimmune diseases.

**Robert Walsh, III, age 59, Senior Vice President, Energy & Fine Chemicals.** Mr. Walsh has served as our Senior Vice President, Energy and Fine Chemicals since November 2017. Prior to this, since May 2013, Mr. Walsh served as our Senior Vice President, Energy Sector. Mr. Walsh has over 30 years of experience in the

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petroleum and chemical industries. From 2011 to 2013, Mr. Walsh served as Chief Commercial Officer of ZeaChem Inc., a cellulosic biofuel and biochemical company. Prior to his time at ZeaChem, Mr. Walsh held several leadership positions, including Chief Executive Officer of Aurora Algae, Inc., an algae production company, President of LS9, Inc., an industrial biotechnology company, Senior Vice President and Chief Operating Officer of Chemoil Corporation, and General Manager Supply, Europe for Shell Europe Oil Products. Mr. Walsh received a B.S. in Chemical Engineering from Purdue University.

## COMPENSATION DISCUSSION AND ANALYSIS

The Compensation Committee of our Board is responsible for the determination of compensation for our executive officers. The individuals who served as our Chief Executive Officer and Chief Financial Officer during fiscal 2017, as well as the other individuals included in the Summary Compensation Table, are referred to throughout this Proxy Statement as the “named executive officers” and together with the other executives of management as the “executive officers.”

Our named executive officers for fiscal year 2017 are:

<u>Name</u>	<u>Age</u>	<u>Position</u>
Randal Kirk	64	Chief Executive Officer and Chairman of the Board
Rick Sterling	54	Chief Financial Officer
Donald Lehr	43	Chief Legal Officer
Jeffrey Perez	46	Senior Vice President, Intellectual Property Affairs
Robert Walsh	59	Senior Vice President, Energy and Fine Chemicals

This section discusses the principles underlying our executive compensation programs, policies and decisions and explains the process the Compensation Committee uses to determine compensation and benefits for our named executive officers. It provides qualitative information regarding the manner and context in which compensation is earned by and awarded to our named executive officers and is intended to place in perspective the data presented in the tables and narrative that follow.

The discussion and analysis of our compensation program for our named executive officers should be read in conjunction with the tables and text elsewhere in this Proxy Statement that describe the compensation awarded to, earned by or paid to our named executive officers.

### Executive Summary

Our goal with respect to executive compensation is to provide a comprehensive package that is sufficient to attract, motivate and retain executives of outstanding ability, performance and potential. The Compensation Committee seeks to establish and maintain an appropriate relationship between executive compensation and the creation of shareholder value. The Committee believes that the most effective compensation program is one that provides competitive base pay, rewards the achievement of established annual and long-term goals and objectives, and provides incentives for retention.

The Compensation Committee assists the Board in fulfilling its oversight responsibilities with respect to the compensation of our executive officers. The Compensation Committee is responsible for:

- establishing and administering the base salaries and annual cash incentive awards of our executive officers, and
- administering and making recommendations and awards under our 2013 Plan.

The Compensation Committee monitors the compensation paid to our executive officers to ensure it is fair, reasonable and competitive and is substantially tied to our performance. The Compensation Committee evaluates, both subjectively and objectively, our financial performance, competitive position, future potential, and the individual and group performance of the members of executive management. In such evaluation, the Compensation Committee reviews data prepared by management and employs the business experience of the individual members of the Compensation Committee. The Compensation Committee also will utilize, from time to time, the assistance of an outside compensation consultant.

### Fiscal Year 2017 Performance Highlights

We are designed to be a technology-based company with a management science discipline in order to provide the capital efficiency, growth and financial returns that will enable our progression into a top-tier company. In 2017 we were successful in achieving a number of financial, operational and business objectives.

*Financial Highlights*

Our 2017 financial highlights include:

- Total revenues of \$231 million, an increase of 21% over the year ended December 31, 2016; and
- Net loss of \$117 million, attributable to the Company, or \$(0.98) per basic share, including noncash charges of \$107.5 million.

*Operational and Business Highlights*

Our 2017 operational and business highlights included the following:

- In connection with its planned evolution, we decentralized our organization to consist of a 'core Intrexon' (consisting of our purely scientific units) and a number of enterprises with management structures designed to drive shareholder value through commercialization, including through partnering transactions or potential spin out transactions, shifting the emphasis of our business model away from partnering early stage programs and focusing on the partnering of mature programs and platforms;
- Our energy team achieved cash positive scalable yields in two multibillion-dollar hydrocarbons from its Methane Bioconversion Platform (MBP), along with increasing yields on other targets;
- Our human therapeutics team commenced a therapeutic vaccine program based on its AdenoVerse™ platform and established a generalized system for Point of Care CAR-T cells that, based on in vitro and in vivo studies, offers the promise of outperforming currently available approaches, at considerably lower COGS. Additionally, the team developed therapeutic candidates targeting not only cancer but also autoimmune and infectious targets, while preparing for the commencement of multiple clinical trials in 2018; and
- We undertook the steps necessary to implement both Precigen, Inc. and ActoBioTherapeutics, Inc. as wholly owned subsidiaries of the Company beginning in January 2018.

**Key Compensation Corporate Governance Practices**

The Compensation Committee and the Board regularly review the evolving practices in executive compensation and corporate governance. We have adopted certain policies and practices that we believe are consistent with industry best practices, as tailored to our unique business model and strategic direction. We have also strived to adopt policies that will foster the company's growth and the continual realization of value to our shareholders. Due to our company's unique and dynamic business model, the Compensation Committee and the Board actively scrutinize the anticipated effect of compensation practices on the ultimate goals of the company.

**What We Do:**

- Use an appropriate balance between short-term and long-term compensation.
- Conduct an annual review and assessment of potential and existing risks arising from our compensation programs and policies.
- Ban hedging of our stock by our directors, officers and employees.
- Engage an outside compensation consultant to advise on executive compensation matters.

**What We Do Not Do:**

- Generally, enter into long-term employment, severance or retention agreements with executive officers.
- Provide excessive perquisites.
- Offer executive officers a tax gross-up on any perquisites, except for de minimis amounts related to short-term disability insurance premiums.
- Allow repricing of underwater stock options without shareholder approval.

**Our Compensation Philosophy**

Our compensation philosophy is guided by the principle of pay-for-performance. Our compensation programs are designed to support our business goals by rewarding achievement of short-term and long-term

objectives in a manner that links compensation of our executive officers with the value created for our shareholders. While aligning our executive officers' compensation with our short-term and long-term business goals, we aim to provide the incentives needed to attract, motivate, reward and retain our management talent, which is crucial to our long-term success. As our largest shareholder and owner of a majority of our outstanding shares of common stock, we believe our Chief Executive Officer's interests are closely aligned with those of our shareholders and he is extremely focused on enabling our executive officers to drive increased shareholder value. The members of our Compensation Committee share this focus.

### **Principles of Our Compensation Framework**

Our executive compensation program is designed to attract, retain, motivate and reward talented individuals who will execute our business plan so that we can succeed in the competitive business environment in which we operate. The Compensation Committee believes that the compensation program for our executive officers should reward the achievement of our short-term and long-term objectives and that compensation should be related to the value created for our shareholders. Furthermore, the compensation program should reflect competition and best practices in the marketplace. The following objectives serve as the Compensation Committee's guiding principles for all compensation decisions:

- Our executive compensation and benefits should attract, motivate, reward and retain the management talent necessary to achieve our business objectives at compensation levels that are fair, equitable and competitive with those of comparable companies.
- Compensation should be set based on the leadership of each executive officer, which reflects skill sets, experience and achievement, to create a competitive framework for talent acquisition and retention.
- Compensation should be linked to individual and corporate performance by aligning our executive compensation program to company-wide performance, which is assessed in terms of financial and non-financial performance and creation of long-term value for our shareholders.
- There should be an appropriate mix and weighting among base salary, annual incentive awards and long-term equity incentive awards such that an adequate amount of each executive officer's total compensation is performance-based or "at risk." Further, as an executive's responsibilities increase, the portion of "at-risk" compensation for the executive should also increase as a percentage of total compensation.

In addition, the Compensation Committee believes that the various elements of our compensation program effectively align compensation with performance measures that are directly related to our financial goals and creation of shareholder value without encouraging executives to take unnecessary and excessive risks.

### **Developments in Executive Compensation for Fiscal Year 2017**

The Compensation Committee attempts to set reasonable but rigorous goals and objectives for each of our executive officers. We annually review our executive compensation practices to ensure that our plans and practices are supportive of our goals, competitive and in keeping with the best interests of our shareholders and our unique business model and operating environment. As a result, the Compensation Committee, after a review in 2017 of trending practices among similarly situated companies and further deliberation about the Company's competitiveness in recruitment and retention, updated the Company's equity grant strategy, beginning in fiscal year 2018, to implement RSU's into the equity grants made to our independent directors and executive officers.

### **Elements of Our Compensation Program**

The Compensation Committee has a mix of compensation components that it utilizes, with the intent to make each component of total direct compensation competitive while also linking compensation to individual and corporate performance and encouraging stock ownership by our executive officers. The table below describes each compensatory element in our program and briefly explains how it promotes our objectives. We believe the combination of these elements provides an appropriate balance of rewards, incentives and benefits to our executives and enables us to meet our desired compensation objectives, strengthen our ability to attract and retain highly qualified individuals and to appropriately link pay to performance.



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Element of Compensation	Description	How this Element Promotes Our Objectives
<i>Annual Compensation</i>		
Base Salary	Fixed annual compensation that is certain in payment and provides continuous income.	Aids in both recruitment and retention; designed to be competitive in the marketplace.
Annual Incentive Awards	Performance-based compensation for achieving established goals and objectives.	Motivates and rewards achievement of annual corporate objectives by providing at-risk comprehensive pay opportunities linked to performance.
<i>Long-term Compensation</i>		
Equity Incentive Awards	Grants of options and/or RSUs that are part of our long-term incentive program; time-based vesting, generally over four years.	Promotes retention, increases long-term equity ownership and aligns executive and long-term shareholder interests by linking a portion of their compensation to changes in company stock price.
<i>Other Compensation</i>		
Post-Termination Payments and Benefits	Payments and benefits upon termination of an executive's employment in specified circumstances, such as retirement, death, disability or a change in control, as described in greater detail beginning on page 57.	Provides assurance of financial security, which is desirable in lateral recruiting and executive retention and permits objective evaluation by executives of potential changes to our strategy and structure.
Other Benefits	Executives participate in employee benefit plans generally available to our employees.	Fair and competitive programs to provide for the health and well-being of executives and their families.

We do not provide our executives with any meaningful perquisites that are not provided to employees generally. We also do not have any deferred compensation programs or retirement programs other than our 401(k) Plan that is generally available to all employees. We enroll all eligible employees, other than our Chief Executive Officer, in the same health, dental and life and disability insurance programs.

### *Base Salary*

General. Base salary levels for our executive officers, with the exception of our Chief Executive Officer, are recommended to the Compensation Committee by our Chief Executive Officer and are subject to approval by the Compensation Committee and the Board. In setting the base salary level for each executive officer (other than our Chief Executive Officer), the Compensation Committee generally considers the executive officer's experience level, demonstrated capabilities, time and placement in position, our geographic region, individual performance and future contributions to our company. In addition, the Compensation Committee may consider executive compensation data for the industry as a whole, including data from similarly situated companies. Base salaries are reviewed annually by the Compensation Committee. When making decisions to adjust executive salaries, the Compensation Committee will also consider our overall financial performance in addition to the factors identified above. No particular weight is assigned to any one factor.

Compensatory Arrangements for the Chief Executive Officer. The base salary for our Chief Executive Officer, Mr. Kirk, is defined pursuant to the terms of a Restricted Stock Unit Agreement, or RSU Agreement. On October 30, 2015, the Compensation Committee and the independent members of our Board approved the RSU Agreement as a compensation arrangement for Mr. Kirk. Previously, Mr. Kirk did not receive compensation for his services as the Chief Executive Officer of the Company other than through his participation in the Company's Annual Incentive Plan, as defined below, which became effective January 1, 2015. Under the arrangement, Mr. Kirk receives as compensation a payment of \$200,000 per month, which payment is made in fully-vested shares of our common stock which are subject to a three-year lockup on resale from the date of issuance. The

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monthly number of shares of common stock are calculated based on the last trading day of the applicable month and are issued pursuant to the terms of the RSU Agreement, under the 2013 Plan. The RSU Agreement, and Mr. Kirk’s employment, is terminable at will by the decision of the independent members of the Board.

The RSU Agreement became effective in November 2015 and had an initial term of 12 months. The independent members of our Board, with the recommendation of the Compensation Committee, have subsequently approved extensions of the RSU Agreement, with the current term lasting through March 31, 2019. All such extensions have been on the same terms as the original RSU Agreement.

Mr. Kirk is also entitled to participate in executive incentive compensation plans adopted by our Board or the Compensation Committee from time to time, including the Annual Incentive Plan described below.

2017 Base Salary Adjustments. In February 2017, the Compensation Committee, in consultation with our outside compensation consultant, reviewed the 2016 base salaries of each of our named executive officers. In addition to the factors described above, the Compensation Committee considered factors including: the named executive officer’s uniqueness to the position, retention of the named executive officers, overall performance and internal pay equity factors.

Based on this review, the Compensation Committee approved the following annual base salaries paid to our named executive officers for fiscal year 2017 and as listed in the “Salary” column of the Summary Compensation Table on page [45](#):

Name	2016 Base Salary	2017 Base Salary	Increase from 2016
Randal Kirk	\$ —	\$ —	\$ —
Rick Sterling	\$ 360,000	\$ 450,000	\$ 90,000
Donald Lehr	\$ 450,000	\$ 575,000	\$ 125,000
Jeffrey Perez	\$ 400,000	\$ 500,000	\$ 100,000
Robert Walsh	\$ 400,000	\$ 412,000	\$ 12,000

*Annual Incentive Awards*

In June 2015, our shareholders approved the Intrexon Corporation Annual Executive Incentive Plan, or Annual Incentive Plan, promulgated under the 2013 Plan, under which our executives may receive awards for achievement of Company and individual performance goals and objectives using metrics as determined by the Compensation Committee. The plan became effective January 1, 2015.

General. The Annual Incentive Plan is administered by the Compensation Committee, which has sole authority to formulate adjustments and make interpretations under the Annual Incentive Plan as it deems appropriate. Eligibility is determined by the Compensation Committee each calendar year within a select group of management or key employees of the Company or any of its subsidiaries. For each incentive period, the Compensation Committee establishes the terms of the bonus awards under the Annual Incentive Plan, including the eligible employees, the corporate performance objectives by which the aggregate incentive pool will be determined and the individual performance levels that must be achieved for payment of each incentive award to an individual participant. The Compensation Committee is also empowered to determine whether any awards will be paid in cash, equity securities, or a combination thereof. We maintain a strong link between performance and pay through emphasis on incentives and use of financial, operational and leadership measures, which we believe are key drivers of long-term value creation for shareholders. These criteria are used together with non-financial metrics that the Compensation Committee believes are leading indicators of the creation of long-term shareholder value. While these criteria serve as guidelines, the Compensation Committee has great discretion to determine the annual cash incentive awards to each participant, as discussed below.

Committee Discretion. Under the Annual Incentive Plan, the Compensation Committee retains the authority to award compensation absent attainment of a relevant performance goal, provide for cash incentive awards in excess of the target base percentages, reduce or eliminate awards entirely, or provide for partial payment if performance goals are only partially met, in each case if the Compensation Committee determines appropriate in its discretion. The Compensation Committee may determine an adjustment to an incentive payout on the basis of such factors as it deems relevant, and is not required to prospectively establish any weighting with respect to the

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factors it considers. We believe that maintaining this flexibility is helpful in ensuring that executive officers are appropriately compensated for their performance and are neither rewarded nor penalized as a result of unusual circumstances not foreseeable at the time performance measures were developed.

Performance Objectives. Under the terms of the Annual Incentive Plan, the Compensation Committee may consider any of the following when selecting performance objectives:

- market capitalization growth,
- revenue,
- earnings before interest, taxes, depreciation and amortization (“EBITDA”) or adjusted EBITDA as consistently defined for purposes of our normal earnings releases,
- cash earnings (earnings before amortization of intangibles),
- operating income (before or after taxes),
- pre-or after-tax income (before or after allocation of corporate overhead and bonus),
- earnings per share,
- net cash flow,
- net cash flow per share,
- net earnings,
- return on equity,
- return on total capital,
- return on sales,
- return on net assets employed,
- return on assets or net assets,
- total shareholder return,
- improvement in or attainment of expense levels and/or cost recovery levels,
- improvement in or attainment of working capital levels,
- net sales,
- revenue growth or product revenue growth,
- return on equity,
- appreciation in and/or maintenance of the price of the shares of common stock,
- market share,
- gross profits,
- comparisons with various stock market indices,
- reductions in cost,
- cash flow or cash flow per share (before or after dividends),
- return on capital (including return on total capital or return on invested capital),
- cash flow return on investments,
- improvement in or attainment of expense levels or working capital levels,
- shareholder equity and
- any other objective business criteria that the Compensation Committee may determine appropriate.

2017 Performance Objectives. In February 2017, in consultation with management and our outside compensation consultant, the Compensation Committee reviewed the potential performance objectives as set forth in the Annual Incentive Plan and approved the 2017 corporate performance objectives, which included: (1) market capitalization growth, (2) adjusted EBITDA, (3) revenues, (4) maintenance of cost recovery levels, and (5) comparisons with biotech and other applicable market indices. While the Compensation Committee elected not to assign specific weighting to the objectives, it reserved the right to assign such weighting as it deemed appropriate at the close of fiscal year 2017.

2017 Corporate Performance. In March 2018, the Compensation Committee reviewed our performance in 2017 relative to the performance objectives identified above. The Compensation Committee determined that a number of the performance objectives had been met. Nonetheless, based on several factors, including our lack of market capitalization growth in fiscal year 2017, the Compensation Committee elected not to fund the incentive pool under the Annual Incentive Plan. As a result, the Compensation Committee determined that no annual incentives would be paid for the 2017 performance period under our Annual Incentive Plan. This determination was consistent with the recommendation of the Chief Executive Officer and Chairman of the Board.

*Long-Term Equity Incentive Awards*

**General.** Our primary objectives in granting long-term equity incentive awards are to encourage significant ownership of our common stock by management and to provide long-term financial incentives linked directly to our long-term performance. The Compensation Committee believes that significant ownership of our common stock by senior management helps to align the interests of management and the shareholders.

Our long-term equity incentive awards have historically been in the form of time-vested stock options, generally vesting over four years. However, in a change prompted by (i) a desire to further align long-term compensation with company performance and (ii) an effort to strategically respond to the evolving recruitment and retention strategies of current or future competitors for our desired pool of executive talent, the Compensation Committee determined that, going forward, it was appropriate to incorporate RSUs into the mix of long-term equity incentive awards contemplated as part of its long-term compensation strategy. The inclusion of RSUs was not reflected in the 2017 long-term equity grants to executives, but is expected to be a future component of the Company’s long-term equity incentive compensation strategy.

Although we do not have a formal policy with respect to the grant of equity incentive awards to our executive officers, or any formal equity ownership guidelines applicable to them, we believe that equity grants provide our executives with a strong link to our long-term performance, create an ownership culture, and help to align the ownership interests of our executives and our shareholders. In addition, we believe that equity grants with a time-based vesting feature promote executive retention by incentivizing our executive officers to remain in our employment during the vesting period. Further, the levels at which they are granted, we believe, are competitive and appropriate for a company such as ours that is in a stage of anticipated growth with anticipated potential upside in stock performance over the long term. The size of the awards has historically taken into account a number of factors, including company performance as defined by the achievement of strategic objectives, individual performance, stock price performance, salary level and tenure. The Compensation Committee believes that broad and significant employee ownership of our common stock effectively motivates the building of shareholder wealth.

With the exception of significant promotions and new hires, equity grants, including long-term equity incentive awards, when awarded, have been awarded toward the beginning of the fiscal year. The Compensation Committee selects this timing because it enables us to consider the prior year performance of the Company and the participants’ and our expectations for the next performance period, while also ensuring that awards will be made after we publicly disclose our performance for the year.

The Compensation Committee’s practice when granting stock options has been to use the closing price of our common stock on the day of the grant as the exercise price. As a matter of formal written policy, we have not and do not time the grant of stock options around the disclosure of non-public information or back-date stock options.

**2017 Awards.** In February 2017, the Compensation Committee considered long-term equity incentive awards for fiscal year 2017 in connection with its review of 2017 executive compensation. The Committee approved stock option grants to each of the named executive officers as set forth below and as listed in the Grants of Plan Based Awards table on page 46. These grants reflected the recommendations of the outside compensation consultant as appropriate to incentivize and retain the recipients, as well as to foster a degree of parity among executive officers with comparable levels of responsibility. All such awards were granted under the 2013 Plan and vest in 25 percent increments over a four-year period beginning one year from the date of grant.

<b>Name</b>	<b>Grant Date</b>	<b>Option Grant</b>
Randal Kirk	—	—
Rick Sterling	2/2/2017	225,000
Donald Lehr	2/2/2017	225,000
Jeffrey Perez	2/2/2017	225,000
Robert Walsh	2/2/2017	225,000

*Severance Policies*

We generally do not provide contractual severance protection to our executive officers, other than through the terms of any equity awards granted under the 2013 Plan, which provide for vesting upon a change of control, death, or disability. Unvested options are cancelled if an executive officer terminates his or her employment.

*Deferred Compensation*

We do not provide a deferred compensation plan.

*Other Benefits*

The Compensation Committee believes employee benefits are an essential component of our competitive total compensation package. These benefits are designed to attract and retain our employees. The executive officers may participate in, and the Company makes contributions on their behalf to, the same benefit plans that are provided to all of our eligible employees, which include medical, health and dental insurance, long-term disability insurance, accidental death and disability insurance and our 401(k) Plan. As part of the 401(k) Plan, we generally match 100 percent of the first three percent of compensation contributed by the employee into the 401(k) Plan subject to the Internal Revenue Code and our 401(k) Plan limits. We have disclosed all company matches for our named executive officers in the column labeled “All Other Compensation,” in the Summary Compensation Table on page 45, and separately disclosed each amount in Footnote 4 to that table on page 45 of this Proxy Statement.

**The Compensation Review Process**

*Process for Approval of Compensation Measures.* Management makes a recommendation to the Compensation Committee and the Board regarding key financial goals, operational goals and performance measures that will guide us for the relevant fiscal year. Specific metrics are recommended by the Compensation Committee and approved by the Board and become the compensation measures for the executive officers.

*Role of the Compensation Committee and Management.* Governance of our compensation program is the responsibility of the Compensation Committee, which consists solely of independent directors. At the direction of the Compensation Committee, our Chief Executive Officer prepares compensation recommendations regarding the compensation of each of our executive officers, other than himself, and presents those recommendations to the Compensation Committee for approval. The Compensation Committee evaluates the overall performance of the executive officers based on the Company’s achievement of corporate performance objectives and goals and individual performance. The Compensation Committee then reviews and takes into account all elements of executive compensation in setting policies and determining compensation amounts.

*Role of Compensation Consultant.* The Compensation Committee is authorized to retain experts, consultants and other advisors to aid in the discharge of its duties. In 2017, the Compensation Committee retained F. Daniel Siciliano as its outside compensation consultant. Mr. Siciliano is the co-founder of the Arthur and Toni Rembe Rock Center for Corporate Governance at Stanford Law School, the immediate past Faculty Director and Professor of the Practice at the Center and currently co-director of Stanford’s Directors’ College. Mr. Siciliano is a noted authority on matters related to executive compensation and corporate governance. Mr. Siciliano was retained to (1) review the company’s historical compensation practices, (2) advise the Compensation Committee on compensation standards and trends, (3) assist in the implementation of policies and programs, and (4) review recommendations from management on compensation matters. All work completed by Mr. Siciliano is subject to the approval of the Compensation Committee. Mr. Siciliano’s role with respect to the Compensation Committee is to provide independent advice and counsel. The Compensation Committee does not delegate authority to its outside advisor or to other parties.

In retaining Mr. Siciliano, the Compensation Committee separately considered the six factors set forth in Section 10C-1(b)(4) (i) through (vi) of the Exchange Act and, based on such consideration, determined that the work of Mr. Siciliano did not raise any conflict of interest.

*No Formal Peer Group Analysis.* We believe we have structured a fair and competitive compensation package for our executive officers. The Board and the Compensation Committee believe that, due to the unique and rapidly evolving nature of our business, there is neither a robust nor stable cohort of peer companies available to use as a formal peer group for our Company. For this reason, we did not undertake a formal peer

group analysis of executive compensation or target compensation to specific benchmarks against any peer group companies. However, the Compensation Committee does regularly monitor certain compensation practices at a variety of similarly situated or similarly structured companies, which often vary, and does discuss compensation data for companies with which it believes we compete for executive talent. The Compensation Committee also uses information gathered from other sources including from members of our Compensation Committee, human resources staff and our outside compensation consultant.

### **Establishing Total Direct Remuneration**

Total direct remuneration is the sum of base salary, annual incentive awards, long-term equity incentive awards and other benefits. A major portion of each executive officer's remuneration is established by performance-based incentives, which requires achievement of performance objectives and goals as a condition to earning annual incentive awards and long-term equity incentive awards, which requires an increase in our stock price to have value. The at-risk portion of total direct remuneration provides increased pay for higher levels of corporate and/or business sector performance.

In setting each executive officer's total direct remuneration opportunity, the Compensation Committee takes into account other factors such as the responsibilities, experience, performance, contributions and service of the executive. As a result, we do not set total direct remuneration or the component parts at levels to achieve a mathematically precise market position. In determining executive compensation, the Compensation Committee reviews all components of each executive officer's total compensation, including retirement benefits and the costs of all perquisites received to ensure such compensation meets the goals of the program. As a part of this review, the Compensation Committee considers corporate performance information and the recommendations of senior management. The Compensation Committee also takes into consideration individual and overall company operating performance to ensure executive compensation reflects past performance as well as future potential and, we believe, adequately differentiates among employees, based on the scope and complexity of the employee's job position, individual performance and experience and our ability to pay. The Compensation Committee reviews annually each executive officer's performance prior to considering changes in compensation. The performance of each executive officer is evaluated in light of our overall performance (as described in greater detail below) and non-financial goals and strategic objectives approved by the Compensation Committee and the Board. The Compensation Committee and the Board believe that the competitive environment, including for executive talent, is dynamic and evolving. For this reason, while the Compensation Committee believes the total compensation for each of the executive officers is reasonable and appropriate, the Committee continues to actively consider methods to further improve the effectiveness of the Company's approach to executive compensation.

### **Consideration of Say-on-Pay Vote Results**

Our Board has determined to provide our shareholders the opportunity to vote each year to approve, on an advisory basis, the compensation of our named executive officers as disclosed in our Proxy Statement ("say-on-pay"). As an advisory vote, the vote on executive compensation is non-binding on the Board and should not be construed as (i) overruling a decision by the Board, (ii) creating or implying any change to our fiduciary duties, or (iii) creating or implying any additional fiduciary duties for the Board. Although the vote is non-binding, the Board and the Compensation Committee value the opinions of our shareholders, and consider our shareholders' views when making executive compensation decisions, as they deem appropriate.

At our 2017 annual meeting, we held a non-binding shareholder say-on-pay vote. Our shareholders approved our 2017 executive compensation proposal, with 75 percent of the shares that were cast on the proposal voted in favor of the say-on-pay resolution. We did not make any significant changes in our policies or programs in response to this vote. We will continue to consider the outcome of the say-on-pay vote for future compensation decisions for our executive officers.

### **Other Executive Compensation Practices**

#### *Anti-Hedging Policy*

To ensure alignment of the interests of our shareholders, directors and executive officers, the Company's Code of Conduct does not permit directors, officers or employees to engage in short-term or speculative transactions involving the Company's securities, including short sales, publicly-traded options or hedging the Company's securities.

*Compensation Recovery Policies*

It is the Board's policy that in the event the Board determines that a significant restatement or correction of our financial results or other metrics is required for the prior fiscal year for which audited financial statements have been completed, and, had the results or metrics been properly calculated initially, our officers would have received less compensation, the Board has the authority to obtain reimbursement of any portion of any performance based compensation paid or awarded, whether cash or equity based, to the officers and to other employees responsible for accounting errors resulting in the restatement or correction that is greater than would have been paid or awarded calculated based upon the restated or corrected financial results or metrics. Further, it is the policy of the Board to seek recoupment in all instances where Section 304 of the Sarbanes-Oxley Act of 2002 requires us to seek recoupment.

*United States Federal Income Tax Limits on Deductibility*

Prior to the enactment of the Tax Act, which was signed into law on December 22, 2017, a public corporation's covered employees included its chief executive officer and three other most highly compensated executive officers (other than the chief financial officer), and certain "qualified performance-based compensation" was excluded from the \$1 million deduction limit. The Tax Act made certain changes to Section 162(m), effective for taxable years beginning after December 31, 2017, including, among others, expanding the definition of "covered employee" to include the chief financial officer and repealing the qualified performance-based compensation exception, subject to a transition rule for remuneration provided pursuant to a written binding contract in effect on November 2, 2017, and which was not modified in any material respect on or after that date. Our policy is to qualify compensation paid to our executive officers for deductibility for federal income tax purposes to the extent feasible. However, to retain highly skilled executives and remain competitive with other employers, our Compensation Committee may authorize compensation that would not be deductible under Section 162(m) of the Code or otherwise if it determines that such compensation is in the best interests of us and our shareholders.

The Annual Incentive Plan is not designed to comply with Section 162(m) of the Internal Revenue Code, as it would require our Annual Incentive Plan awards to be entirely formulaic and not allow for the Compensation Committee to exercise an acceptable level of discretion in determining individual performance. In considering the structure of the Annual Incentive Plan, the Compensation Committee carefully assessed the potential cost of making awards under a plan that do not comply with Section 162(m) against the limitations such compliance would place upon the structure of the Annual Incentive Plan. We believe our Annual Incentive Plan is closely aligned with Company performance and also will appropriately reward our executives for their individual contributions to the Company's success while giving the Compensation Committee critical flexibility in compensation decisions regarding our executives.

## COMPENSATION COMMITTEE REPORT

The Compensation Committee has reviewed and discussed the Compensation Discussion and Analysis required by Item 402(b) of Regulation S-K with management and, based on such review and discussion, the Compensation Committee recommended to the Board that it be included in this Proxy Statement.

### THE COMPENSATION COMMITTEE

James Turley, Chair

Fred Hassan

Jeffrey Kindler

*The "Compensation Committee Report" above shall not be deemed incorporated by reference by any general statement incorporating this Proxy Statement into any filing under the Securities Act of 1933, as amended, or under the Securities Exchange Act of 1934, as amended, except to the extent that we specifically incorporate this information by reference, and shall not otherwise be deemed filed under such Acts.*

### Compensation Risk Assessment

As part of its oversight of our executive compensation program, the Compensation Committee considers the impact of our executive compensation program, and the incentives created by the compensation awards that it administers, on our risk profile. In addition, we review all our compensation policies and procedures, including the incentives that they create and factors that may reduce the likelihood of excessive risk-taking, to determine whether they present a significant risk to us. The Compensation Committee concluded that our compensation programs are designed with the appropriate balance of risk and reward in relation to our overall business strategy and that the balance of compensation elements discourages excessive risk-taking. The Compensation Committee, therefore, determined that the risks arising from our compensation policies and practices for employees are not reasonably likely to have a material adverse effect on us. The Compensation Committee will continue to consider compensation risk implications while deliberating the design of our executive compensation programs. In its discussions, the Compensation Committee considered the attributes of our programs, including:

- Appropriate pay philosophy in light of our business model;
- Balance with respect to the mix of cash and equity compensation; and measures of performance against both annual and multi-year standards;
- Short and long-term incentives linked to stock price performance;
- Performance goals are set at levels that are sufficiently high to encourage strong performance and support the resulting compensation expense, but within reasonably attainable parameters to discourage pursuit of excessively risky business strategies;
- Long-term incentives generally have multi-year vesting to ensure a long-term focus and appropriate balance against short-term goals;
- Independent Compensation Committee oversight, with Compensation Committee discretion to reduce incentives based on subjective evaluation of individual performance; and
- Anti hedging policies.



**SUMMARY COMPENSATION TABLE FOR 2017**

The following table sets forth the compensation paid or accrued during the fiscal years ended December 31, 2017, 2016 and 2015 to our named executive officers.

<b>Name and Principal Position</b>	<b>Year</b>	<b>Salary<sup>(1)</sup> (\$)</b>	<b>Bonus (\$)</b>	<b>Stock Awards<sup>(2)</sup> (\$)</b>	<b>Option Awards<sup>(3)</sup> (\$)</b>	<b>All Other Compensation<sup>(4)</sup> (\$)</b>	<b>Total (\$)</b>
Randal Kirk	2017	\$ —	\$ —	\$ 1,907,879	\$ —	\$ —	\$ 1,907,879
Chief Executive Officer and Chairman of the Board	2016	\$ —	\$ —	\$ 1,860,629	\$ —	\$ —	\$ 1,860,629
	2015	\$ —	\$ 4,350,000	\$ 314,025	\$ —	\$ —	\$ 4,664,025
Rick Sterling	2017	\$ 442,509	\$ —	\$ —	\$ 2,702,880	\$ 31,261	\$ 3,176,650
Chief Financial Officer	2016	\$ 342,500	\$ —	\$ —	\$ —	\$ 30,097	\$ 372,597
	2015	\$ 285,475	\$ 500,000	\$ —	\$ —	\$ 31,542	\$ 817,017
Donald Lehr <sup>(5)</sup>	2017	\$ 564,593	\$ —	\$ —	\$ 2,702,880	\$ 31,352	\$ 3,298,825
Chief Legal Officer							
Jeffrey Perez <sup>(5)</sup>	2017	\$ 491,676	\$ —	\$ —	\$ 2,702,880	\$ 30,010	\$ 3,224,566
Senior Vice President, Intellectual Property Affairs							
Robert Walsh <sup>(5)</sup>	2017	\$ 411,009	\$ —	\$ —	\$ 2,702,880	\$ 24,263	\$ 3,138,152
Senior Vice President, Energy and Fine Chemicals							

- (1) Represents salaries before any employee contributions under our 401(k) Plan.
- (2) Represents the grant date fair value computed by us for financial reporting purposes, computed in accordance with ASC Topic 718. In November 2015, Mr. Kirk began receiving \$200,000 per month payable in fully vested shares of our common stock, which are subject to a three year lock-up on resale. For the years ended December 31, 2017, 2016 and 2015, Mr. Kirk received 129,977, 87,041 and 12,141 shares of common stock, respectively. The three year lock-up on resale results in a discount to the monthly value for financial reporting purposes. For a full description of the assumptions we use in computing this amount, see Note 15 to our consolidated financial statements for the year ended December 31, 2017, which are included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017, as filed with the SEC on March 1, 2018.
- (3) Represents the grant date fair value computed by us for financial reporting purposes, computed in accordance with ASC Topic 718. For a full description of the assumptions we use in computing these amounts, see Notes 2 and 15 to our consolidated financial statements for the year ended December 31, 2017, which are included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017, as filed with the SEC on March 1, 2018. The actual value a named executive officer may receive depends on market prices and there can be no assurance that the amounts reflected in the Option Awards column will actually be realized. No gain to a named executive officer is possible without an appreciation in stock value after the date of grant.
- (4) The amounts in this column are further detailed in the “ALL OTHER COMPENSATION TABLE FOR 2017” on page 46.
- (5) This executive was employed by us in fiscal years 2015 and 2016. However, compensation information is provided only for fiscal year 2017 because, as he was not a named executive officer until the filing of this Proxy Statement, information for him for previous years is not required to be disclosed.

**ALL OTHER COMPENSATION TABLE FOR 2017**

The table below reflects the types and dollar amounts of perquisites, additional compensation and other personal benefits provided to the named executive officers during fiscal year 2017. For purposes of computing the dollar amounts of the items listed below, we used the actual out-of-pocket costs to us of providing the perquisite or other personal benefit to the named executive officer. The named executive officers paid any taxes associated with these benefits without reimbursement from us.

Name	Company-Paid Welfare and Life Benefits Premiums (\$)	401(k) Plan Company Contributions (\$)	Accrued but Unused Vacation (\$)	Total (\$)
Randal Kirk	—	—	—	—
Rick Sterling	23,161	8,100	—	31,261
Donald Lehr	23,252	8,100	—	31,352
Jeffrey Perez	21,910	8,100	—	30,010
Robert Walsh	16,163	8,100	—	24,263

**GRANTS OF PLAN-BASED AWARDS FOR 2017**

The following table presents information regarding grants of plan-based awards to the named executive officers during the fiscal year ended December 31, 2017.

Name	Grant Date	All Other Stock Awards: Number of Shares of Stock or Units (#)	All Other Option Awards: Number of Securities Underlying Options(#)	Exercise or Base Price of Option Awards (\$/Sh)	Grant Date Fair Value of Stock and Option Awards <sup>(1)</sup>
Randal Kirk	1/31/2017	9,451	—	—	\$ 157,007
	2/28/2017	8,984	—	—	\$ 157,007
	3/31/2017	10,090	—	—	\$ 157,007
	4/30/2017	9,596	—	—	\$ 157,005
	5/31/2017	9,380	—	—	\$ 159,975
	6/30/2017	8,302	—	—	\$ 159,986
	7/31/2017	9,263	—	—	\$ 159,981
	8/31/2017	10,136	—	—	\$ 159,977
	9/30/2017	10,520	—	—	\$ 159,978
	10/31/2017	12,232	—	—	\$ 159,985
	11/30/2017	14,662	—	—	\$ 159,982
	12/31/2017	17,361	—	—	\$ 159,989
Rick Sterling	2/2/2017	—	225,000	\$ 20.94	\$ 2,702,880
Donald Lehr	2/2/2017	—	225,000	\$ 20.94	\$ 2,702,880
Jeffrey Perez	2/2/2017	—	225,000	\$ 20.94	\$ 2,702,880
Robert Walsh	2/2/2017	—	225,000	\$ 20.94	\$ 2,702,880

(1) Represents the grant date fair value of the equity awards determined in accordance with ASC Topic 718.

**OUTSTANDING EQUITY AWARDS AT 2017 FISCAL YEAR END**

The following table sets forth specified information concerning unexercised stock options and equity incentive plan awards for each of the named executive officers outstanding as of December 31, 2017.

<b>Name</b>	<b>Grant Date</b>	<b>Number of Securities Underlying Unexercised Options: Exercisable</b>	<b>Number of Securities Underlying Unexercised Options: Unexercisable</b>	<b>Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options</b>	<b>Option Exercise Price (\$)</b>	<b>Option Expiration Date</b>
Randal Kirk	—	—	—	—	\$ —	—
Rick Sterling	3/20/2014	152,507	51,965 <sup>(1)</sup>	—	\$ 29.56	3/20/2024
	2/2/2017	—	225,000 <sup>(2)</sup>	—	\$ 20.94	2/2/2027
Donald Lehr	7/1/2011	47,509	—	—	\$ 6.85	7/1/2021
	3/20/2014	155,889	51,966 <sup>(1)</sup>	—	\$ 29.56	3/20/2024
	2/2/2017	—	225,000 <sup>(2)</sup>	—	\$ 20.94	2/2/2027
Jeffrey Perez	8/25/2014	150,769	51,964 <sup>(3)</sup>	—	\$ 19.52	8/25/2024
	2/2/2017	—	225,000 <sup>(2)</sup>	—	\$ 20.94	2/2/2027
Robert Walsh	5/28/2013	118,772	—	—	\$ 9.30	5/28/2023
	3/20/2014	77,945	25,981 <sup>(1)</sup>	—	\$ 29.56	3/20/2024
	2/2/2017	—	225,000 <sup>(2)</sup>	—	\$ 20.94	2/2/2027

(1) These options were fully vested on March 20, 2018.

(2) These options vest in four equal installments on the anniversary of the grant date beginning on February 2, 2018.

(3) These options fully vest on August 25, 2018.

**OPTION EXERCISES AND STOCK AWARDS VESTED FOR 2017**

The following table sets forth specified information concerning exercises of stock options and stock vesting for each of the named executive officers outstanding as of December 31, 2017.

Name	Option Awards		Stock Awards	
	Number of Shares Acquired on Exercise (#)	Value Realized on Exercise (\$) <sup>(1)</sup>	Number of Shares Acquired on Vesting (#)	Value Realized on Vest (\$) <sup>(2)</sup>
Randal Kirk <sup>(3)</sup>	—	—	9,451	\$ 199,983
	—	—	8,984	\$ 199,984
	—	—	10,090	\$ 199,984
	—	—	9,596	\$ 199,981
	—	—	9,380	\$ 199,982
	—	—	8,302	\$ 199,995
	—	—	9,263	\$ 199,988
	—	—	10,136	\$ 199,983
	—	—	10,520	\$ 199,985
	—	—	12,232	\$ 199,993
	—	—	14,662	\$ 199,990
	—	—	17,361	\$ 199,999
Rick Sterling <sup>(4)</sup>	68,252	\$ 1,473,561	—	\$ —
Donald Lehr	—	\$ —	—	\$ —
Jeffrey Perez	—	\$ —	—	\$ —
Robert Walsh	—	\$ —	—	\$ —

- (1) The amounts in the “Value Realized on Exercise” column are calculated based on the difference between the closing market price per share of our common stock on the date of exercise and the exercise price per share of the applicable stock option.
- (2) The amounts in the “Value Realized on Vesting” column are calculated based on the closing market price per share of our common stock on the date of vesting. This calculation differs from the grant date fair value of the equity awards determined in accordance with ASC Topic 718.
- (3) During 2017, Mr. Kirk received a total of 129,977 fully vested shares of common stock pursuant to his Restricted Stock Unit Agreement.
- (4) In July 2017, Mr. Sterling exercised 68,252 options and has held the shares he received upon exercise since the exercise of such options.

## EQUITY COMPENSATION PLANS AND OTHER BENEFIT PLANS

### *Intrexon Corporation 2008 Equity Incentive Plan*

The Intrexon Corporation 2008 Equity Incentive Plan, as amended, which we refer to as the 2008 Plan, was first adopted by our Board and our shareholders in April 2008.

The 2008 Plan provides for the grant of incentive stock options, nonstatutory stock options, stock appreciation rights, or SARs, restricted stock awards, restricted stock unit awards and incentive awards. Our employees, directors, consultants and advisors, and the employees, directors, consultants and advisors of our affiliated entities, are eligible to receive awards under the 2008 Plan; however, incentive stock options may only be granted to our employees or the employees of our subsidiaries. In accordance with the terms of the 2008 Plan, the Compensation Committee of our Board administers the 2008 Plan and, subject to any limitations in the 2008 Plan, selects the recipients of awards and determines, among other things:

- the number of shares of common stock covered by options and the dates upon which those options become exercisable;
- the exercise prices of options;
- the duration of options (subject to certain limitations set forth in the plan);
- the methods of payment of the exercise price of options;
- the number of shares of common stock subject to any SARs and the terms and conditions of those rights, including the term (subject to certain limitations set forth in the plan), the conditions for exercise and payment upon exercise;
- the number of shares of common stock subject to any restricted stock awards and restricted stock unit awards and the terms and conditions of those awards, including the price, if any, restriction period (subject to certain limitations set forth in the plan) and conditions for repurchase (with respect to restricted stock awards); and
- the number of shares of common stock subject to any incentive awards and the terms and conditions of those awards, including the payment terms and award or the dollar amount of any incentive award period (subject to certain limitations set forth in the plan).

In the event of a change in control, as defined in the 2008 Plan, the Compensation Committee has the discretion to take one or more of the following actions with respect to outstanding awards on or before the date of the change in control:

- provide, upon notice to the participant, that some or all of the outstanding options and SARs shall terminate on or before the change in control without payment to the holder of such option or SAR if not exercised by the holder (to the extent such options and SARs are then exercisable or exercisable by the change in control) prior to the change in control;
- provide that all outstanding awards shall terminate on or before the change in control in consideration for payment to the holders (to the extent such awards are then exercisable or exercisable, vested or otherwise payable by the change in control) of the excess, if any, of the fair market value of the common stock subject to the award minus the exercise price or initial value, if any (as applicable); and
- take such other action as the Compensation Committee determines reasonable to permit the holder of the award to realize the value of the award (to the extent such awards are then exercisable or exercisable by the change in control).

As of March 31, 2018, there were options to purchase an aggregate of 431,649 shares of common stock outstanding under the 2008 Plan at a weighted-average exercise price of \$7.25 per share and a weighted average remaining term of 3.83 years. On and after the effective date of the 2013 Plan described below, we have not granted any further stock options or other awards under the 2008 Plan.

### *Intrexon Corporation 2013 Omnibus Incentive Plan*

The 2013 Plan became effective upon the closing of our initial public offering in August 2013 and was approved by our shareholders at our 2014 Annual Meeting. At each of our 2015 and 2016 Annual Meeting, our

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shareholders authorized an additional 3,000,000 shares of common stock for issuance pursuant to the 2013 Plan. At our 2017 Annual Meeting, our shareholders authorized an additional 2,000,000 shares of common stock for issuance pursuant to the 2013 Plan. The material terms of the 2013 Plan are summarized below.

As of March 31, 2018, there were options to purchase an aggregate of 11,114,785 shares of common stock outstanding under the 2013 Plan at a weighted-average exercise price of \$29.13 per share and a weighted average remaining term of 7.46 years. As of March 31, 2018, there were 1,052,182 RSUs outstanding under the 2013 Plan. As of March 31, 2018, there were 3,279,291 shares of common stock reserved for future issuance under the 2013 Plan, which is our only plan under which equity awards can currently be made to employees and non-employee directors. As described in Proposal 4 of this Proxy Statement on page 28, the Board has approved, subject to shareholder approval, authorizing an additional 2,000,000 shares of common stock for issuance pursuant to the 2013 Plan.

### *Summary of the Material Terms of the 2013 Plan*

*Purpose.* We established the 2013 Plan to attract, retain and motivate our employees, officers and non-employee directors, to promote the success of our business by linking the personal interests of our employees, officers, consultants, advisors and non-employee directors to those of our shareholders and to encourage stock ownership on the part of management. The 2013 Plan is intended to permit the grant of stock options (both incentive stock options, or ISOs and non-qualified stock options, or NQSOs or, collectively Options), stock appreciation rights, or SARS, restricted stock awards, or Restricted Stock Awards, RSUs, incentive awards, or Incentive Awards, other stock-based awards, or Stock Based Awards, and dividend equivalents, or Dividend Equivalents.

*Administration.* The 2013 Plan is administered by our Compensation Committee, which has the authority to grant awards to such persons and upon such terms and conditions (not inconsistent with the provisions of the 2013 Plan) as it may consider appropriate. Our Compensation Committee may act through subcommittees or, with respect to awards granted to individuals who are not subject to the reporting and other provisions of Section 16 of the Exchange Act, who are not members of our Board or the board of directors of our Affiliates (as defined by the 2013 Plan) and who are not a covered employee subject to the \$1 million deduction limit under Section 162(m) of the Code, delegate to one or more officers all or part of its duties with respect to such awards. Our Compensation Committee may, at its discretion, accelerate the time at which any award may be exercised, become transferable or nonforfeitable or become earned and settled including without limitation (i) in the event of the participant's death, disability, retirement or involuntary termination of employment or service (including a voluntary termination of employment or service for good reason) or (ii) in connection with a Change in Control (as defined in the 2013 Plan).

*Authorized Shares.* Under the 2013 Plan, we may issue a maximum aggregate of 18,000,000 shares of common stock (20,000,000 shares of common stock if the shareholders approve the Amendment to the 2013 Plan as discussed under Proposal 4 above), all of which may be issued pursuant to Options, SARs, Restricted Stock Awards, RSUs, Incentive Awards, Stock-Based Awards or Dividend Equivalents. Each share issued in connection with an award will reduce the number of shares available under the 2013 Plan by one, and each share covered under the exercised portion of a SAR will reduce the number of shares available under the 2013 Plan by one, even though the share is not actually issued upon settlement of the SAR. Shares relating to awards that are terminated by expiration, forfeiture, cancellation or otherwise without issuance of shares of common stock, settled in cash in lieu of shares, or exchanged prior to the issuance of shares for awards not involving shares, will again be available for issuance under the 2013 Plan. Shares not issued as a result of net settlement of an award, tendered or withheld to pay the exercise price, purchase price or withholding taxes of an award or shares purchased on the open market with the proceeds of the exercise price of an award will be deemed delivered under the 2013 Plan and will not again be available for issuance under the 2013 Plan.

*Written Agreements.* All awards granted under the 2013 Plan will be governed by separate written agreements between the participants and us. The written agreements will specify the terms of the particular awards.

*Transferability.* Generally, an award is non-transferable except by will or the laws of descent and distribution, and during the lifetime of the participant to whom the award is granted, the award may only be exercised by, or payable to, the participant. However, the Compensation Committee may provide that awards, other than ISOs or a Corresponding SAR that is related to an ISO, may be gifted by a participant to immediate

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family members or trust or other entities on behalf of the Participant and/or family members. Any such transfer will be permitted only if (i) the participant does not receive any consideration for the transfer and (ii) the Committee expressly approves the transfer. The holder of the transferred award will be bound by the same terms and conditions that governed the award during the period that it was held by the participant, except that such transferee may only transfer the award by will or the laws of descent and distribution.

*Maximum Award Period.* No award shall be exercisable or become vested or payable more than ten years after the date of grant. An ISO granted to a Ten Percent Shareholder (as defined in the 2013 Plan) or a corresponding SAR that relates to such an ISO may not be exercisable more than five years after the date of grant.

*Compliance with Applicable Law.* No award shall be exercisable, vested or payable except in compliance with all applicable federal and state laws and regulations (including, without limitation, tax and securities laws), any listing agreement with any stock exchange to which we are a party, and the rules of all domestic stock exchanges on which our shares may be listed.

*Payment.* The exercise or purchase price of an award, and any taxes required to be withheld with respect to an award, may be paid in cash or, if the written agreement so provides, the Compensation Committee may allow a participant to pay all or part of the exercise or purchase price, and any required withholding taxes, by tendering shares of common stock the participant already owns, through a broker-assisted cashless exercise, by means of "net exercise" procedure whereby shares of common stock shall be withheld from delivery, or any other specified medium of payment or combination thereof.

*Shareholder Rights.* No participant shall have any rights as our shareholder as a result of issuance of an award until the award is settled by the issuance of common stock (other than a Restricted Stock Award or RSUs for which certain shareholder rights may be granted).

*Forfeiture Provisions.* Awards do not confer upon any individual any right to continue in our employ or service or in the employ or service of our affiliated entities. All rights to any award that a participant has will be immediately forfeited if the participant is discharged from employment or service.

### **Types of awards**

*Options.* Both ISOs and NQSOs may be granted under the 2013 Plan. Our Compensation Committee determines the eligible individuals to whom grants of Options will be made, the number of shares subject to each option, the exercise price per share, the time or times at which the option may be exercised, whether any performance or other conditions must be satisfied before a participant may exercise an option, the method of payment by the participant, the method of delivery of shares to a participant, whether the Option is an ISO or a NQSO, and all other terms and conditions of the award. However, the exercise price of an Option may not be less than the fair market value of a share of common stock on the date the Option is granted. No participant may be granted ISOs that are first exercisable in any calendar year for shares of common stock having an aggregate fair value (determined on the date of grant) that exceeds \$100,000. With respect to an ISO granted to a participant who is a Ten Percent Shareholder (as defined in the 2013 Plan), the exercise price per share may not be less than 110 percent of the fair market value of the common stock on the date the Option is granted. At the Compensation Committee's discretion, an Option may be granted with or without a Corresponding SAR (as defined below).

*SARs.* A SAR entitles the participant to receive, upon exercise, the excess of the fair market value on that date of each share of common stock subject to the exercised portion of the SAR over the fair market value of each such share on the date of the grant of the SAR. A SAR can be granted alone or in tandem with an Option. A SAR granted in tandem with an Option is called a Corresponding SAR and entitles the participant to exercise the Option or the SAR, at which time the other tandem award expires with respect to the number of shares being exercised. The Compensation Committee is authorized to determine the eligible individuals to whom grants of SARs will be made, the number of shares of common stock covered by the grant, the time or times at which a SAR may be exercised and all other terms and conditions of the SAR. However, no participant may be granted Corresponding SARs that are related to ISOs which are first exercisable in any calendar year for shares of common stock having an aggregate fair market value (determined on the date of grant) that exceeds \$100,000.

*Restricted Stock Awards and RSUs.* A Restricted Stock Award is the grant or sale of shares of common stock, which may be subject to forfeiture for a period of time or subject to certain conditions. An RSU entitles

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the participant to receive, upon vesting, shares of our common stock. We will deliver to the participant one share of common stock for each RSU that becomes earned and payable. With regard to Restricted Stock Awards, the Compensation Committee is authorized to determine the eligible individuals to whom grants will be made, the number of shares subject to such grants, the purchase price, if any, to be paid for each share subject to the award of restricted stock, the time or times at which the restrictions will terminate, and all other terms and conditions of the restricted stock. With regards to RSUs, the Compensation Committee is authorized to determine the eligible individuals to whom grants will be made, the number of shares subject to such grants and the vesting conditions entitling a participant to settlement of the RSUs.

*Incentive Awards.* An Incentive Award entitles the participant to receive cash or common stock when certain conditions are met. The Compensation Committee has the authority to determine the eligible individuals to whom grants will be made and all other terms and conditions of the Incentive Award.

*Stock-Based Awards.* Stock-Based Awards may be denominated or payable in, valued by reference to or otherwise based on shares of common stock, including awards convertible or exchangeable into shares of common stock (or the cash value thereof) and common stock purchase rights and awards valued by reference to the fair market value of the common stock. The Compensation Committee has the authority to determine the eligible individuals to whom grants will be made and all other terms and conditions of Stock-Based Awards. However, the purchase price for the common stock under any Stock-Based Award in the nature of a purchase right may not be less than the fair market value of a share of common stock as of the date the award is granted. Cash awards, as an element of or supplement to any other award under the 2013 Plan, may also be granted.

Our Compensation Committee is also authorized under the 2013 Plan to grant shares of common stock as a bonus, or to grant shares of common stock or other awards in lieu of any of our obligations or of our affiliates to pay cash or to deliver other property under the 2013 Plan or under any other of our plans or compensatory arrangements or any of our affiliates.

*Dividend Equivalents.* Our Compensation Committee may also grant Dividend Equivalents under the 2013 Plan. A Dividend Equivalent is an award that entitles the participant to receive cash, shares of common stock, other awards or other property equal in value to all or a specified portion of dividends paid with respect to shares of our common stock. The Compensation Committee is authorized to determine the eligible individuals to whom grants will be made and all other terms and conditions of the Dividend Equivalents. However, no Dividend Equivalents may be awarded in connection with an Option, SAR or Stock-Based Award in the nature of purchase rights.

### *Material Terms of the Performance-Based Compensation*

Awards that are paid to Named Executive Officers (as defined in the 2013 Plan) may be subject to the tax deduction limitations of Section 162(m) of the Code.

*Eligibility.* Any of our employees or service providers, employees or service providers of our Affiliates (as defined in the 2013 Plan), and nonemployee members of our Board or of any board of directors of our Affiliates is eligible to receive an award under the 2013 Plan.

*Award Limits.* In any calendar year, no participant may be granted awards that relate to more than 1,000,000 shares of common stock. For these purposes, an Option and its corresponding SAR will be counted as a single award. For any award stated with reference to a specific dollar limit, the maximum amount payable with respect to any 12-month performance period to any one participant is \$5,000,000 (pro-rated up or down for performance periods greater or less than 12 months). Award limits that are expressed as a number of shares are subject to the adjustment provisions of the 2013 Plan as described below.

*Performance Criteria.* Our Compensation Committee has the discretion to establish objectively determinable performance conditions for when qualified performance-based awards will become vested, exercisable and payable. Objectively determinable performance conditions generally are performance conditions (a) that are established in writing (i) at the time of the grant or (ii) no later than the earlier of (x) 90 days after the beginning of the period of service to which they relate and (y) before the lapse of 25 percent of the period of service to which they relate; (b) that are uncertain of achievement at the time they are established and (c) the achievement of which is determinable by a third party with knowledge of the relevant facts. These performance conditions may be based on one or any combination of metrics related to our financial, market or business performance. The form of the performance conditions also may be measured on a company, affiliate, division, business unit or



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geographic basis, individually, alternatively or in any combination, subset or component thereof. Performance goals may reflect absolute entity performance or a relative comparison of entity performance to the performance of a peer group of entities or other external measure of the selected performance conditions. Profits, earnings and revenues used for any performance condition measurement may exclude any extraordinary or nonrecurring items. The performance conditions may, but need not, be based upon an increase or positive result under the aforementioned business criteria and could include, for example and not by way of limitation, maintaining the status quo or limiting the economic losses (measured, in each case, by reference to the specific business criteria). An award that is intended to become exercisable, vested or payable on the achievement of performance conditions means that the award will not become exercisable, vested or payable solely on mere continued employment or service. However, such an award, in addition to performance conditions, may be subject to continued employment or service by the participant. The performance conditions upon which qualified performance-based compensation may be based include any or any combination of the following: (a) revenue, (b) earnings before interest, taxes, depreciation and amortization, or EBITDA, (c) cash earnings (earnings before amortization of intangibles), (d) operating income, (e) pre-or after-tax income, (f) earnings per share, (g) net cash flow, (h) net cash flow per share, (i) net earnings, (j) return on equity, (k) return on total capital, (l) return on sales, (m) return on net assets employed, (n) return on assets or net assets, (o) share price performance, (p) total shareholder return, (q) improvement in or attainment of expense levels, (r) improvement in or attainment of working capital levels, (s) net sales, (t) revenue growth or product revenue growth, (u) operating income (before or after taxes), (v) pre-or after-tax income (before or after allocation of corporate overhead and bonus), (w) earnings per share; (x) return on equity, (y) appreciation in and/or maintenance of the price of the shares of our common stock, (z) market share, (aa) gross profits, (bb) comparisons with various stock market indices; (cc) reductions in cost, (dd) cash flow or cash flow per share (before or after dividends), (ee) return on capital (including return on total capital or return on invested capital), (ff) cash flow return on investments; (gg) improvement in or attainment of expense levels or working capital levels, and/or (hh) shareholder equity.

Our Compensation Committee has the discretion to select one or more periods of time over which the attainment of one or more of the foregoing performance conditions will be measured for the purpose of determining when an award will become vested, exercisable or payable. The Compensation Committee has the authority to adjust goals and awards in the manner set forth in the 2013 Plan.

*Change in Control.* In the event of a “Change in Control” (as defined in the 2013 Plan) and, with respect to awards that are subject to Section 409A of the Internal Revenue Code of 1986, as amended, or the Code, and such awards, 409A Awards, only to the extent permitted by Section 409A of the Code, our Compensation Committee in its discretion may, on a participant-by-participant basis (a) accelerate the vesting of all unvested and unexercised Options, SARs or Stock-Based Awards in the nature of purchase rights and/or terminate such awards, without any payment therefore, immediately prior to the date of any such transaction after giving the participant at least seven days written notice of such actions; (b) fully vest and/or accelerate settlement of any awards; (c) terminate any outstanding Options, SARs or Stock-Based Awards in the nature of purchase rights after giving the participant notice and a chance to exercise such awards (to the extent then exercisable or exercisable upon the change in control); (d) cancel any portion of an outstanding award that remains unexercised or is subject to restriction or forfeiture in exchange for a cash payment to the participant of the value of the award; or (e) require that the award be assumed by the successor corporation or replaced with interests of an equal value in the successor corporation.

*Amendment and Termination.* The 2013 Plan expires 10 years after its original effective date, unless terminated earlier by our Board. Any award that is outstanding as of the date the 2013 Plan expires will continue in force according to the terms set out in the award agreement. Our Board may terminate, amend or modify the 2013 Plan at any time. However, shareholder approval may be required for certain types of amendments under applicable law or regulatory authority. Except as may be provided in an award agreement or the 2013 Plan, no amendment to the 2013 Plan may adversely affect the terms and conditions of any existing award in any material way without the participant’s consent.

An amendment will be contingent on approval of our shareholders, to the extent required by law, by the rules of any stock exchange on which our securities are then traded or if the amendment would (i) increase the benefits accruing to participants under the 2013 Plan, including without limitation, any amendment to the 2013

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Plan or any agreement to permit a re-pricing or decrease in the exercise price of any outstanding awards, (ii) increase the aggregate number of shares of common stock that may be issued under the 2013 Plan, or (iii) modify the eligibility requirements for participation in the 2013 Plan.

### *Material U.S. Federal Income Tax Consequences of Awards under the 2013 Plan*

The following discussion summarizes the principal federal income tax consequences associated with awards under the 2013 Plan. The discussion is based on laws, regulations, rulings and court decisions currently in effect, all of which are subject to change.

*ISOs.* A participant will not recognize taxable income on the grant or exercise of an ISO (although the excess of the fair market value of the common stock over the exercise price will be included for alternative minimum tax purposes in the year of exercise). A participant will recognize taxable income when he or she disposes of the shares of common stock acquired under the ISO. If the disposition occurs more than two years after the grant of the ISO and more than one year after its exercise, the participant will recognize long-term capital gain (or loss) to the extent the amount realized from the disposition exceeds (or is less than) the participant's tax basis in the shares of common stock. A participant's tax basis in the shares of common stock acquired under an ISO generally will be the amount the participant paid for the stock. If common stock acquired under an ISO is disposed of before the expiration of the ISO holding period described above, the participant will recognize as ordinary income in the year of the disposition the excess of the fair market value of the common stock on the date of exercise of the ISO over the exercise price. Any additional gain will be treated as long-term or short-term capital gain, depending on the length of time the participant held the shares. Special rules apply if a participant pays the exercise price by delivery of common stock. We will not be entitled to a federal income tax deduction with respect to the grant or exercise of an ISO. However, in the event a participant disposes of common stock acquired under an ISO before the expiration of the ISO holding period described above, we generally will be entitled to a federal income tax deduction equal to the amount of ordinary income the participant recognizes on the disqualifying disposition.

*NQSOs.* A participant will not recognize any taxable income on the grant of a NQSO. On the exercise of a NQSO, the participant will recognize as ordinary income the excess of the fair market value of the common stock acquired over the exercise price. A participant's tax basis in the common stock then is the amount paid for the shares of common stock plus any amounts included in income on exercise of the NQSO. Special rules apply if a participant pays the exercise price by delivery of common stock. The exercise of a NQSO generally will entitle us to claim a federal income tax deduction equal to the amount of ordinary income the participant recognizes on exercise of the NQSO.

*SARs.* A participant will not recognize any taxable income at the time SARs are granted. The participant at the time of receipt will recognize as ordinary income the amount of cash and the fair market value of the common stock that he or she receives on exercise of the SAR. We generally will be entitled to a federal income tax deduction equal to the amount of ordinary income the participant recognizes on exercise of the SAR.

*Restricted Stock Awards and RSUs.* With regard to Restricted Stock Awards, a participant will recognize ordinary income on account of a Restricted Stock Award on the first day that the shares are either transferable or no longer subject to a substantial risk of forfeiture. The ordinary income recognized will equal the excess of the fair market value of the common stock on such date over the price, if any, paid for the stock. However, even if the shares under a Restricted Stock Award are both nontransferable and subject to a substantial risk of forfeiture, the participant may make a special "83(b) election" to recognize income, and have his or her tax consequences determined, as of the date of grant of the Restricted Stock Award. The participant's tax basis in the shares received under the Restricted Stock Award will equal the income recognized plus the price, if any, paid for the Restricted Stock Award. We generally will be entitled to a federal income tax deduction equal to the ordinary income the participant recognizes with respect to the Restricted Stock Award. With regard to RSUs, a participant will not recognize any taxable income at the time RSUs are granted. When the terms and conditions to which the RSUs are subject have been satisfied and the RSUs are paid, the participant will recognize as ordinary income the fair market value of the common stock he or she receives on settlement of the RSUs. We generally will be entitled to a federal income tax deduction equal to the ordinary income the participant recognizes on settlement of the RSUs, subject to the deduction conditions and limits applicable under Section 162(m) of the Code.

*Incentive Awards.* A participant will not recognize any taxable income at the time an Incentive Award is granted. When the terms and conditions to which an Incentive Award is subject have been satisfied and the

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award is paid, the participant will recognize as ordinary income the amount of cash and the fair market value of the common stock he or she receives on settlement of the Incentive Award. We generally will be entitled to a federal income tax deduction equal to the amount of ordinary income the participant recognizes on settlement of the Incentive Award, subject to the deduction conditions and limits applicable under Section 162(m) of the Code.

*Stock-Based Awards.* A participant will recognize ordinary income on receipt of cash or shares of common stock paid with respect to a Stock-Based Award. We generally will be entitled to a federal tax deduction equal to the amount of ordinary income the participant recognizes subject to the deduction conditions and limits applicable under Section 162(m) of the Code.

*Dividend Equivalents.* A participant will recognize as ordinary income the amount of cash and the fair market value of any common stock he or she receives on payment of the Dividend Equivalents. To the extent the Dividend Equivalents are paid in the form of other awards, the participant will recognize income as otherwise described herein. We generally will be entitled to a federal tax deduction equal to the amount of ordinary income the participant recognizes subject to the deduction conditions and limits applicable under Section 162(m) of the Code.

*Limitation on Deductions.* Section 162(m) of the Internal Revenue Code denies a federal income tax deduction for certain compensation in excess of \$1.0 million per year paid by a publicly held corporation to each of its “covered employees.” Prior to the enactment of the Tax Act, which was signed into law on December 22, 2017, a publicly corporation’s covered employees included its chief executive officer and three other most highly compensated executive officers (other than the chief financial officer), and certain “qualified performance-based compensation” was excluded from the \$1 million deduction limit. The Tax Act made certain changes to Section 162(m), effective for taxable years beginning after December 31, 2017, including, among others, expanding the definition of “covered employee” to include the chief financial officer and repealing the qualified performance-based compensation exception, subject to a transition rule for remuneration provided pursuant to a written binding contract in effect on November 2, 2017, and which was not modified in any material respect on or after that date. Our policy is to qualify compensation paid to our executive officers for deductibility for federal income tax purposes to the extent feasible. However, to retain highly skilled executives and remain competitive with other employers, our Compensation Committee may authorize compensation that would not be deductible under Section 162(m) of the Code or otherwise if it determines that such compensation is in the best interests of us and our shareholders. Compensation to certain employees resulting from vesting of awards in connection with a change in control or termination following a change in control also may be non-deductible under Internal Revenue Code Sections 4999 and 280G.

*Other Tax Rules.* The 2013 Plan is designed to enable our Compensation Committee to structure awards that will not be subject to Section 409A of the Code, which imposes certain restrictions and requirements on nonqualified deferred compensation. However, our Compensation Committee may grant awards that are subject to Section 409A of the Code. In that case, the terms of such 409A Award will be (a) subject to the deferral election requirements of Section 409A of the Code; and (b) may only be paid upon a separation from service, a set time, death, disability, a change in control or an unforeseeable emergency, each within the meaning of Section 409A of the Code. Our Compensation Committee shall not have the authority to accelerate or defer a 409A Award other than as permitted by Section 409A of the Code. Moreover, any payment on a separation from service of a “Specified Employee” (as defined in the 2013 Plan) will not be made until six months following the participant’s separation from service (or upon the participant’s death, if earlier) as required by Section 409A of the Code.

### **401(k) Plan**

We provide a 401(k) Plan to all eligible employees as defined in the plan. Subject to annual limits set by the Internal Revenue Service, we match 100 percent of eligible employee contributions up to a maximum of 3 percent of an employee’s salary and vesting in our match is ratable over three years from an employee’s date of employment.

### **Rule 10b5-1 Plans**

Certain of our executive officers have adopted written plans, known as Rule 10b5-1 plans, in which they will contract with a broker to buy or sell shares of our common stock on a periodic basis. Under a Rule 10b5-1 plan, a broker executes trades pursuant to parameters established by the director or executive officer when

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entering into the Rule 10b5-1 plan, without further direction from such director or executive officer. The director or executive officer may amend or terminate the Rule 10b5-1 plan in specified circumstances.

**Pension Benefits**

We do not have any plan that provides for payments or other benefits at, following, or in connection with retirement.

**Nonqualified Deferred Compensation**

We do not have any defined contribution or other plan that provides for the deferral of compensation on a basis that is not tax-qualified.

**EQUITY COMPENSATION PLAN INFORMATION**

The following table sets forth certain information as of December 31, 2017 with respect to securities authorized for issuance under our existing equity compensation plans, consisting of our 2008 Plan and our 2013 Plan, as more fully described above. Both of our equity compensation plans were adopted with the approval of our shareholders.

<b>Plan Category</b>	<b>Number of Securities to be Issued upon Exercise of Outstanding Options, Warrants and Rights</b> <b>(a)</b>	<b>Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights</b> <b>(b)</b>	<b>Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in column (a))<sup>(1)</sup></b> <b>(c)</b>
Equity compensation plans approved by shareholders			
2008 Plan	453,371	\$ 7.06	—
2013 Plan	10,929,376	\$ 29.90	4,747,496
Equity compensation plans not approved by shareholders	—	—	—
<b>Total</b>	<b>11,382,747</b>	<b>—</b>	<b>4,747,496</b>

- (1) On and after the effective date of the 2013 Plan, no new awards may be granted under the 2008 Plan. Our 2013 Plan, in addition to being available for future issuance upon exercise of stock options and vesting of RSUs that have been or may be granted after December 31, 2017, provides for the issuance of SARS, restricted stock awards, other stock-based awards, incentive awards and dividend equivalents.

**POTENTIAL PAYMENTS UPON TERMINATION OR A CHANGE IN CONTROL**

None of our named executive officers have employment agreements or change of control agreements with us. We generally do not offer long-term severance, employment, or retention agreements to our named executive officers. However, to ensure that we will have the continued dedicated service of certain executives, including some of our named executive officers, notwithstanding the possibility, threat, or occurrence of a change of control, our stock option awards with our named executive officers contain change of control provisions. Because we do not have any severance, employment, or retention agreements with our named executive officers, the Compensation Committee believes that the change of control provisions in our stock option awards serve the best interests of our Company and our shareholders by ensuring that if a change of control is ever under consideration, our executives are able to perform their duties and responsibilities and advise the Board about the potential transaction in the best interests of shareholders, without being unduly influenced by the distracting uncertainty and risk associated with a change of control, such as fear of the economic consequences of losing their equity awards as a result of a change of control.

A “Change in Control” is defined in the 2013 Plan to mean generally the occurrence of any of the following events:

- (a) the accumulation in any number of related or unrelated transactions by any person of beneficial ownership (as such term is used in Rule 13d-3 promulgated under the Exchange Act) of more than fifty percent (50%) of the combined voting power of the Company’s voting stock; provided that for purposes of this subsection (a), a Change in Control will not be deemed to have occurred if the accumulation of more than fifty percent (50%) of the voting power of the Company’s voting stock results from any acquisition of voting stock (i) directly from the Company that is approved by the Incumbent Board (as defined in the 2013 Plan), (ii) by the Company, (iii) by any employee benefit plan (or related trust) sponsored or maintained by the Company or any affiliate, or (iv) by any person pursuant to a merger, consolidation, reorganization or other transaction (a “Business Combination”) that would not cause a Change in Control under subsections (b), (c) or (d) below; or
- (b) consummation of a Business Combination, unless, immediately following that Business Combination, (i) all or substantially all of the persons who were the beneficial owners of the voting stock of the Company immediately prior to that Business Combination beneficially own, directly or indirectly, more than fifty percent (50%) of the then outstanding shares of common stock and more than fifty percent (50%) of the combined voting power of the then outstanding voting stock entitled to vote generally in the election of directors of the entity resulting from that Business Combination (including, without limitation, an entity that as a result of that Business Combination owns the Company or all or substantially all of the Company’s assets either directly or through one or more subsidiaries) in substantially the same proportions relative to each other as their ownership, immediately prior to that Business Combination, of the voting stock of the Company, or
- (c) a sale or other disposition of all or substantially all of the assets of the Company, except pursuant to a Business Combination that would not cause a Change in Control under subsections (b) above or (d) below; or
- (d) approval by the shareholders of a complete liquidation or dissolution of the Company, except pursuant to a Business Combination that would not cause a Change in Control under subsections (b) and (c) above; or
- (e) the acquisition by any person, directly or indirectly, of the power to direct or cause the direction of the management and policies of the Company (i) through the ownership of securities which provide the holder with such power, excluding voting rights attendant with such securities, or (ii) by contract; provided that a Change in Control will not be deemed to have occurred if such power was acquired (x) directly from the Company in a transaction approved by the Incumbent Board, (y) by an employee benefit plan (or related trust) sponsored or maintained by the Company or any affiliate or (z) by any person pursuant to a Business Combination that would not cause a Change in Control under subsections (b), (c) or (d) above; or
- (f) During any period of two consecutive years, the Incumbent Board ceases to constitute a majority of the Board.

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Notwithstanding the foregoing, a “change in control” does not include any accumulation of beneficial ownership or any Business Combination pursuant to which more than fifty percent (50%) of the beneficial ownership of the combined voting power of the Company’s voting stock is owned by (i) Randal J. Kirk, his spouse, his descendants and the spouses of his descendants, (ii) trusts and other entities established generally for the benefit of Randal J. Kirk, his spouse, his descendants and the spouses of his descendants, (iii) NRM VI Holdings I, LLC, NRM VII Holdings I, LLC, Third Security Staff 2001 LLC and any related funds, investors or entities, and/or (iv) any entities established by any of the foregoing.

Our stock option and restricted award agreements with our named executive officers provide that in the event a Change in Control (as defined in the 2013 Plan) occurs and no provision is made for the continuance, assumption or substitution of the option award by the Company or its successor in connection with a Change in Control, then the award will become exercisable in full, to the extent not exercisable previously, on the earlier of the control change date or the date the award is to be terminated in connection with the Change in Control, provided the executive has remained continuously employed by the Company or any affiliate from the grant date until such time.

**POTENTIAL PAYMENTS UNDER 2013 PLAN**

The following table shows the potential payments upon termination, a change in control of the Company, incapacity or death for the named executive officers based on agreements and plans in effect as of December 31, 2017. The amounts in this table are calculated assuming the triggering event occurred on December 31, 2017 and all executives were paid in a lump sum payment.

		Termination <sup>(1)</sup> (\$)	Change in Control <sup>(2)</sup> (\$)	Incapacity <sup>(3)</sup> (\$)	Death <sup>(4)</sup> (\$)
Randal Kirk	Options	—	—	—	—
	Benefit Plans	—	—	—	—
	<b>Total</b>	—	—	—	—
Rick Sterling	Options	—	—	—	—
	Benefit Plans	43,269	—	192,000	1,445,000
	<b>Total</b>	43,269	—	192,000	1,445,000
Donald Lehr	Options	—	—	—	—
	Benefit Plans	55,288	—	192,000	1,545,000
	<b>Total</b>	55,288	—	192,000	1,545,000
Jeffrey Perez	Options	—	—	—	—
	Benefit Plans	48,076	—	192,000	1,545,000
	<b>Total</b>	48,076	—	192,000	1,545,000
Robert Walsh	Options	—	—	—	—
	Benefit Plans	26,554	—	192,000	1,371,000
	<b>Total</b>	26,554	—	192,000	1,371,000

- (1) Includes potential payouts for termination without cause, or voluntary resignation, or termination for cause. Includes accrued but unused vacation. If a named executive officer is terminated for “cause” all options, including vested options, are cancelled.
- (2) In the event of a change in control, as described above, unvested stock options vest immediately. This column reflects the value of the accelerated vesting, which is calculated by multiplying the number of shares subject to accelerated vesting under outstanding stock options by the difference between \$11.52 (which was the closing market price per share of our common stock on December 29, 2017, the last trading day of fiscal 2017) and the per share exercise price of the applicable accelerated stock option. Currently all unvested stock options for our named executive officers have an exercise price greater than \$11.52 and therefore no payments would be due.
- (3) Includes benefits payable under long-term disability insurance. Long-term disability benefits are payable beginning in the 13<sup>th</sup> month of disability through the 36<sup>th</sup> month of disability. These benefits equal 60 percent of base salary, capped at \$8,000 per month. The values in the table above assume benefit payments for the maximum 24 months.
- (4) Includes benefits payable to the executive’s heirs pursuant to life insurance, which is generally two times base salary with a cap of \$545,000, with certain exceptions to the cap, and accidental death and disability insurance, which is two times base salary with a cap of \$1 million.

## CEO PAY RATIO

In August 2015, pursuant to Section 953(b) of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, the SEC adopted Item 402(u) of Regulation S-K (“Item 402(u)”) requiring registrants to disclose annually the ratio between their median employee’s annual total compensation to the annual total compensation of their principal executive officer. Registrants must comply with the pay ratio rule beginning with proxy statements covering fiscal years beginning on or after January 1, 2017.

We are providing below the following information about the relationship between the annual total compensation of our employees and the annual total compensation of Randal Kirk, our Chief Executive Officer (our “CEO”). The pay ratio included in this information is a reasonable estimate calculated in a manner consistent with Item 402(u). Because Item 402(u) affords a large degree of flexibility in calculating the CEO pay ratio by allowing the use of reasonable estimates, assumptions and methodologies, the pay ratio disclosed by us below may not be comparable to pay ratio disclosures presented by other companies.

For 2017, our last completed fiscal year:

- the annual total compensation of our CEO was \$1,907,879; and
- the median of the annual total compensation of all employees of our company (other than our CEO) was \$58,795.

***Based on this information, for 2017, the ratio of the annual total compensation of our CEO to the median of the annual total compensation of all employees was 32 to 1.***

To identify the median of the annual total compensation of all our employees, as well as to determine the annual total compensation of the median employee, the methodology and the material assumptions, adjustments and estimates used were as follows:

**Determination Date.** We selected December 31, 2017 as the date from which to determine our total employee population and gather pay data.

**Employee Population.** As of December 31, 2017, according to internal payroll records, our total employee population, excluding our CEO, consisted of approximately 1,006 individuals working at our company or within our consolidated subsidiaries on either a full-time or part-time basis. Out of these approximate 1,006 individuals, 77% are located in North America, 14% are located in Europe and 8% are located in South America. As permitted by Item 402(u), we chose to exclude from the employee population 1 individual located in Argentina and 6 individuals located within the Cayman Islands, which represent all of our employees in those jurisdictions, given the small number of employees in each jurisdiction and the challenges associated with data gathering and assessment of the compensation elements. As a result, our employee population for purposes of our pay ratio calculation consisted of 999 individuals.

**Methodology.** To identify the median employee, a listing was prepared of our employee population as of December 31, 2017. We did not annualize the compensation of any permanent employees, employed either part-time or full-time, who were employed by us for less than the full fiscal year. We then compared the actual cash compensation received during 2017 for those employees, consisting of base salary amounts and annual incentive awards as reflected by internal payroll records. We identified our median employee using this compensation measure, which was consistently applied to all of our employees across the employee population. Using this methodology, we determined that the median employee was a full-time, salaried employee located in the United States.

**Annual Total Compensation.** With respect to the annual total compensation of the median employee, we identified and calculated the elements of such employee’s compensation for 2017 in accordance with the requirements of Item 402(c)(2)(x) of Regulation S-K. This calculation is the same calculation used for our named executive officers as set forth in the Summary Compensation Table earlier in this Proxy Statement. With respect to the annual total compensation of our CEO, we used the amount reported in the “Total” column of the Summary Compensation Table on page [45](#) of this Proxy Statement.



## CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following is a description of transactions since January 1, 2017 to which we have been a party, in which the amount involved exceeded or will exceed \$120,000, and in which any of our directors, executive officers or beneficial owners of more than five percent of our voting securities, or affiliates or immediate family members of any of our directors, executive officers or beneficial owners of more than five percent of our voting securities, had or will have a direct or indirect material interest.

We have historically been owned, funded, and managed by Randal Kirk, our Chief Executive Officer, and affiliates of Mr. Kirk, for the purpose of developing our synthetic biotechnology. As a result, we have engaged in a variety of financial and operational transactions with Mr. Kirk and these affiliates. In accordance with the requirements of the SEC, we describe below all such transactions in which we have engaged since January 1, 2017.

We believe that each of these transactions was on terms no less favorable to us than terms we could have obtained from unaffiliated third parties. Moreover, all of these transactions have been approved by a majority of the independent and disinterested members of the Board. It is our intention to ensure that all future transactions, if any, between us and our officers, directors, principal shareholders and their affiliates or immediate family members, are approved by the Audit Committee or a majority of the independent and disinterested members of the Board, and are on terms no less favorable to us than those that we could obtain from unaffiliated third parties.

### **Greenberg Traurig LLP**

Mr. Alvarez is the Senior Chairman of the international law firm Greenberg Traurig. Greenberg Traurig provides legal services to us from time to time, for which it has received and may continue to receive customary fees. Greenberg Traurig received an aggregate of approximately \$1.5 million in fees in connection with 2017 legal services. As the Senior Chairman, Mr. Alvarez does not participate in such services, and does not materially benefit from the engagement. As such, and in consideration of the fact that the amount received by Greenberg Traurig does not exceed 2 percent of Greenberg's Traurig's consolidated gross revenues for 2017, the Board has determined that this relationship is not material and that it does not impair Mr. Alvarez's independence.

### **Transactions with Third Security, LLC and Affiliates**

#### ***Services Agreement***

On October 30, 2015, the independent members of the Board approved a Services Agreement (the "Services Agreement"), to be entered into and effective as of November 1, 2015, between us and Third Security, LLC ("Third Security"). Mr. Kirk and shareholders affiliated with him, as of March 31, 2018, beneficially own approximately 45.8 percent of our voting stock. Mr. Kirk currently serves as the Senior Managing Director and Chief Executive Officer of Third Security and owns 100 percent of the equity interests in Third Security. Third Security is the manager to certain funds that own shares of our common stock, and, therefore may be deemed to have beneficial ownership in us of approximately 34.2 percent. The Services Agreement was unanimously approved by the Audit Committee and the independent members of the Board in accordance with our policy on related person transactions.

Pursuant to the terms of the Services Agreement, Third Security provides us with services necessary or appropriate to support us and Mr. Kirk in his role as Chief Executive Officer. Third Security provides a wide variety of resources to us at the direction of Mr. Kirk, including the efforts of professionals with significant experience in areas such as accounting, corporate finance, research and analysis, law, tax, due diligence support, complex transaction structuring and support, mergers and acquisitions, and strategic relationship development and opportunity sourcing. Third Security also provides executive assistant, administrative, and other support services for Mr. Kirk in his role as Chief Executive Officer. Additionally, Third Security provides such other general support services to us as directed by Mr. Kirk in such role. In exchange for the foregoing services, we pay Third Security a fee of \$800,000 per month, which payment is made in fully-vested shares of our common stock. The shares of common stock are valued based on the closing price of our common stock on the 15<sup>th</sup> day of the applicable month (or the most recent trading day prior to such date if such date is not a trading day).

The payments made by us under the Services Agreement constitute, in the aggregate, an award under the 2013 Plan and are subject to the terms of the Plan. If, based on the advice of counsel, we determine that we are

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unable to issue shares under the 2013 Plan after a period of 30 days, then the payment of any deficiency shall be made to Third Security in cash rather than in shares of our common stock.

The Services Agreement had an initial term of one year, and may be extended only by agreement of the parties. An extension of the agreement requires, on behalf of us, approval of a majority of the independent members of the Board. The Services Agreement may be terminated at any time by us upon delivery of written notice to Third Security. Third Security may terminate the agreement upon 30 days prior written notice.

The independent members of our Board, with the recommendation of the Audit Committee, have approved subsequent extensions of the Services Agreement through January 1, 2019.

For the year ended December 31, 2017, we issued 500,650 shares, with a value of \$8.7 million, to Third Security as payment for services provided pursuant to the Services Agreement.

### ***Reimbursement of Expenses***

We reimburse Third Security for certain administrative services and out-of-pocket expenses incurred by them on our behalf. The total amount of expenses reimbursed by us for the year ended December 31, 2017, was approximately \$409,000.

### ***Preferred Stock Equity Facility***

Effective October 2017, we entered into a Preferred Stock Equity Facility (“Preferred Stock Facility”) with Kapital Joe, LLC, an affiliate of Third Security (“Third Security Affiliate”). Under the Preferred Stock Facility, we may, from time to time at our sole and exclusive option, issue and sell to the Third Security Affiliate, up to \$100 million of newly issued Series A Redeemable Preferred Stock (“Series A Preferred Stock”). Any issued Series A Preferred Stock will be non-voting, will accrue dividends of 8 percent per annum and, subject to limited exceptions, will be senior to our common stock with respect to the rights to the payment of dividends and on parity with the common stock with respect to the distribution of assets in the event of our liquidation, dissolution or winding up or change of control. Any issued Series A Preferred Stock will be convertible into common stock only following receipt of shareholder approval by us, including a majority of the shares voted by those shareholders unaffiliated with Mr. Kirk (the “Shareholder Approval”), subject to any necessary regulatory approvals. Following receipt of the Shareholder Approval and receipt of any necessary regulatory approvals, any issued Series A Preferred Stock will be convertible into our common stock based on a conversion price using the 20-day volume-weighted average market price as of market closing on the fifth business day prior to the mailing of the proxy statement soliciting the Shareholder Approval, subject to adjustment for certain stock splits and similar events. We have agreed to take all reasonable steps necessary to seek Shareholder Approval on or before the date of its annual meeting of shareholders in 2019. Any issued Series A Preferred Stock will be redeemable at our election at any time, or at the election of the Third Security Affiliate after December 31, 2020. The Preferred Stock Facility will expire on the earliest to occur of: (i) the date on which the Third Security Affiliate has purchased shares of Series A Preferred Stock in the aggregate amount of \$100 million, (ii) April 30, 2019, (iii) the date of the Shareholder Approval, and (iv) the mutual agreement of the parties. To date, we have not utilized the Preferred Stock Facility.

### ***Private Placement of Common Stock***

On December 29, 2017, we entered into an agreement with the R.J. Kirk Declaration of Trust, an entity affiliated with Mr. Kirk, pursuant to which the R.J. Kirk Declaration of Trust purchased 1,207,980 shares of our common stock in a private placement, for aggregate gross proceeds of \$13.7 million. The price per share in the private placement was \$11.33 per share, which was the closing price of our common stock on the NYSE on December 28, 2017.

### ***Underwritten Public Offering***

In January 2018, we completed an underwritten public offering of 6.9 million shares of our common stock, including 1 million shares of common stock purchased by affiliates of Third Security. The net proceeds of the offering were \$82.2 million.

### ***Genopaver***

Effective March 2013, we entered into an exclusive channel collaboration (“ECC”) with Genopaver LLC (“Genopaver”), a limited liability company formed for the purpose of entering into the ECC and developing and

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commercializing products identified through the ECC. Genopaver is an affiliate of Third Security, LLC. Upon execution of the ECC, we received a technology access fee of \$3 million as upfront consideration. We are reimbursed for research and development services as provided for in the ECC. We are entitled to a royalty on the gross profits of product sales from a product developed from the ECC.

### ***Persea Bio***

Effective December 2014, we entered into an ECC with Persea Bio, LLC (“Persea Bio”), a limited liability company formed for the purpose of entering into the ECC and developing and commercializing products identified through the ECC. Persea Bio is an affiliate of Third Security, LLC. Upon effectiveness of the ECC, we received a technology access fee of \$5 million as upfront consideration. We are reimbursed for research and development services as provided for in the ECC. We are entitled to a royalty on the gross profits of product sales from a product developed from the ECC.

### **Harvest Intrexon Enterprise Fund I LP**

As a means to further the development of our business model, in June 2015, we entered into an agreement with Harvest Intrexon Enterprise Fund I LP (“Harvest”), an investment fund sponsored by Harvest Capital Strategies, LLC. Affiliates of Mr. Kirk have an approximate 20 percent ownership interest in Harvest. Harvest was established to invest in life science research and development start up opportunities that we offered to Harvest with exclusive rights of first-look and first negotiation. Based on this agreement, Harvest established six new collaboration entities, each of which entered into an ECC with us in a designated field. The terms of such ECCs were negotiated between us and Harvest. As consideration for providing exclusive rights of first-look and first negotiation for start-up opportunities, we received a portion of the management fee collected by the fund sponsor of Harvest. We collected approximately \$1.8 million of these fees in the year ended December 31, 2017. In September 2017, the commitment period for Harvest was terminated and, as a result, the agreement with Harvest terminated. The termination of the agreement had no effect on the existing collaborations with Harvest-controlled entities.

### **Transactions with ECC Parties, Joint Ventures and Majority-Owned Subsidiaries**

#### **ZIOPHARM**

Pursuant to an ECC, a securities purchase agreement and a registration rights agreement, each dated in January 2011, we granted to ZIOPHARM Oncology, Inc. (“ZIOPHARM”) a worldwide exclusive license to use certain specified patents and other intellectual property in the field of oncology as defined in the ECC. Pursuant to the securities purchase agreement, we agreed to purchase up to an additional \$50 million of common stock in conjunction with securities offerings that may be conducted by ZIOPHARM in the future, subject to certain conditions and limitations. Between February 2011 and February 2015, we purchased an aggregate of \$43.6 million of ZIOPHARM securities reducing our future obligation to purchase ZIOPHARM common stock to approximately \$6.4 million. The remaining \$6.4 million obligation was waived in conjunction with the ECC amendment discussed below. In conjunction with the original transactions in January 2011, Mr. Kirk joined the board of directors of ZIOPHARM.

In January 2015, we and ZIOPHARM entered into a license agreement with The University of Texas System Board of Regents on behalf of The University of Texas M.D. Anderson Cancer Center (“MD Anderson”). Pursuant to the license agreement, we hold an exclusive license to certain technologies owned and licensed by MD Anderson, including technologies relating to novel chimeric antigen receptor (CAR) T-cell therapies. The license agreement also includes co-licenses and non-exclusive licenses to certain other related technologies. Among the license rights, we received exclusive sublicensed rights, through MD Anderson, for intellectual property developed at the University of Minnesota for the development of cellular therapies to prevent, diagnose and/or treat cancers. We expect to employ the licensed technologies, together with our existing suite of proprietary technologies, through our existing exclusive collaboration agreement with ZIOPHARM to pursue the development and commercialization of non-viral adoptive cellular therapies based on designer cytokines and CARs under control of RheoSwitch technology targeting both hematologic and solid tumor malignancies. In addition to the licenses, the license agreement transferred to us and ZIOPHARM certain existing programs of MD Anderson, including ongoing clinical and preclinical programs. In connection with this transfer, ZIOPHARM committed to funding between \$15 million and \$20 million for ongoing research at MD Anderson for three years. We will have certain rights to technologies developed through such research, as provided in the agreement.

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In March 2015, we and ZIOPHARM entered into a Second Amendment, or the Amendment, to our first ECC discussed above. The Amendment modifies the scope of the parties' collaboration and provides that we will pay to ZIOPHARM fifty percent of all payments we receive for upfronts, milestones and royalties under a license and collaboration agreement with ARES Trading S.A., a company within the pharmaceutical business of Merck KGaA, Darmstadt, Germany. The Amendment also reduced our aggregate commitment, described above, to purchase ZIOPHARM common stock from \$50.0 million to \$43.5 million, which commitment has been satisfied in full. In June 2015, we distributed 17,830,305 shares of ZIOPHARM common stock to our shareholders as a special stock dividend, representing all of the equity interests of ZIOPHARM held by us. Affiliates of Mr. Kirk received 8,223,632 shares of ZIOPHARM common stock as a result of this special stock dividend. As of March 31, 2018, Mr. Kirk, together with his affiliates (excluding us), beneficially owned 9,734,607 shares, or 6.8 percent of ZIOPHARM's common stock.

In September 2015, we entered into our second ECC with ZIOPHARM through which we granted to ZIOPHARM an exclusive license to use our proprietary technologies and other intellectual property to develop and commercialize novel biotherapeutics for the treatment of patients with graft-versus-host-disease, or GvHD. We received a technology access fee of \$10 million. In December 2017, we and ZIOPHARM mutually agreed to terminate this second ECC.

In June 2016, we amended each of our two existing ECCs with ZIOPHARM and as a result the rate of the royalty which we are entitled to receive on certain products commercialized pursuant to the ECCs was reduced from 50 percent to 20 percent. As consideration for execution of the ECC amendments, ZIOPHARM issued us 100,000 shares of ZIOPHARM's Series 1 Preferred Stock valued at \$120 million. As of March 31, 2018, we own 119,644 shares of ZIOPHARM's Series 1 Preferred Stock, including 19,644 shares received from monthly paid-in-kind dividends.

### ***Synthetic Biologics***

Pursuant to an ECC, a securities purchase agreement and a registration rights agreement, each dated in November 2011, we granted to Synthetic Biologics, Inc. ("Synthetic Biologics") a worldwide exclusive license to use certain specified patents and other intellectual property for the treatment of pulmonary arterial hypertension, or PAH. We terminated this ECC in April 2013. Pursuant to a second ECC, dated in August 2012, we granted to Synthetic Biologics a worldwide exclusive license to use certain specified patents and other intellectual property in connection with the research, development, use, importing, manufacture, sale and offer for sale of monoclonal antibody therapies for the treatment of eight specific target infectious disease indications. In conjunction with the collaboration, we are entitled to, at our election, purchase up to 19.99 percent of securities offerings that may be conducted by Synthetic Biologics in the future, subject to certain conditions and limitations. To date we have purchased 2,000,000 shares of Synthetic Biologics common stock with no purchases occurring from January 1, 2017 through March 31, 2018. We have also been granted the right to make purchases of Synthetic Biologics' common stock in the open market up to an additional 10 percent of Synthetic Biologics' common stock. We have made no open market purchases of Synthetic Biologics' common stock.

In August 2015, we entered into our third ECC with Synthetic Biologics through which we granted to Synthetic Biologics an exclusive license to use our proprietary technologies and other intellectual property to develop and commercialize novel biotherapeutics for the treatment of patients with phenylketonuria, or PKU. In consideration for this license, we received 937,500 shares of Synthetic Biologics' common stock with a value, at the time, of \$3 million.

Prior to 2015, pursuant to stock purchase agreements, an affiliate of Mr. Kirk, NRM VII Holdings, I, LLC, purchased shares of Synthetic Biologics' common stock. As of March 31, 2018, Mr. Kirk, together with his affiliates (excluding us), beneficially owned 3,625,000 shares, or 2.8 percent of Synthetic Biologics' outstanding common stock.

### ***Oragenics***

Pursuant to an ECC and a stock issuance agreement, each dated in June 2012, we granted to Oragenics, Inc. ("Oragenics") an exclusive license to use our proprietary technologies and other intellectual property to develop and commercialize lantibiotics for the treatment of infectious diseases in humans and companion animals. In conjunction with our first ECC with Oragenics, we are entitled to, at our election, purchase up to 30 percent of securities offerings that may be conducted by Oragenics in the future, subject to certain conditions and

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limitations. To date, we have purchased 110,000 shares of Oragenics' common stock, with no purchases occurring from January 1, 2017 through March 31, 2018. In November 2017, we amended this first ECC agreement with Oragenics, and as a result, we are entitled to up to \$35 million of potential one-time payments for certain regulatory milestones. We also receive reimbursement for services provided under the agreement and a percentage of profits derived from the sale of products developed from the ECC.

In September 2013, we entered into a second ECC with Oragenics through which we granted to Oragenics an exclusive license to use our proprietary technologies and other intellectual property to develop and commercialize probiotics for the treatment of diseases of the oral cavity, throat, sinus and esophagus, including, but not limited to, aphthous stomatitis and Behcet's disease. In September 2015, we and Oragenics mutually agreed to terminate this second ECC.

In June 2015, we entered into our third ECC with Oragenics through which we granted to Oragenics an exclusive license to use our proprietary technologies and other intellectual property to pursue development of biotherapeutics for use in certain treatments of oral mucositis and other diseases and conditions of the oral cavity, throat, and esophagus. In consideration for this license, we received a \$5 million convertible promissory note. In December 2015, Oragenics converted this promissory note into 338,100 shares of Oragenics' common stock. In conjunction with this ECC, we agreed to purchase additional shares of Oragenics' common stock in a qualified financing, as defined in the agreement, during the sixteen months following the effective date of this ECC in an amount up to the lesser of (i) the amount that is the proportion of such financing equal to our pro rata equity holdings in Oragenics as of the effective date and (ii) \$10 million subject to certain conditions. In June 2016, we purchased 226,142 shares of common stock pursuant to this commitment. In November 2017, we amended our third ECC agreement with Oragenics, and as a result, we are entitled to an additional \$5.5 million of potential payments for development and commercial milestones for each Oragenics product developed from the third ECC agreement.

Prior to 2015, pursuant to stock purchase agreements, an affiliate of Mr. Kirk, NRM VII Holdings, I, LLC, purchased shares of Oragenics' common stock. As of March 31, 2018, Mr. Kirk, together with his affiliates (excluding us), beneficially owned 100,056 shares, or 2.0 percent, of Oragenics' outstanding common stock.

In November 2017, concurrent with Oragenics closing a preferred stock private placement, we exchanged a promissory note, including accrued interest, purchased from Oragenics in May 2017 and receivables due from Oragenics totaling \$3.4 million for Oragenics Series C preferred stock ("Series C Preferred Stock"). The Series C Preferred Stock is non-voting and non-convertible and is redeemable in whole or part at any time by Oragenics in cash. The Series C Preferred Stock accrues an annual 12 percent dividend payable in additional Series C Preferred Stock through May 10, 2019, and after such date, the annual dividend increases to 20 percent. Additionally, and as discussed above, concurrent with the closing of the private placement, we and Oragenics amended certain future payment terms under the ECC agreements. As of December 31, 2017, based on the most recent financial information available on Oragenics, we concluded that there was no value to our investment in Oragenics preferred stock.

The share amounts above reflect a 1-for-10 reverse stock split of Oragenics' common stock effective January 19, 2018.

### ***Fibrocell Science***

Pursuant to an ECC, a stock issuance agreement and a registration rights agreement, each dated in October 2012, we granted to Fibrocell Science, Inc. ("Fibrocell") an exclusive license to use our proprietary technologies and other intellectual property to research, develop, use, import, export, make, have made, sell and offer for sale certain products in the United States in the field of the development of autologous, gene-modified fibroblasts for therapeutic purposes. Upon execution of the ECC, we received a technology access fee of 439,173 shares of Fibrocell's common stock valued at \$7.6 million as upfront consideration. We receive reimbursement payments for (1) research and development services provided pursuant to the agreement and (2) manufacturing services for our materials provided to Fibrocell during the agreement. On a quarterly basis, Fibrocell will pay us royalties of 7 percent of net sales up to \$25 million and 14 percent of net sales above \$25 million on each product developed from the ECC, as defined in the agreement. If Fibrocell uses our technology platform to improve the production of a current or new Fibrocell product not developed from the ECC, Fibrocell will pay us quarterly royalties equal to 33percent of the cost of goods sold savings generated by the improvement, as defined in the agreement.

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Effective June 2013, we entered into an amendment to our ECC with Fibrocell. The amendment expands the ECC to include potential treatments based on engineered autologous fibroblast cells for the localized treatment of autoimmune and inflammatory disorders including morphea (localized scleroderma), cutaneous eosinophilias and moderate to severe psoriasis. Effective January 2014, we entered into a second amendment to our ECC with Fibrocell. The amendment expanded the ECC to include potential treatments for Ehlers-Danlos syndrome hypermobility type (EDS-HT), a rare genetic disorder resulting in weakened connective tissue. In September 2015, we and Fibrocell mutually agreed to terminate the second amendment to the ECC.

In July 2015, we and certain affiliates of Mr. Kirk acquired an aggregate amount of 325,329 shares of Fibrocell common stock at a price of \$17.40 per share.

In December 2015, we entered into our second ECC with Fibrocell through which we granted to Fibrocell an exclusive license to use our proprietary technologies and other intellectual property to develop and commercialize genetically-modified fibroblasts to treat chronic inflammatory and degenerative diseases of the joint, including arthritis and related conditions. We received a technology access fee of \$10 million.

In September 2016, we and certain affiliates of Mr. Kirk invested the aggregate amount of \$6,762,500 in convertible debt securities. Such securities are convertible into common shares of Fibrocell at \$3.40875 per share. Additionally, in conjunction with the purchase of the convertible debt of Fibrocell, we and certain affiliates of Mr. Kirk received warrants to purchase 2,254,168 shares of Fibrocell common stock. Without first giving Fibrocell a notice of at least 61 days, the convertible debt securities and the warrants to purchase common stock may not be converted or exercised, as the case may be.

In March 2017, we and certain affiliates of Mr. Kirk acquired an aggregate amount of 3,016 shares of Series A convertible preferred stock of Fibrocell for an aggregate amount of \$3,016,000. Such preferred stock is convertible into common shares of Fibrocell at a price of \$2.3271 per share. Additionally, in conjunction with the purchase of the preferred stock of Fibrocell, we and certain affiliates of Mr. Kirk received warrants to purchase 1,295,875 shares of Fibrocell common stock. Without first giving Fibrocell a notice of at least 61 days, the Series A convertible preferred stock and the warrants to purchase common stock may not be converted or exercised, as the case may be.

An affiliate of Mr. Kirk, Third Security, has held two seats on Fibrocell's board of directors since October 2012. Pursuant to securities purchase agreements and through open market purchases, affiliates of Mr. Kirk have acquired shares of Fibrocell common stock, including the shares acquired in July 2015. As of March 31, 2018, Mr. Kirk, together with his affiliates (excluding us), beneficially owned 8,861,091 shares, or 28.5 percent, of Fibrocell's outstanding common stock.

The share amounts above reflect a 1-for-3 reverse stock split of Fibrocell's common stock effective March 10, 2017.

### **Soligenix**

Pursuant to an ECC and a stock issuance agreement, each dated in April 2013, we granted to Soligenix, Inc. ("Soligenix") an exclusive license to use our proprietary technologies and all other intellectual property to develop and commercialize human monoclonal antibody therapies for the treatment of melioidosis. In September 2015, we and Soligenix mutually agreed to terminate the ECC.

Prior to 2015, pursuant to a stock purchase agreement, an affiliate of Mr. Kirk, NRM VII Holdings I, LLC, purchased 333,334 shares of Soligenix's common stock. Additionally, in conjunction with the purchase of common stock of Soligenix, NRM VII Holdings I, LLC received warrants to purchase 250,000 shares of Soligenix's common stock.

In May 2017, NRM VII Holdings I, LLC exercised on a cashless basis its warrant to acquire Soligenix common stock resulting in the net purchase of 200,125 shares. In May 2017 and June 2017, we and NRM VII Holdings I, LLC sold all of the shares of common stock of Soligenix owned by each entity. As of March 31, 2018, Mr. Kirk, together with his affiliates (excluding us), does not hold any interests in Soligenix.

The share amounts above reflect a 1-for-10 reverse stock split of Soligenix's common stock effective October 7, 2016.

### ***S & I Ophthalmic***

In September 2013, we entered into an ECC with S & I Ophthalmic, LLC (“S & I Ophthalmic”), a joint venture between us and Sun Pharmaceutical Industries, Inc., an indirect subsidiary of Sun Pharmaceutical Industries Ltd., an international specialty pharmaceutical company focused on chronic diseases. In December 2017, the S & I Ophthalmic board of managers agreed to dissolve the joint venture and terminate the ECC with us. Upon the dissolution in 2018, we received \$2.6 million, which represents our portion of S & I Ophthalmic’s remaining cash after all liabilities were settled.

### ***OvaScience***

In December 2013, we entered into an ECC with OvaScience, Inc. (“OvaScience”), a life sciences company focused on the discovery, development and commercialization of new treatments for infertility. The ECC was formed to use our synthetic biology technology platform to develop methodologies to accelerate the development of OvaScience’s OvaTure™ technology platform, a next-generation approach to in vitro fertilization. Prior to 2015, pursuant to a securities purchase agreement, an affiliate of Mr. Kirk, NRM VII Holdings I, LLC, purchased shares of OvaScience’s common stock. As of March 31, 2018, Mr. Kirk, together with his affiliates (excluding us), beneficially owned 100,000 shares of OvaScience common stock, or .3 percent, of OvaScience.

Additionally, we and OvaScience formed OvaXon, LLC (“OvaXon”), a joint venture to create new applications for improving human and animal health. Both we and OvaScience made an initial capital contribution of \$1.5 million in January 2014 for a 50 percent membership interest in OvaXon. OvaXon is governed by the OvaXon board of managers (the “OvaXon Board”), which has four members, two each from us and OvaScience. In cases in which the OvaXon Board determines that additional capital contributions are necessary in order for OvaXon to conduct business and comply with its obligations, each of us and OvaScience have the right, but not the obligation, to make additional capital contributions to OvaXon subject to the terms of the agreement. Through March 31, 2018, both we and OvaScience have made additional capital contributions of \$4.4 million. OvaScience also licensed certain technology relating to egg precursor cells to OvaXon pursuant to a separate license agreement.

In February 2018, OvaScience provided their notice of termination of the ECC between them and us, which became effective by mutual agreement on March 31, 2018. We and OvaScience are in discussions regarding future plans with respect to OvaXon.

### ***Intrexon Energy Partners***

In March 2014, we and certain investors (the “IEP Investors”), including an affiliate of Mr. Kirk, NRM VII Holdings I, LLC, entered into a Limited Liability Company Agreement which governs the affairs and conduct of business of Intrexon Energy Partners, LLC (“Intrexon Energy Partners”), a joint venture formed to optimize and scale-up our gas-to-liquid bioconversion platform for the production of certain fuels and lubricants. We also entered into an ECC with Intrexon Energy Partners providing exclusive rights to our technology for the use in bioconversion, as a result of which we received a technology access fee of \$25 million while retaining a 50 percent membership interest in Intrexon Energy Partners. The IEP Investors made initial capital contributions, totaling \$25 million in the aggregate, in exchange for pro rata membership interests in Intrexon Energy Partners totaling 50 percent. We committed to make capital contributions of up to \$25 million, and the IEP Investors, as a group and pro rata in accordance with their respective membership interests in Intrexon Energy Partners, have committed to make additional capital contributions of up to \$25 million, at the request of the Intrexon Energy Partners Board, and subject to certain limitations. Intrexon Energy Partners is governed by the Intrexon Energy Partners Board, which has five members. Two members of the Intrexon Energy Partners Board are designated by us and three members of the Intrexon Energy Partners Board are designated by a majority of the IEP Investors. We and the IEP Investors have the right, but not the obligation, to make additional capital contributions above these limits when and if solicited by the Intrexon Energy Partners Board.

Any investor who purchased at least \$10.0 million of our common stock in the private placement related to Intrexon Energy Partners will have the right to require us to register such shares of our common stock on a registration statement on Form S-3, if available for use.

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In December 2017, we purchased certain property and equipment comprising the pilot plant production facility for its energy programs for \$2.8 million from Intrexon Energy Partners. We intend to use the pilot plant to support the collaborations with Intrexon Energy Partners and Intrexon Energy Partners II and our own research programs.

### ***Histogenics***

In September 2014, we entered into an ECC with Histogenics Corporation (“Histogenics”) and received a \$10 million convertible promissory note as upfront consideration. The note originally matured in September 2015 and accrued interest at 6.0 percent per annum. Upon the closing of Histogenics’ IPO on December 7, 2014, the note, as well as accrued interest, was converted to Histogenics common stock. Additionally, we purchased 1,772,364 shares of Histogenics common stock at \$11.00 per share in the Histogenics IPO. As of March 31, 2018, we own approximately 9.4 percent of Histogenics’ common stock.

### ***AquaBounty***

In June 2015, we purchased 424,268 shares of AquaBounty Technologies, Inc., (“AquaBounty”) common stock with an agreed value, at the time, of \$3 million increasing our ownership to approximately 63 percent. In February 2016, we and AquaBounty entered into a promissory note whereby AquaBounty could draw up to \$10 million. The note bore interest at 10 percent and had a maturity date of March 2017 and the outstanding principal and interest amounts could be converted into AquaBounty common stock at our election. AquaBounty borrowed \$10 million from us under this promissory note at various times in 2016. In December 2016, the principal balance of the outstanding promissory note and related accrued interest of approximately \$10.4 million was converted into 1,212,910 shares of AquaBounty common stock. In January 2017, we invested \$25 million in AquaBounty through an equity purchase and subsequently, we distributed 1,776,557 of our AquaBounty shares to our shareholders. Affiliates of Mr. Kirk received 930,530 shares of AquaBounty common stock as a result of the special stock dividend. As of March 31, 2018, Mr. Kirk, together with his affiliates (excluding us), beneficially owned 837,554 shares, or 6.6 percent of AquaBounty’s common stock.

In January 2018, AquaBounty raised \$12.0 million through an underwritten public offering, in which we participated by investing \$5 million. As a result of this transaction our ownership decreased, and as of March 31, 2018, we own 5,162,277 shares, or approximately 53 percent, of AquaBounty’s outstanding common stock.

### ***Thrive Agrobiotics, Inc.***

In September 2015, we entered into an ECC with Thrive Agrobiotics Inc. (“Thrive Agrobiotics”), an affiliate of Harvest. Thrive Agrobiotics was formed for the purpose of entering into the ECC and developing and commercializing products to improve the overall growth and feed efficiency of piglets. Upon execution of the ECC, we received a technology access fee in the form of equity in Thrive Agrobiotics valued, at the time, at approximately \$1.667 million. We are reimbursed for research and development services provided pursuant to the ECC. We may also receive additional payments if certain development and commercialization milestones are achieved and will receive royalty payments based on a percentage of quarterly gross profits of product sales developed under the ECC. As of March 31, 2018, we own 25 percent of Thrive Agrobiotics’ common stock.

### ***Intrexon Energy Partners II***

In December 2015, we and certain investors (the “IEP II Investors”), including Harvest, entered into a Limited Liability Company Agreement which governs the affairs and conduct of business of Intrexon Energy Partners II, LLC (“Intrexon Energy Partners II”), a joint venture formed to utilize our natural gas bioconversion platform for the production of 1,4-butanediol, an industrial chemical intermediate used to manufacture spandex, polyurethane, plastics, and polyester. We also entered into an ECC with Intrexon Energy Partners II providing exclusive rights to our technology for the use in the field, as a result of which we received a technology access fee of \$18 million while retaining a 50 percent membership interest in Intrexon Energy Partners II. The IEP II Investors made initial capital contributions, totaling \$18 million in the aggregate, in exchange for pro rata membership interests in Intrexon Energy Partners II totaling 50 percent. In December 2015, the owners of Intrexon Energy Partners II made a capital contribution of \$4 million, half of which was paid by us. We committed to make capital contributions of up to \$10 million, and the IEP II Investors, as a group and pro rata in accordance with their respective membership interests in Intrexon Energy Partners, have committed to make



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additional capital contributions of up to \$10 million, at the request of the Intrexon Energy Partners II board of managers, or the Intrexon Energy Partners II Board, and subject to certain limitations. Intrexon Energy Partners II is governed by the Intrexon Energy Partners II Board, which has five members. One member of the Intrexon Energy Partners II Board is designated by us and four members of the Intrexon Energy Partners II Board are designated by a majority of the IEP II Investors. We and the IEP Investors II have the right, but not the obligation, to make additional capital contributions above these limits when and if solicited by the Intrexon Energy Partners II Board.

### ***Exotech Bio, Inc.***

In March 2016, we entered into an ECC with Exotech Bio, Inc. (“Exotech Bio”), an affiliate of Harvest. Exotech Bio was formed for the purpose of entering into the ECC and developing and commercializing products using exosomes carrying a RNA payload designed to kill, suppress, or render immune-visible a cancer cell. Upon execution of the ECC, we received a technology access fee in the form of equity in Exotech Bio valued, at the time, at \$5 million. We will be reimbursed for research and development services provided pursuant to the ECC. We may also receive additional payments if certain development and commercialization milestones are achieved and will receive royalty payments based on a percentage of net sales of products developed under the ECC. As of March 31, 2018, we own 25 percent of Exotech Bio’s common stock.

### ***Relieve Genetics, Inc.***

In March 2016, we entered into an ECC with Relieve Genetics, Inc. (“Relieve Genetics”), an affiliate of Harvest. Relieve Genetics was formed for the purpose of entering into the ECC and developing and commercializing products using a viral vector expressing interleukin-10 for the treatment of chronic neuropathic pain resultant from cancer in humans. Upon execution of the ECC, we received a technology access fee in the form of equity in Relieve Genetics valued, at the time, at approximately \$4.333 million. We will be reimbursed for research and development services provided pursuant to the ECC. We may also receive additional payments if certain development and commercialization milestones are achieved and will receive royalty payments based on a percentage of net sales of products developed under the ECC. As of March 31, 2018, we own 25 percent of Relieve Genetics’ common stock.

### ***Intrexon T1D Partners, LLC***

In March 2016, we and certain investors (the “T1D Investors”), including affiliates of Mr. Kirk, entered into a Limited Liability Company Agreement which governs the affairs and conduct of business of Intrexon T1D Partners, LLC (“Intrexon T1D”), a joint venture formed to utilize our proprietary actobiotics platform to develop and commercialize products to treat Type 1 Diabetes. We also entered into an ECC with Intrexon T1D Partners providing exclusive rights to our technology, as a result of which we received a technology access fee of \$10 million while retaining a 50 percent membership interest in Intrexon T1D Partners. The T1D Investors made initial capital contributions, totaling \$10 million in the aggregate, in exchange for pro rata membership interests in Intrexon T1D Partners totaling 50 percent. We committed to make capital contributions of up to \$5 million, and the T1D Investors, as a group and pro rata in accordance with their respective membership interests in Intrexon T1D Partners, have committed to make additional capital contributions of up to \$5 million, at the request of the Intrexon T1D Partners board of managers, or the Intrexon T1D Partners Board, and subject to certain limitations. Intrexon T1D Partners is governed by the Intrexon T1D Partners Board, which has five members. Two members of the Intrexon T1D Partners Board are designated by us and three members of the Intrexon T1D Partners Board are designated by a majority of the T1D Investors. We and the T1D Investors have the right, but not the obligation, to make additional capital contributions above these limits when and if solicited by the Intrexon T1D Partners Board.

### ***AD Skincare, Inc.***

In June 2016, we entered into an ECC with AD Skincare, Inc. (“AD Skincare”), an affiliate of Harvest and a related party. AD Skincare was formed for the purpose of entering into the ECC and developing an advanced topical delivery system to improve the efficacy of biologically active ingredients aimed at improving signs of aging human skin. Upon execution of the ECC, we received a technology access fee in the form of equity in AD Skincare valued at \$4.3 million as upfront consideration. We are also entitled to up to \$2 million of potential payments for substantive and non-substantive development milestones for each product developed under the

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ECC, as well as up to \$17 million in one-time commercial milestones. We receive reimbursement payments for research and development services provided pursuant to the ECC. AD Skincare will pay us royalties as a percentage in the low double-digits on the quarterly net sales of products developed under the ECC, as defined in the agreement. AD Skincare is responsible for the development and commercialization of the product candidates. The term of the ECC commenced in June 2016 and continues until terminated pursuant to the ECC agreement. The ECC may be terminated by either party in the event of certain material breaches defined in the agreement and may be terminated voluntarily by AD Skincare upon 90 days written notice to us. As of March 31, 2018, we own 25 percent of AD Skincare's common stock.

### ***CRS Bio, Inc.***

In September 2016, we entered into an ECC with CRS Bio, Inc. ("CRS Bio"), an affiliate of Harvest and a related party. CRS Bio was formed for the purpose of entering into the ECC and developing and commercializing products through targeted delivery of antibodies for treatment of chronic rhinosinusitis with and without nasal polyps, by utilizing our technology to block inflammatory mediators in the nasal passage, leading to improved breathing and, importantly, patients' quality of life. Upon execution of the ECC, we received a technology access fee in the form of equity in CRS Bio valued at \$2.1 million. We are entitled to receive additional equity interests in CRS Bio upon the first instance of the achievement of a certain non-substantive development milestone. We are also entitled to up to \$75 million of potential payments for substantive and non-substantive development and commercial milestones for each product developed under the ECC. We receive reimbursement payments for research and development services provided pursuant to the ECC. CRS Bio will pay us royalties as a percentage in the lower double-digits on the quarterly net sales of products developed under the ECC, as defined in the agreement. CRS Bio is responsible for the development and commercialization of the product candidates. The term of the ECC commenced in September 2016 and continues until terminated pursuant to the ECC agreement. The ECC may be terminated by either party in the event of certain material breaches defined in the agreement and may be terminated voluntarily by CRS Bio upon 90 days written notice to us. As of March 31, 2018, we own 25 percent of CRS Bio's common stock.

### ***Genten Therapeutics, Inc.***

In September 2016, we entered into an ECC with Genten Therapeutics, Inc. ("Genten Therapeutics"), an affiliate of Harvest and a related party. Genten Therapeutics was formed for the purpose of entering into the ECC and developing and commercializing products using our technology for expression of gluten peptides, alone or in combination with immunomodulatory cytokines, to reestablish immune tolerance for patients with celiac disease. Upon execution of the ECC, we received a technology access fee in the form of a \$1.5 million cash payment and equity in Genten Therapeutics valued at \$3 million as upfront consideration. We are entitled to receive additional equity interests in Genten Therapeutics upon the first instance of the achievement of a certain non-substantive development milestone. We are also entitled to up to \$82 million of potential payments for substantive and non-substantive development and commercial milestones for each product developed under the ECC. We receive reimbursement payments for research and development services provided pursuant to the ECC. Genten Therapeutics will pay us royalties as a percentage in the lower double-digits on the quarterly net sales of products developed under the ECC, as defined in the agreement. Genten Therapeutics is responsible for the development and commercialization of the product candidates. The term of the ECC commenced in September 2016 and continues until terminated pursuant to the ECC agreement. The ECC may be terminated by either party in the event of certain material breaches defined in the agreement and may be terminated voluntarily by Genten Therapeutics upon 90 days written notice to us. As of March 31, 2018, we own 25 percent of Genten Therapeutics' common stock.

### **Indemnification of officers and directors**

Our Amended and Restated Articles of Incorporation provide that we will indemnify our directors and officers with respect to certain liabilities, expenses and other accounts imposed upon them because of having been a director or officer, except in the case of willful misconduct or a knowing violation of criminal law.

### **Policies and procedures for related person transactions**

Our Board has adopted a written related policy with respect to related person transactions. This policy governs the review, approval or ratification of covered related person transactions. The Audit Committee of our Board manages this policy.

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For purposes of this policy, a “related person transaction” is a transaction, arrangement or relationship (or any series of similar transactions, arrangements or relationships) in which we (or any of our subsidiaries) were, are or will be a participant, and the amount involved exceeds \$120,000 and in which any related person had, has or will have a direct or indirect interest. For purposes of determining whether a transaction is a related person transaction, the Audit Committee relies upon Item 404 of Regulation S-K, promulgated under the Exchange Act.

A “related person” is defined as:

- any person who is, or at any time since the beginning of our last fiscal year was, one of our directors or executive officers or a nominee to become one of our directors;
- any person who is known to be the beneficial owner of more than five percent of any class of our voting securities;
- any immediate family member of any of the foregoing persons, which means any child, stepchild, parent, stepparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law or sister-in-law of the director, executive officer, nominee or more than five percent beneficial owner, and any person (other than a tenant or employee) sharing the household of such director, executive officer, nominee or more than five percent beneficial owner; and
- any firm, corporation, or other entity in which any of the foregoing persons is employed or is a general partner or principal or in a similar position or in which such person has a ten percent or greater beneficial ownership interest.

The policy generally provides that we may enter into a related person transaction only if:

- the Audit Committee pre-approves such transaction in accordance with the guidelines set forth in the policy,
- the transaction is on terms comparable to those that could be obtained in arm’s length dealings with an unrelated third party and the Audit Committee (or the chairperson of the Audit Committee) approves or ratifies such transaction in accordance with the guidelines set forth in the policy,
- the transaction is approved by the disinterested members of the Board, or
- the transaction involves compensation approved by the Compensation Committee of the Board.

In the event a related person transaction is not pre-approved by the Audit Committee and our management determines to recommend such related person transaction to the Audit Committee, such transaction must be reviewed by the Audit Committee. After review, the Audit Committee will approve or disapprove such transaction. When our Chief Legal Officer, in consultation with our Chief Executive Officer or our Chief Financial Officer, determines that it is not practicable or desirable for us to wait until the next Audit Committee meeting, the chairperson of the Audit Committee possesses delegated authority to act on behalf of the Audit Committee. The Audit Committee (or the chairperson of the Audit Committee) may approve only those related person transactions that are in, or not inconsistent with, our best interests and the best interests of our shareholders, as the Audit Committee (or the chairperson of the Audit Committee) determines in good faith.

The Audit Committee has determined that certain types of related person transactions are deemed to be pre-approved by the Audit Committee. Our related person transaction policy provides that the following transactions, even if the amount exceeds \$120,000 in the aggregate, are considered to be pre-approved by the Audit Committee:

- any employment of certain named executive officers that would be publicly disclosed;
- director compensation that would be publicly disclosed;
- transactions with other companies where the related person’s only relationship is as a director or owner of less than ten percent of said company (other than a general partnership), if the aggregate amount involved does not exceed the greater of \$200,000 or five percent of that company’s consolidated gross revenues;
- transactions where all shareholders receive proportional benefits;
- transactions involving competitive bids;

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- transactions with a related person involving the rendering of services at rates or charges fixed in conformity with law or governmental authority; and
- transactions with a related person involving services as a bank depository of funds, transfer agent, registrar, trustee under a trust indenture or similar services.

In addition, the Audit Committee will review the policy at least annually and recommend amendments to the policy to the Board from time to time.

The policy provides that all related person transactions will be disclosed to the Audit Committee, and all material related person transactions will be disclosed to the Board. Additionally, all related person transactions requiring public disclosure will be properly disclosed, as applicable, on our various public filings.

The Audit Committee will review all relevant information available to it about the related person transaction. The policy provides that the Audit Committee may approve or ratify the related person transaction only if the Audit Committee determines that, under all of the circumstances, the transaction is in, or is not inconsistent with, our best interests. The policy provides that the Audit Committee may, in its sole discretion, impose such conditions as it deems appropriate on us or the related person in connection with approval of the related person transaction.

**CERTAIN MATTERS RELATING TO PROXY MATERIALS AND ANNUAL REPORTS**

**Electronic Access of Proxy Materials and Annual Reports**

Our Proxy Statement, including the accompanying notice and form of proxy, and 2017 Annual Report are available at <https://www.proxyvote.com>. **A free paper copy of any of these documents may be requested by contacting the Corporate Secretary in writing at Intrexon Corporation, 20374 Seneca Meadows Parkway, Germantown, Maryland 20876.**

**“Householding” of Proxy Materials and Annual Reports for Record Owners**

The SEC rules permit us, with your permission, to deliver a single proxy statement and annual report to any household at which two or more shareholders of record reside at the same address. Each shareholder will continue to receive a separate proxy card. This procedure, known as “householding,” reduces the volume of duplicate information you receive and reduces our expenses. Shareholders of record voting by mail can choose this option by marking the appropriate box on the proxy card included with this Proxy Statement. Shareholders of record voting via telephone or over the Internet can choose this option by following the instructions provided by telephone or over the Internet, as applicable. Once given, a shareholder’s consent will remain in effect until he or she revokes it by notifying our Corporate Secretary as described above. If you revoke your consent, we will begin sending you individual copies of future mailings of these documents within 30 days after we receive your revocation notice. Shareholders of record who elect to participate in householding may also request a separate copy of future proxy statements and annual reports by writing to Intrexon Corporation, 20374 Seneca Meadows Parkway, Germantown, Maryland 20876.

**Separate Copies for Beneficial Owners**

Institutions that hold shares in street name for two or more beneficial owners with the same address are permitted to deliver a single proxy statement and annual report to that address. Any such beneficial owner can request a separate copy of this Proxy Statement or the 2017 Annual Report by contacting our Corporate Secretary as described below. Beneficial owners with the same address who receive more than one Proxy Statement and 2017 Annual Report may request delivery of a single Proxy Statement and 2017 Annual Report by contacting the Corporate Secretary in writing at Intrexon Corporation, 20374 Seneca Meadows Parkway, Germantown, Maryland 20876.

**OTHER MATTERS**

The Board is not aware of any other matters to be presented for action at the Annual Meeting other than as set forth in this Proxy Statement. However, if other matters properly come before the Annual Meeting, or any adjournment or postponement thereof, the person or persons voting the proxies will vote them in accordance with their best judgment.

By Order of the Board of Directors

DONALD P. LEHR

*Chief Legal Officer and Corporate Secretary*

Germantown, Maryland  
April 27, 2018

**INTREXON CORPORATION**  
 20374 SENECA MEADOWS PARKWAY  
 GERMANTOWN, MD 20876

**VOTE BY INTERNET - www.proxyvote.com**

Use the Internet to transmit your voting instructions and for electronic delivery of information up until 11:59 P.M. Eastern Time the day before the meeting date. Have your proxy card in hand when you access the web site and follow the instructions to obtain your records and to create an electronic voting instruction form.

**ELECTRONIC DELIVERY OF FUTURE PROXY MATERIALS**

If you would like to reduce the costs incurred by our company in mailing proxy materials, you can consent to receiving all future proxy statements, proxy cards and annual reports electronically via e-mail or the Internet. To sign up for electronic delivery, please follow the instructions above to vote using the Internet and, when prompted, indicate that you agree to receive or access proxy materials electronically in future years.

**VOTE BY PHONE - 1-800-690-6903**

Use any touch-tone telephone to transmit your voting instructions up until 11:59 P.M. Eastern Time the day before the meeting date. Have your proxy card in hand when you call and then follow the instructions.

**VOTE BY MAIL**

Mark, sign and date your proxy card and return it in the postage-paid envelope we have provided or return it to Vote Processing, c/o Broadridge, 51 Mercedes Way, Edgewood, NY 11717.

TO VOTE, MARK BLOCKS BELOW IN BLUE OR BLACK INK AS FOLLOWS:

KEEP THIS PORTION FOR YOUR RECORDS  
 DETACH AND RETURN THIS PORTION ONLY

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

The Board of Directors recommends you vote FOR the following:

1. Election of Directors

Nominees	For	Against	Abstain
1A Randal J. Kirk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1B Cesar L. Alvarez	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1C Steven R. Frank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1D Vinita D. Gupta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1E Fred Hassan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1F Jeffrey B. Kindler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1G Dean J. Mitchell	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1H Robert B. Shapiro	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1I James S. Turley	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The Board of Directors recommends you vote FOR proposals 2, 3 and 4.

	For	Against	Abstain
2. To ratify the appointment by the Audit Committee of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2018.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. To approve a non-binding advisory resolution approving the compensation of the named executive officers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. To approve an Amendment to the Amended and Restated Intrexon Corporation 2013 Omnibus Incentive Plan, which provides for the issuance of an additional two million shares of Common Stock under the plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE: The undersigned hereby authorizes the Company's designated proxies to vote, in their discretion, on such other business as may properly come before the meeting or any adjournment thereof.

Please sign exactly as your name(s) appear(s) hereon. When signing as attorney, executor, administrator, or other fiduciary, please give full title as such. Joint owners should each sign personally. All holders must sign. If a corporation or partnership, please sign in full corporate or partnership name by authorized officer.

Signature [PLEASE SIGN WITHIN BOX]	Date

Signature (Joint Owners)	Date

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**Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting:**  
The Notice and Proxy Statement and Annual Report are available at [www.proxyvote.com](http://www.proxyvote.com)

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**INTREXON CORPORATION**  
**2018 Annual Meeting of Shareholders**  
**June 7, 2018 9:00 AM**  
**This proxy is solicited by the Board of Directors**

The undersigned hereby appoints Mr. Randal J. Kirk, Mr. Donald P. Lehr and Mr. Rick L. Sterling, or any of them, as proxies, each with the full power of substitution, and hereby authorizes them to represent and to vote, as designated on the reverse side of this ballot, all of the shares of Common Stock of INTREXON CORPORATION that the undersigned is entitled to vote at the Annual Meeting of Shareholders to be held at 9:00 AM, EDT on June 7, 2018, at the Esperante Conference Center, 222 Lakeview Avenue, West Palm Beach, FL, 33401, and any adjournment or postponement thereof.

**This proxy, when properly executed, will be voted in the manner directed herein. If no such direction is made, this proxy will be voted FOR all nominees named in the proxy, FOR Proposals 2, 3 and 4 and according to the discretion of the proxy holders on any other matters that may properly come before the meeting or any and all adjournments or postponements thereof.**

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**Continued and to be signed on reverse side**

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