

ORGANOVO HOLDINGS, INC.  
Form PRE 14A  
June 01, 2018

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

SCHEDULE 14A

Proxy Statement Pursuant to Section 14(a) of the

Securities Exchange Act of 1934

(Amendment No. )

Filed by the Registrant

Filed by a Party other than the Registrant

Check the appropriate box:

Preliminary Proxy Statement

Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))

Definitive Proxy Statement

Definitive Additional Materials

Soliciting Material under §240.14a-12

Organovo Holdings, Inc.

(Name of Registrant as Specified In Its Charter)

Not Applicable

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check the appropriate box):

No fee required.

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- (1) Amount Previously Paid:
  
  - (2) Form, Schedule or Registration Statement No.
  
  - (3) Filing Party:
  
  - (4) Date Filed:
-

Organovo Holdings, Inc.

6275 Nancy Ridge Dr., Suite 110

San Diego, CA 92121

June \_\_, 2018

Dear Stockholder:

You are cordially invited to attend this year's Annual Meeting of Stockholders of Organovo Holdings, Inc. on Thursday, July 26, 2018 at 9:00 a.m. (local time). The meeting will be held at Green Acre Campus Pointe, 10300 Campus Point Drive, San Diego, California 92121.

We are pleased to furnish proxy materials primarily over the internet based on the rules established by the Securities and Exchange Commission (the "SEC"). We believe this will allow us to quickly provide proxy materials to you, while lowering the costs of distribution and reducing the environmental impact of our Annual Meeting.

On June \_\_, 2018, we mailed a Notice of Internet Availability of Proxy Materials (the "Notice") to our stockholders (other than those who previously requested electronic or paper delivery) containing instructions on how to access our proxy materials, including our Proxy Statement and Annual Report to Stockholders for the fiscal year ended March 31, 2018, over the internet. The Notice also provides instructions on how to vote online or by telephone and includes instructions on how you can receive a paper copy of the proxy materials by mail. If you receive your proxy materials by mail, the Annual Report, the Notice of 2018 Annual Meeting of Stockholders, the Proxy Statement, and proxy card will be enclosed.

The matters to be acted upon are described in the Notice of 2018 Annual Meeting of Stockholders and Proxy Statement. Following the formal business of the meeting, we will report on our operations and respond to questions from stockholders.

Whether or not you plan to attend the meeting, your vote is very important and we encourage you to vote promptly. You may vote by proxy over the internet or by telephone, or, if you received paper copies of the proxy materials by mail, you can also vote by mail by following the instructions on your proxy card. If you attend the meeting you will have the right to revoke your proxy and vote your shares in person. If you hold your shares through an account with a brokerage firm, bank or other nominee, please follow the instructions you receive from your brokerage firm, bank or other nominee to vote your shares.

We look forward to seeing you at the Annual Meeting.

Sincerely yours,

Taylor Crouch

Chief Executive Officer and President

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ORGANOVO HOLDINGS, INC. NOTICE OF 2018 ANNUAL MEETING OF STOCKHOLDERS TO BE HELD ON JULY 26, 2018

To Our Stockholders:

The 2018 Annual Meeting of Stockholders (the “Annual Meeting”) of Organovo Holdings, Inc. (“Organovo” or the “Company”) will be held at Green Acre Campus Pointe, 10300 Campus Point Drive, San Diego, California 92121 on Thursday, July 26, 2018 at 9:00 a.m. (local time) for the following purposes:

1. To elect Kirk Malloy, Ph.D. as Class I director to hold office until the 2021 Annual Meeting of Stockholders and until his successor is elected and qualified;
2. To ratify the appointment of Mayer Hoffman McCann P.C. as our independent registered public accounting firm for the fiscal year ending March 31, 2019;
3. To approve an amendment to our Certificate of Incorporation to increase the authorized number of shares of common stock from 150,000,000 shares to 200,000,000 shares.
4. To approve an amendment and restatement to our 2012 Equity Incentive Plan which, among other changes described in our Proxy Statement, increases the number of shares of common stock issuable under the Plan.
5. To hold a non-binding advisory vote on the compensation of our named executive officers; and
6. To transact such other business as may properly be brought before the Annual Meeting or any adjournments or postponements thereof.

Our Board of Directors recommends a vote FOR the director nominee and FOR proposals 2 through 5 listed above. Stockholders of record at the close of business on May 29, 2018 are entitled to notice of, and to vote on, all matters at the meeting and any reconvened meeting following any adjournments or postponements thereof. For ten days prior to the Annual Meeting, a complete list of stockholders entitled to vote at the Annual Meeting will be available for examination by any stockholder, for any purpose relating to the Annual Meeting, during ordinary business hours at our corporate offices located at 6275 Nancy Ridge Dr., Suite 110, San Diego, California 92121.

All stockholders are invited to attend the Annual Meeting in person. Whether or not you expect to attend the Annual Meeting, you are urged to vote or submit your proxy as soon as possible so that your shares can be voted at the Annual Meeting in accordance with your instructions. Telephone and internet voting are available. For specific instructions on voting, please refer to the instructions in the Notice of Internet Availability of Proxy Materials or the proxy card. If you hold your shares through an account with a brokerage firm, bank or other nominee, please follow the instructions you receive from them to vote your shares.

Important Notice Regarding Availability of Proxy Materials for the Annual Meeting: Our Notice of 2018 Annual Meeting of Stockholders, Proxy Statement and Annual Report are available at [www.proxydocs.com/onvo](http://www.proxydocs.com/onvo).

By Order of the Board of Directors

Jennifer K. Bush

Senior Vice President, General Counsel, Corporate Secretary, and Compliance Officer

June \_\_, 2018



## 2018 Proxy Statement Summary

To assist you in reviewing the Proxy Statement for the Organovo Holdings, Inc. (“Organovo” or the “Company”) 2018 Annual Meeting of Stockholders (the “Annual Meeting”), we call your attention to the following summary information about the Annual Meeting, the proposals to be considered at the Annual Meeting and our corporate governance and compensation frameworks. For more complete information, please review our Proxy Statement and Annual Report for the fiscal year ended March 31, 2018. We encourage you to vote your shares at the Annual Meeting. If you are unable to attend the Annual Meeting in person, we encourage you to submit a proxy so that your shares will be represented and voted.

### Annual Meeting of Stockholders

Date and Time: July 26, 2018 at 9:00 a.m. (local time)

Place: Green Acre Campus Pointe  
10300 Campus Point Drive  
San Diego, California 92121

Record Date: May 29, 2018

Voting: If you were a “stockholder of record” or beneficial owner of shares held in “street name” as of the Record Date, you may vote your shares. You may vote in person at the Annual Meeting or by the internet, telephone or mail. See the “General Information – Voting Instructions” in the Proxy Statement for more detail regarding how you may vote your shares.

Admission: You are entitled to attend the Annual Meeting if: (i) you were an Organovo stockholder as of the Record Date (or you are attending as a named representative of a stockholder or you are an immediate family member attending as a guest of a stockholder); and (ii) you present proof of ownership of Organovo common stock as of the Record Date. In addition, all stockholders, immediate family member guests and representatives will be required to present government-issued photo identification (e.g., driver’s license or passport) to gain admission to the Annual Meeting. Please note that if your shares are held of record by a broker, bank, trustee, or nominee and you wish to vote at the Annual Meeting, you will not be permitted to vote in person unless you first obtain a proxy issued in your name from the broker, bank, trustee or nominee.

Please be advised that all purses, briefcases, bags, etc. may be subject to inspection. The use of mobile phones, pagers, recording or photographic equipment, tablets and/or computers is not permitted in the meeting room during the Annual Meeting.

## Proposals and Voting Recommendations

|   | Board Vote Recommendation | Page References<br>(for more detail) |
|---|---------------------------|--------------------------------------|
| <b>Proposals:</b>   |                           |                                      |
| (1) Election of one Class I director to hold office until the 2021 Annual Meeting of Stockholders and until his successor is elected and qualified.   | FOR                       |                                      |
|   | NOMINEE                   |                                      |
| (2) Ratification of appointment of Mayer Hoffman McCann P.C. as our independent registered public accounting firm for the fiscal year ending March 31, 2019.  | FOR                       |                                      |
| (3) Approval of amendment to our Certificate of Incorporation to increase the authorized number of shares of Common Stock from 150,000,000 to 200,000,000.  | FOR                       |                                      |
| (4) Approval of an amendment and restatement of our 2012 Equity Incentive Plan which, among other changes described in our Proxy Statement, increases the number of shares of common stock issuable under the Plan. | FOR                       |                                      |
| (5) Non-binding advisory vote on the compensation of our named executive officers.  | FOR                       |                                      |

## Corporate Governance Summary Facts

We seek to maintain high standards of business conduct and corporate governance, which we believe are fundamental to the overall success of our business, serving our stockholders well and maintaining our integrity in the marketplace. The following table summarizes some of the key elements of our corporate governance framework:

|  |          |
|--|----------|
| Size of Board  | 7        |
| Number of Independent Directors  | 6        |
| Chairman and CEO   | Separate |
| Independent Chairman   | Yes      |
| Board Self-Evaluation  | Annual   |
| Review Board and Board Committee Independence and Qualifications             | Annual   |
| Hold Executive Sessions  | Yes      |
| Annual Director Elections  | No       |
| All Directors Received At Least 80% Approval at 2017 Annual Meeting          | Yes      |
| Diverse Board (as to background, experience and skills)                      | Yes      |
| Board has Adopted Corporate Governance Guidelines                            | Yes      |
| Board has Not Amended Charters or Taken Actions to Reduce Stockholder Rights | True     |
| Director Meeting Attendance Above 75%  | Yes      |
| Stock Ownership Guidelines   | Yes      |
| No Family Relationships Among Officers and Directors                         | True     |
| All Committee Chairs and Members Qualify as Independent Directors            | Yes      |
| CEO Serves on Less Than Three Outside Boards                                 | True     |

## Summary of Compensation Best Practices

Our Board of Directors established a Compensation Committee comprised of four independent directors in accordance with the rules and regulations established by the Securities and Exchange Commission and the NASDAQ Stock Market. Our Board has delegated to the Compensation Committee the authority to establish the Company's executive compensation program and to approve all compensation received by the Company's executive officers and the other members of its management team. The Compensation Committee retained Marsh & McLennan Agency LLC ("Marsh") as its independent compensation consultant, to assist it in evaluating the Company's executive compensation program and selecting an appropriate peer group of comparable companies for purposes of setting executive compensation.

The Compensation Committee regularly reviews best practices in governance and executive compensation. The following is a high-level summary of certain executive compensation practices that the Compensation Committee believes drive Company performance and serve our stockholders' long-term interests:

|  |        |
|--|--------|
| Compensation Committee Comprised of At Least Three Independent Directors                       | Yes    |
| Independent Compensation Consultant Retained   | Yes    |
| Compensation Committee Members all qualify as "outside directors" and "non-employee directors" | True   |
| Compensation Based on Comparison to Peer Group Data  | Yes    |
| All Directors and Officers Subject to Stock Ownership Guidelines                               | Yes    |
| Compensation Committee Performs Compensation Risk Assessment                                   | Annual |
| Prohibitions Against all Directors, Officers and Employees Hedging or Pledging Stock           | Yes    |
| Incentive Plans Based on Performance Metrics   | Yes    |
| Company Does Not Offer Tax Gross Ups for Severance or Change of Control                        | Yes    |
| Reasonable and Double Trigger Accelerated Vesting Provisions Adopted                           | Yes    |
| No Multi-Year Guaranteed Bonuses   | Yes    |
| Stock Option Plan Prohibits Option Repricing and Share Recycling                               | Yes    |
| Company has Not Repriced Options in Last Three Years   | Yes    |
| No Executive Employment Agreements with Guaranteed Terms                                       | Yes    |
| Offer Limited Perquisites to Executives  | Yes    |
| Consider Feedback from Stockholder Outreach  | Yes    |
| Terms of Severance Plan Described to Stockholders  | Yes    |



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ORGANOVO HOLDINGS, INC.

6275 Nancy Ridge Dr., Suite 110,

San Diego, California 92121

PROXY STATEMENT FOR THE 2018 ANNUAL MEETING OF STOCKHOLDERS TO BE HELD JULY 26, 2018

This Proxy Statement, along with a proxy card, is being made available to our stockholders on or about June \_\_, 2018

## GENERAL INFORMATION

We have made these proxy materials available to you in connection with the solicitation by the Board of Directors (the “Board” or “Board of Directors”) of Organovo Holdings, Inc. of proxies to be voted at the 2018 Annual Meeting of Stockholders (the “Annual Meeting”) to be held on Thursday, July 26, 2018 at Green Acre Campus Pointe, 10300 Campus Point Drive, San Diego, California 92121 at 9:00 a.m. (local time) and at any adjournments or postponements thereof. References in this Proxy Statement to the “Company,” “we,” “our,” and “us” are to Organovo Holdings, Inc. and its subsidiaries.

In accordance with the rules of the Securities and Exchange Commission (the “SEC”), we are permitted to furnish proxy materials, including this Proxy Statement and our Annual Report for the fiscal year ended March 31, 2018 (the “Annual Report”) to stockholders by providing access to these documents through the internet instead of mailing printed copies. Most stockholders will not receive printed copies of the proxy materials unless requested. Instead, the Notice of Internet Availability of Proxy Materials provides instructions on how to access and review the proxy materials on the internet. The Notice of Internet Availability of Proxy Materials also provides instructions on how to cast your vote via the internet or by telephone. If you would like to receive a printed or email copy of our proxy materials, please follow the instructions for requesting the materials in the Notice of Internet Availability of Proxy Materials.

### Record Date

Holders of shares of our common stock, our only class of issued and outstanding voting securities, at the close of business on May 29, 2018 (the “Record Date”) are entitled to vote on the proposals presented at the Annual Meeting. As of May 29, 2018, we had 111,126,625 issued and outstanding shares of common stock.

### Quorum

The presence, in person or by proxy, of the holders of a majority of the outstanding shares of common stock entitled to vote at the Annual Meeting is necessary to constitute a quorum for the transaction of business at the Annual Meeting. Votes for and against, abstentions and “broker non-votes” will each be counted as present for purposes of determining the presence of a quorum.

The Annual Meeting may be adjourned or postponed from time to time and at any reconvened meeting, action with respect to the matters specified in this Proxy Statement may be taken without further notice to stockholders except as required by applicable law and our charter documents.

### Stockholders of Record

You are a “stockholder of record” if your shares are registered directly in your name with our transfer agent, Continental Stock Transfer and Trust Company. As a stockholder of record, you have the right to grant your voting proxy directly to the Company or to vote in person at the Annual Meeting. All share represented by a proxy will be voted at the

Annual Meeting, and where a stockholder specifies choice with respect to any matter to be acted upon, the shares will be voted in accordance with the specification so made. If a stockholder does not indicate a choice on the proxy card, the shares will be voted in favor of the election of the nominees for director contained in this Proxy Statement and in favor of proposals 2 through 5.

#### Shares Held in Street Name

You are deemed to beneficially own your shares in “street name” if your shares are held in an account at a brokerage firm, bank, broker-dealer, trust or other similar organization. If this is the case, you will receive a separate voting instruction form with this Proxy Statement from such organization. As the beneficial owner, you have the right to direct your broker, bank, trustee, or nominee how to vote your shares, and you are also invited to attend the Annual Meeting. If you hold your shares in street name and do not provide voting instructions to your broker, bank, trustee or nominee, your shares will not be voted on any proposals on which such party does not have discretionary authority to vote (a “broker non-vote”), as further described below under the heading “Broker Non-Votes.”

Please note that if your shares are held of record by a broker, bank, trustee or nominee and you wish to vote at the Annual Meeting, you will not be permitted to vote in person unless you first obtain a proxy issued in your name from the record holder.

## Broker Non-Votes

Broker non-votes are shares held by brokers, banks or other nominees who are present in person or represented by proxy, but which are not voted on a particular matter because the brokers, banks or nominees do not have discretionary authority with respect to that proposal and they have not received voting instructions from the beneficial owner. Under the rules that govern brokers, brokers have the discretion to vote on routine matters, but not on non-routine matters. The only routine matters to be considered at the Annual Meeting are (i) the approval of an amendment to our Certificate of Incorporation to increase the authorized number of shares of common stock and (ii) the ratification of the appointment of the Company's independent registered public accountants. The remaining proposals, including (i) the election of directors, (ii) the approval of an amendment and restatement of our 2012 Equity Incentive Plan and (iii) the no-binding advisory vote on the compensation of our named executive officers, to be considered at the Annual Meeting are considered to be non-routine matters. As a result, if you do not provide your brokers or nominees with voting instructions on these non-routine matters, your shares will not be voted on these proposals.

## Voting Matters

Stockholders are entitled to cast one vote per share of common stock on each matter presented for consideration by the stockholders. A list of stockholders entitled to vote at the Annual Meeting will be available for examination by any stockholder for a proper purpose during normal business hours at the executive offices of the Company for a period of at least 10 days preceding the day of the Annual Meeting.

There are five proposals scheduled to be voted on at the Annual Meeting:

1. To elect Kirk Malloy, Ph.D. as a Class I director to hold office until the 2021 Annual Meeting of Stockholders and until his respective successor is elected and qualified;
2. To ratify the appointment of Mayer Hoffman McCann P.C. as our independent registered public accounting firm for the fiscal year ending March 31, 2019;
3. To approve an amendment to the Company's Certificate of Incorporation to increase the authorized number of shares of Common Stock from 150,000,000 shares to 200,000,000 shares;
4. To approve an amendment and restatement of our 2012 Equity Incentive Plan which, among other changes described in our Proxy Statement, increases the number of shares of Common Stock issuable under the Plan; and
5. To hold a non-binding advisory vote on the compensation of our named executive officers.

Our Board of Directors recommends a vote FOR the director nominee and FOR proposals 2 through 5 listed above.

We are currently unaware of any matters to be raised at the Annual Meeting other than those referred to in this Proxy Statement. If other matters are properly presented at the Annual Meeting for consideration and you have submitted your proxy, the persons named in your proxy will have the discretion to vote on those matters for you.

## Votes Required

### Proposal 1 – Election of Directors

Under our Certificate of Incorporation and Bylaws, the Class I director will be elected by a plurality of the votes cast in person or by proxy at the 2018 Annual Meeting assuming a quorum is present, which means that the director nominee receiving the highest number of "FOR" votes will be elected. If you hold your shares through a broker and you do not instruct the broker on how to vote on this proposal, your broker will not have authority to vote your shares. Abstentions and broker non-votes will each be counted as present for purposes of determining the presence of a quorum, but will not have any effect on the outcome of the proposal.

### Proposal 2 – Ratification of Independent Registered Public Accounting Firm

If a quorum is present, the affirmative vote of a majority of the votes cast at the 2018 Annual Meeting is required for ratification of our independent registered public accounting firm. Abstentions will each be counted as present for purposes of determining the presence of a quorum, but will not be considered as votes cast for or against the proposal and will therefore have no effect on the outcome of the vote.

Proposal 3 – Approval of Amendment to our Certificate of Incorporation to Increase the Authorized Number of Shares of Common Stock

The affirmative vote of the holders of a majority of the shares of Common Stock outstanding on the record date will be required to approve this amendment to the Company’s Certificate of Incorporation. Abstentions will be counted as present for purposes of determining the presence of a quorum, but will have the same effect as an “against” vote on the proposal.

#### Proposal 4 – Approval of Amendment and Restatement of 2012 Equity Incentive Plan

If a quorum is present, approval of the Amended Plan requires the affirmative vote of a majority of the votes cast at the 2018 Annual Meeting. Abstentions and broker non-votes will each be counted as present for purposes of determining the presence of a quorum. Abstentions and broker non-votes will not be considered as votes cast for or against the proposal and will therefore have no effect on the outcome of the vote.

#### Proposal 5 – Advisory Vote to Approve Compensation of Named Executive Officers

If a quorum is present, the proposal to approve, on an advisory basis, the compensation of the Company's named executive officers requires the affirmative vote of a majority of the votes cast at the 2018 Annual Meeting. Abstentions and broker non-votes will each be counted as present for purposes of determining the presence of a quorum. Abstentions and broker non-votes will not be considered as votes cast for or against the proposal and will therefore have no effect on the outcome of the vote.

#### Voting Instructions

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

**By Internet:** by following the internet voting instructions included on Notice of Internet Availability of Proxy Materials and the proxy card at any time up until 11:59 p.m., Eastern Time, on July 25, 2018.

**By Telephone:** by following the telephone voting instructions included on Notice of Internet Availability of Proxy Materials and the proxy card at any time up until 11:59 p.m., Eastern Time, on July 25, 2018.

**By Mail:** you may vote by mail by marking, dating and signing your proxy card in accordance with the instructions on it and returning it by mail in the pre-addressed reply envelope provided with the proxy materials. The proxy card must be received prior to the Annual Meeting.

You may also vote your shares in person at the Annual Meeting. Even if you plan to attend the Annual Meeting, we encourage you to vote in advance by internet, telephone or mail so that your vote will be counted in the event you later decide not to attend the Annual Meeting.

If your shares are held in street name, please follow the separate voting instructions you receive from your broker, bank, trustee or other nominee.

#### Proxies

All shares represented by a proxy will be voted, and where a stockholder specifies a choice with respect to any matter to be acted upon, the shares will be voted in accordance with the specification so made. If a stockholder does not indicate a choice on the proxy card, the shares will be voted: (i) in favor of the election of the director nominee contained in this Proxy Statement, (ii) in favor of ratifying Mayer Hoffman McCann, P.C. as the Company's independent registered public accounting firm for the fiscal year ended March 31, 2019, (iii) in favor of the amendment to the Company's Certificate of Incorporation to increase the authorized number of shares of Common Stock from 150,000,000 shares to 200,000,000 shares, (iv) in favor of the amendment to the 2012 Equity Incentive Plan and (v) in favor of the non-binding advisory vote on the compensation of our named executive officers, and in the discretion of the proxy holders on any other matter that comes before the meeting.

If your shares are held by a broker, bank or other stockholder of record, in nominee name or otherwise, exercising fiduciary powers (typically referred to as being held in "street name"), you may receive a separate voting instruction form with this Proxy Statement. Your broker may vote your shares on Proposal 2 to ratify the appointment of Mayer Hoffman McCann P.C. as our independent registered public accounting firm and on Proposal 3 to approve an amendment to the Company's Certificate of Incorporation to increase the authorized number of shares of common stock, but will not be permitted to vote your shares with respect to Proposal 1 the election of a Class I director,

Proposal 4 approve an amendment and restatement of our 2012 Equity Incentive Plan, nor Proposal 5 the non-binding advisory vote on the compensation of our named executive officers unless you provide instructions as to how to vote your shares. Please note that if your shares are held of record by a broker, bank or nominee and you wish to vote at the meeting, you will not be permitted to vote in person unless you first obtain a proxy issued in your name from the record holder.

#### Proxy Revocation Procedure

If you are a stockholder of record, you may revoke your proxy: (i) by written notice of revocation mailed to and received by the Secretary of the Company prior to the date of the Annual Meeting, (ii) voting again via the internet or by telephone at a later time before the closing of those voting facilities at 11:59 p.m. (Eastern) on July 25, 2018, (iii) by executing and delivering to the Secretary a proxy dated as of a later date than a previously executed and delivered proxy (provided, however, that such action must be taken prior to 11:59 p.m. (Eastern Time) on July 25, 2018), or (iv) by attending the Annual Meeting and voting in person. Attendance at the Annual Meeting will not in and of itself revoke a proxy.



If your shares are held by a bank, broker or other agent, you may change your vote by submitting new voting instructions to your bank, broker or other agent, or, if you have obtained a legal proxy from your bank, broker or other agent giving you the right to vote your shares, by attending the Annual Meeting and voting in person.

#### Voting Results

We will announce preliminary voting results at the Annual Meeting. We will report final results in a Form 8-K report filed with the Securities and Exchange Commission.

## PROPOSAL 1: ELECTION OF DIRECTORS

## General

Our certificate of incorporation and bylaws provide for a classified Board of Directors consisting of three classes of directors with staggered three-year terms. The Board of Directors currently consists of 7 directors, having terms expiring at the respective annual meetings of stockholders listed below:

| 2018 Annual Meeting | 2019 Annual Meeting | 2020 Annual Meeting |
|---------------------|---------------------|---------------------|
| Kirk Malloy, Ph.D.  | Taylor Crouch*      | Robert Baltera, Jr. |
|                     | Tamar Howson        | James Glover        |
|                     | Mark Kessel*        | Richard Maroun      |

\*Under our Corporate Governance Guidelines, a person elected by the directors then in office to fill a vacancy or newly created directorship shall hold office until the next election of the class for which such director shall have been chosen and until his or her successor shall have been duly elected and qualified. Mr. Kessel was appointed to the Board in August 2016 to fill the vacancy created when Richard Heyman, Ph.D. retired from the Board. Mr. Crouch was appointed to the Board in April 2017 to fill a newly created position.

## Proposal to Elect One Director to Hold Office for Three Years until the 2021 Annual Meeting

Upon the recommendation of the Nominating and Corporate Governance Committee of the Board, the Board has nominated for election at the Annual Meeting the following slate of one nominee to hold office for three years until the 2021 Annual Meeting of Stockholders and until his successor is duly elected and qualified:

| Director           |           | Experience/  | Current Committee                  | Independent                            |
|--------------------|-----------|--|------------------------------------|--|
| Name               | Age Since | Principal Occupation   | Qualifications                     | Membership                             |
| Kirk Malloy, Ph.D. | 51 2014   | Board Member, senior executive of multiple life sciences companies | Leadership<br>Industry<br>Strategy | Nominating & Governance Committee<br>? |
|                    |           |  |                                    | Yes                                    |

## Additional Information

For additional information about each nominee and each of the other directors serving on our Board, please see pages 18-21 in our Proxy Statement.

## Vote Required

Under our Certificate of Incorporation and Bylaws, the Class I director will be elected by a plurality of the votes cast in person or by proxy at the 2018 Annual Meeting assuming a quorum is present, which means that the director

nominee receiving the highest number of “FOR” votes will be elected. If you hold your shares through a broker and you do not instruct the broker on how to vote on this proposal, your broker will not have authority to vote your shares. Abstentions and broker non-votes will each be counted as present for purposes of determining the presence of a quorum, but will not have any effect on the outcome of the proposal.

The nominee is currently serving as a director and has indicated his willingness to serve if elected, but if he should be unable or unwilling to stand for election, the shares represented by proxies may be voted for a substitute as the Board of Directors may designate, unless a contrary instruction is indicated in the proxy.

Board Recommendation

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT THE STOCKHOLDERS VOTE FOR AND SOLICITS PROXIES IN FAVOR OF KIRK MALLOY, Ph.D.

Unless otherwise instructed, it is the intention of the persons named as proxy holders in the proxy card to vote shares represented by properly executed proxy cards for the election of Kirk Malloy, Ph.D.

## PROPOSAL 2: RATIFICATION OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

At the Annual Meeting, our stockholders will be asked to ratify the appointment of Mayer Hoffman McCann, P.C. (“Mayer Hoffman”) as our independent registered public accounting firm for the fiscal year ending March 31, 2019. Representatives of Mayer Hoffman are expected to be present at the Annual Meeting, and will have the opportunity to make statements if they desire to do so and to respond to appropriate questions. Mayer Hoffman has served as our independent registered public accounting firm since February 8, 2012, the date we completed our reverse merger transaction and became a public reporting company.

In the event our stockholders fail to ratify the appointment of Mayer Hoffman, the Audit Committee will reconsider its selection. In addition, even if our stockholders ratify the selection, the Audit Committee in its discretion may direct the appointment of a different independent registered public accounting firm at any time during the year if it believes that a change would be in the best interests of the Company and its stockholders.

## Audit and Non-Audit Fees

Our Audit Committee is responsible for, and has approved, the engagement of Mayer Hoffman as our independent registered public accounting firm for the fiscal year ending March 31, 2019. Mayer Hoffman has advised us that it leases substantially all of its personnel, who work under the control of Mayer Hoffman’s shareholders, from wholly-owned subsidiaries of CBIZ, Inc., including CBIZ MHM, LLC, in an alternative practice structure. Accordingly, substantially all of the hours expended on Mayer Hoffman’s engagement to audit the Company’s financial statements for the fiscal years ended March 31, 2018 and 2017, were attributed to work performed by persons other than Mayer Hoffman’s full-time, permanent employees.

The Audit Committee has and intends to continue to meet with Mayer Hoffman on a quarterly or more frequent basis. At such times, the Audit Committee has and will continue to review the services performed by Mayer Hoffman, as well as the fees charged for such services.

The following table sets forth the fees for services provided and billed by Mayer Hoffman and its affiliate CBIZ MHM, LLC, relating to the fiscal years ended March 31, 2018 and 2017.

|                    | Fiscal<br>Year   | Fiscal<br>Year   |
|--------------------|------------------|------------------|
|                    | 2018             | 2017             |
| Audit fees         | \$339,000        | \$290,600        |
| Audit-related fees | —                | —                |
| Tax Fees           | \$33,000         | \$31,600         |
| All other fees     | —                | —                |
| <b>Total</b>       | <b>\$372,000</b> | <b>\$322,200</b> |

**Audit Fees:** For the fiscal years ended March 31, 2018 and 2017, the aggregate audit fees billed by our independent auditors were for professional services rendered for audits and quarterly reviews of our consolidated financial statements, and assistance with reviews of registration statements and documents filed with the SEC.

**Audit-Related Fees:** For the fiscal years ended March 31, 2018 and 2017, there were no audit-related fees billed by our independent auditors, other than the fees described above.

Tax Fees: For the fiscal years ended March 31, 2018 and 2017, the tax-related fees billed by an affiliate of our independent auditors pertained to services related to tax return preparation and tax planning services.

All Other Fees: For the fiscal years ended March 31, 2018 and 2017, there were no fees billed by our independent auditors for other services, other than the fees described above.

#### Policy on Audit Committee Pre-Approval of Audit and Permitted Non-Audit Services of Independent Auditors

The Audit Committee has determined that all services provided by Mayer Hoffman to date are compatible with maintaining the independence of such audit firm. The charter of the Audit Committee requires advance approval of all auditing services and permitted non-audit services (including the fees and terms thereof) to be performed for the Company by our independent registered public accounting firm, subject to any exception permitted by law or regulation. The Audit Committee has delegated to the Chair of the Audit Committee authority to approve permitted services, provided that the Chair reports any decisions to the Audit Committee at its next scheduled meeting.

### Vote Required

If a quorum is present, the affirmative vote of a majority of the votes cast at the 2018 Annual Meeting is required for ratification of our independent registered public accounting firm. Abstentions will be counted as present for purposes of determining the presence of a quorum, but will not be considered as votes cast for or against the proposal and will therefore have no effect on the outcome of the vote.

Although ratification is not required by our bylaws or otherwise, the Board is submitting this proposal as a matter of good corporate governance. If stockholders do not ratify the appointment of Mayer Hoffman, the Audit Committee and the Board would consider what, if any, action to take. Even if the appointment is ratified, the Audit Committee, in its discretion, may direct the appointment of a different independent audit firm at any time during the fiscal year if it is determined that such a change would be in the best interests of Organovo and its stockholders.

### Board Recommendation

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT THE STOCKHOLDERS VOTE FOR THE RATIFICATION OF MAYER HOFFMAN MCCANN P.C. AS THE COMPANY'S INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING MARCH 31, 2019.

PROPOSAL 3: APPROVAL OF AMENDMENT TO OUR CERTIFICATE OF INCORPORATION TO INCREASE THE AUTHORIZED NUMBER OF SHARES OF COMMON STOCK

Our Board is requesting stockholder approval of an amendment to the Company's Certificate of Incorporation (the "Charter") to increase the Company's authorized number of shares of Common Stock from 150,000,000 shares to 200,000,000 shares (the "Charter Amendment").

If the stockholders approve the Charter Amendment, we will file a Certificate of Amendment to our Certificate of Incorporation to amend and replace the first two paragraphs of Article IV, in their entirety, to read as follows:

"The total number of shares of stock that the corporation shall have authority to issue is 200,000,000, consisting of the following: 200,000,000 shares of Common Stock, par value \$0.001 per share. Each share of Common Stock shall entitle the holder thereof to one (1) vote on each matter submitted to a vote at a meeting of stockholders."

Except for the first two paragraphs of Article IV, all of the remaining provisions in the Certificate of Incorporation will remain in full force and effect without change. This description is qualified by the full text of the Charter Amendment that is attached as Appendix A to this Proxy Statement.

The additional Common Stock to be authorized by adoption of the Charter Amendment would have rights identical to the currently outstanding Common Stock of the Company. Adoption of the proposed Charter Amendment would not affect the rights of the holders of currently outstanding Common Stock of the Company, except for effects incidental to increasing the number of shares of the Company's Common Stock outstanding, such as dilution of the earnings per share and voting rights of current holders of Common Stock. Though the increase in authorized Common Stock could make more difficult or discourage attempts to obtain control of the Company, thereby having an implicit anti-takeover effect, neither our management nor the Board views this as an anti-takeover mechanism. The increase in authorized shares of Common Stock is not being proposed in response to any known threat to acquire control of the Company.

#### Current Usage of Authorized Common Stock

In addition to the 111,126,625 shares of Common Stock outstanding on the record date of May 29, 2018, there were:

- 9,309,043 shares of Common Stock issuable upon the vesting and exercise of stock options outstanding;
- 8,271,101 shares of Common Stock issuable upon the vesting and settlement of outstanding restricted stock units;
- 1,985,787 shares of Common Stock available for issuance pursuant to the 2012 Equity Incentive Plan;
- 1,285,103 shares of Common Stock available for issuance pursuant to the 2016 Employee Stock Purchase Plan;
- 200,470 shares of Common Stock issuable upon the vesting and settlement of outstanding performance-based restricted stock units pursuant to an Inducement Award;
  - 2,088,212 shares of Common Stock issuable upon the vesting and exercise of stock options outstanding pursuant to an Inducement Award; and
- 20,000 shares of our Common Stock issuable upon the exercise of outstanding warrants.

Therefore, as of May 29, 2018, there were 129,486,341 shares of Common Stock outstanding or reserved out of the total 150,000,000 authorized shares of Common Stock under our existing Certificate of Incorporation.

Additionally, although we are authorized to issue 25,000,000 shares of preferred stock, there were no shares of preferred stock outstanding as of May 29, 2018.

#### Purpose of the Charter Amendment

We have financed our operations primarily through the sale of convertible notes, the private placement of equity securities, the sale of Common Stock through public offerings, and from revenue derived from products and research-based services, grants, and collaborative research agreements. We will need additional capital to further fund

the development of our therapeutic tissues and the implementation of our business plan. We intend to cover our future operating expenses through cash on hand, revenue derived from research service agreements, product sales, grants, and collaborative research agreements and through the issuance of additional equity or debt securities. Depending on market conditions, we cannot be sure that additional financing will be available when needed or that, if available, financing will be obtained on terms favorable to us or to our stockholders.

We have an effective shelf registration statement on Form S-3 (the “2018 Shelf”) that expires on February 22, 2021. As of March 31, 2018, the Company is authorized to offer and sell under the 2018 Shelf, in one or more offerings, Common Stock, Preferred Stock, warrants to purchase common stock, preferred stock, or any combination of the foregoing, either individually or as units comprised of



one or more of the other securities. On March 16, 2018, the Company filed a prospectus supplement to the 2018 Shelf to register the sale of up to \$50.0 million of shares of its common stock that may be issued in at-the-market offerings pursuant to an equity offering sales agreement it entered into with two investment banking firms as of the same date.

Over the past several years, we have utilized similar facilities to fund our operations. During the year ended March 31, 2018, we raised net proceeds of approximately \$9.2 million through the sale of 5,307,105 shares of our common stock in “at-the-market” offerings and approximately \$0.8 million through stock option exercises and sale of shares through the ESPP. During the year ended March 31, 2017, we raised net proceeds of approximately \$25.7 million from our public offering of 10,065,000 shares of our common stock in October 2016, approximately \$4.5 million through the sale of 997,181 shares of our common stock in “at-the-market” offerings and approximately \$1.1 million through warrant exercises, stock option exercises and the sale of shares through the ESPP.

If the Charter Amendment is approved, the newly authorized shares would be unreserved and available for issuance upon the approval of the Board at such times, in such amounts, and upon such terms as the Board may determine. Although our Board has no present plans or proposals to issue the additional shares of common stock that would be authorized by the Charter Amendment, it believes that the proposed increase in the number of authorized shares of common stock is desirable in order to enhance our flexibility in taking possible future actions, such as raising additional equity capital to support the Company’s business plan and operations, stock-based acquisitions, equity compensation awards or other corporate purposes.

The proposed amendment will allow the Company to accomplish these objectives without further stockholder approval, unless such approval is expressly required by applicable law or the NASDAQ Stock Market. By approving the increase now, in advance of any specific need or plans, we will be able to act in a timely manner when such a need arises or when our Board believes it is in the best interests of the Company and our stockholders to take action, without the delay and expense that would be required at that time to obtain stockholder approval of such an increase as a special meeting of stockholders.

If our stockholders do not approve the Charter Amendment, we may not be able to access the capital markets and raise the capital necessary to execute on our business plan; attract, retain and motivate our employees; or pursue other business opportunities integral to our growth and success.

#### Effectiveness of the Charter Amendment

Our Board has approved the Charter Amendment. If the Charter Amendment is approved at the 2018 Annual Meeting, the Company intends to promptly file the Certificate of Amendment with the Secretary of State of the State of Delaware. The Charter Amendment will become effective upon filing of the Certificate of Amendment with the Secretary of State of the State of Delaware.

#### Vote Required

The affirmative vote of the holders of a majority of the shares of common stock outstanding on the record date will be required to approve the Charter Amendment. Abstentions will be counted as present for the purposes of determining the presence of a quorum, but will have the same effect as an “against” vote on the proposal.

#### Board Recommendation

**THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS A VOTE IN FAVOR OF** approving an amendment to the Company’s Certificate of Incorporation to increase the authorized number of shares of Common Stock from 150,000,000 shares to 200,000,000 shares.



## PROPOSAL 4: AMENDMENT AND RESTATEMENT OF 2012 EQUITY INCENTIVE PLAN

Our Board and stockholders adopted the Organovo Holdings, Inc. 2012 Equity Incentive Plan (the “Plan”) in January 2012. The Plan was later amended with the approval of our Board and our stockholders in October 2012 to revise the performance criteria and existing award limitations on performance awards. The Plan was then amended with the approval of our Board and our stockholders in August 2013 to increase the number of shares of our common stock available for issuance under the Plan. The Plan was further amended in August 2015 to increase the number of shares of our common stock available for issuance under the Plan and to add a number of features designed to protect stockholders’ interests.

On May 24, 2018, our Board approved an amendment and restatement of the Plan (the “Amended Plan”), subject to stockholder approval, to increase the number of shares of our common stock available for issuance under the Plan by 11,000,000 shares and to extend the term of the Plan. Approval of the Amended Plan will allow us to continue providing the appropriate equity incentives that are critical to attracting and retaining the best personnel. We had 1,985,787 shares of common stock available for future awards under the existing Plan as of May 29, 2018.

If the Amended Plan is approved by our stockholders at the 2018 Annual Meeting, it will be effective as of July 26, 2018, the date of stockholder approval. In the event that our stockholders do not approve this Proposal 4, the Amended Plan will not become effective and the Plan will continue in effect subject to its existing terms.

### Key Features Designed to Protect Stockholders’ Interests

The Plan’s design reflects our commitment to strong corporate governance and our desire to preserve stockholder value as demonstrated by the following Plan features:

- **Independent Administrator.** The Compensation Committee of our Board, which is comprised solely of independent, non-employee directors, is the Plan administrator.
- **No Evergreen Feature.** The Plan expires by its terms on a specified date. In addition, the maximum number of shares available for issuance under the Plan is fixed and cannot be increased without stockholder approval. This is why we are requesting stockholder approval for the Amended Plan.
- **No Discount Awards; Maximum Term Specified.** Stock options and stock appreciation rights must have an exercise price or base price no less than the closing price of our common stock on the date the award is granted and a term no longer than ten years’ duration.
- **Per-Participant Limits on Awards.** The Plan limits the size of awards that may be granted during any one year to any one participant.
- **Award Design Flexibility.** Different kinds of awards may be granted under the Plan, giving us the flexibility to design our equity incentives to complement the other elements of compensation and to support our attainment of strategic goals.
- **Performance-Based Awards.** The Plan permits the grant of performance-based stock awards that are payable only upon the attainment of specified performance criteria. In the event the Company declares a dividend or dividend equivalent payment, participants who hold performance based awards subject to performance goals will not be eligible to receive any dividend or dividend equivalent unless the applicable performance goals are met and the underlying award vests.
- **No Liberal Definition of Change in Control.** The Plan’s definition of a change-in-control transaction provides that any award benefits triggered by such a transaction are contingent upon the actual consummation of the transaction, not merely its approval by our Board or stockholders.
- **Repricing, Reloading, and Exchanges Prohibited.** The Plan requires stockholder approval for any repricing, replacement, or buyout of underwater awards and no new awards will be granted automatically upon the exercise or settlement of any outstanding award. Outstanding awards may not be surrendered in exchange for awards of the same type (which may have had lower exercise prices or different terms), awards of a different type and/or cash.

Clawback. The Plan provides that all awards granted under the Amended Plan will be subject to any clawback or recoupment policy adopted by the Company, unless otherwise specified in the award agreement or determined by the Amended Plan administrator in its sole discretion.

Re-issuance of Shares. The Plan provides that any (i) shares withheld by the Company or tendered to the Company to pay taxes and/or the exercise price of an award under the Amended Plan and (ii) unvested shares of restricted stock, restricted stock units, performance shares or performance units that are repurchased by the Company will not become available for future grant under the Amended Plan.

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## Equity Incentive Plan Information

As of May 29, 2018, there were (i) 8,686,851 shares issuable upon exercise of outstanding stock options, (ii) 3,271,101 shares subject to outstanding restricted stock units and (iii) 1,985,787 shares of common stock available for future awards under the Plan. The closing price of a share of our common stock on May 29, 2018 was \$1.83 per share.

The Company's Compensation Committee has authorized and issued equity awards for an aggregate of 2,278,434 shares of common stock under the Plan during Fiscal 2018, including restricted stock units for an aggregate of 1,167,000 shares of common stock issued to the Company's executive officers as a component of their compensation for Fiscal 2018. During Fiscal 2019 through the date of this Proxy Statement, the Compensation Committee has authorized and issued equity awards for an aggregate of 3,337,406 shares of common stock under the Plan, including restricted stock units for an aggregate of 433,883 shares of common stock and stock options exercisable for 1,750,000 shares of common stock issued to the Company's executive officers as a component of their compensation for Fiscal 2019.

Under the utilization rate calculation methodology adopted by Institutional Shareholder Services ("ISS"), the number of shares available for future issuance following the approval of the Amended Plan when divided by the Company's three-year average number of shares issued under the Plan for fiscal years 2018, 2017, and 2016, provides an estimated duration of 4.58 years, which is less than ISS's recommended maximum of 5 years.

The following table provides detailed information regarding the activity related to the Plan for fiscal years 2018, 2017 and 2016:

|  | Fiscal Year | Fiscal Year | Fiscal Year |
|--|-------------|-------------|-------------|
|  | 2018        | 2017        | 2016        |
| Total number of shares of common stock subject to stock options granted                                    | 281,956     | 1,955,016   | 2,966,778   |
| Total number of shares of common stock subject to full value awards granted (i.e., restricted stock units) | 1,996,478   | 1,309,656   | —           |
| Weighted-average number of shares of common stock outstanding  | 107,243,974 | 97,763,032  | 90,057,356  |
| Burn Rate (1)  | 2.12        | % 3.34      | % 3.29 %    |

(1) Burn Rate is calculated as (shares subject to options granted + shares subject to other equity incentive awards granted)/weighted average common stock outstanding

Currently the shares available for issuance and number of awards outstanding as a percentage of the Company's fully diluted common stock as of May 29, 2018 is 10.94%. If the proposal is approved by our stockholders, the potential dilution to stockholders would increase by 8.49% to 19.43%.

## Rationale for Amendment

The Company grants equity awards to its eligible executive officers, directors and employees in the ordinary course of business. The Company performed an analysis based on its current hiring plans and determined that, if the proposed increase in the shares reserved under the Amended Plan is approved by stockholders at the 2018 Annual Meeting, it should have enough shares available for future grant under the Plan to last through 2020. The Company discussed the proposed increase in shares with its compensation consultant and received input on the appropriate number of shares to be added to the Amended Plan. If this proposal is not approved by our stockholders, the Company currently anticipates that all of the shares available for grants under the Plan will be exhausted by approximately September 1, 2018.

Our Compensation Committee has full discretion to determine the number of awards to be granted to participants under the Amended Plan, subject to an annual limitation on the total number of awards that may be granted to any one

person. No awards have been granted contingent upon stockholder approval of the Amended Plan.

#### Description of Material Terms of Amended Plan

The following is a summary of the principal features of the Plan, as proposed to be amended by the Amended Plan, but it is qualified in its entirety by reference to the full text of the Amended Plan, which appears as Appendix A to this Proxy Statement.

#### Background and Purpose of the Plan

We adopted the Plan to attract and retain the best available personnel for positions of substantial responsibility, to provide incentives to individuals who perform services for us, and to promote the success of our business.

## Shares Available Under the Plan

Currently, there are 1,985,787 shares of common stock reserved for issuance under the Plan. The Amended Plan would increase the number of shares available for issuance by 11,000,000 shares, for an aggregate of 12,985,787 shares of common stock. If an incentive award granted under the Plan expires, terminates, is unexercised or is forfeited, the shares subject to such award will become available for further awards under the Plan. Under the Plan, shares are surrendered to us in connection with an incentive award, and shares used to pay the tax or exercise price of an award will not become available for future grant or sale under the Plan. To the extent an award under the Plan is paid out in cash rather than shares, the cash payment will not result in reducing the number of shares available for issuance under the Plan. The maximum number of shares subject to awards that may be granted to any individual during any calendar year is 2,000,000 and the maximum aggregate amount of cash that may be paid in cash during any calendar year with respect to awards payable in cash is \$2,000,000.

The number and class of shares of our common stock subject to the Plan, the number and class of shares subject to any numerical limit in the Plan, and the number, price and class of shares subject to awards will be adjusted in the event of any change in our outstanding common stock by reason of any stock dividend, spin-off, split-up, stock split, reverse stock split, recapitalization, reclassification, merger, consolidation, liquidation, business combination or exchange of shares or similar transaction.

## Administration

The Compensation Committee of the Board currently administers the Plan (the “Administrator”). Subject to the terms of the Plan, the Compensation Committee has complete authority and discretion to determine the terms of awards under the Plan.

## Eligibility and Participation

Participation in the Plan is open to all of our employees and directors and any person (including an advisor) engaged by us to render services to the Company, as the Administrator may select from time to time. As of the date of this Proxy Statement, six (6) non-employee directors and approximately seventy-five (75) employees (including five (5) executive officers) and other persons rendering services to the Company or any of its affiliates are eligible to participate in the Plan.

## Grants

The Plan authorizes the grant to Plan participants of incentive stock options, non-statutory stock options, stock appreciation rights, restricted stock, restricted stock units, performance units, performance shares, and other stock or cash awards intended to comply with Section 162(m) of the Internal Revenue Code (as amended, the “Code”), as described below:

**Stock Options.** Stock options entitle the participant, upon exercise, to purchase a specified number of shares of common stock at a specified price for a specified period of time. The Administrator may grant incentive and/or non-statutory stock options under the Plan. The exercise price for each stock option shall be determined by the Administrator but shall not be less than 100% of the fair market value of the common stock on the date of grant. The “fair market value” means, if the stock is listed on any established stock exchange or national market system (e.g., the NASDAQ), the closing sales price of the stock, or, if the common stock is regularly quoted by a recognized securities dealer, but the selling prices are not reported, the mean between the high bid and low asked prices for the common stock on the day of determination, or in the absence of an established market for the stock, or if the stock is not regularly quoted or does not have sufficient trades or bid prices which would reflect the stock’s actual fair market value, the fair market value of the common stock will be determined in good faith by the Administrator upon the advice of a qualified valuation expert. As of May 29, 2018, the fair market value of a share of our common stock was

\$1.83 per share. Any stock options granted in the form of an incentive stock option will be intended to comply with the requirements of Section 422 of the Code. Only options granted to employees qualify for incentive stock option treatment. Each stock option shall expire at such time as the Administrator shall determine at the time of grant. No stock option shall be exercisable later than the tenth anniversary of its grant. A stock option may be exercised in whole or in installments. A stock option may not be exercisable for a fraction of a share. Shares of common stock purchased upon the exercise of a stock option must be paid for in full at the time of exercise in cash or such other consideration determined by the Administrator.

**Stock Appreciation Rights.** A stock appreciation right (“SAR”) is the right to receive a payment equal to the excess of the fair market value of a specified number of shares of common stock on the date the SAR is exercised over the exercise price of the SAR. The exercise price for each SAR shall not be less than 100% of the fair market value of the common stock on the date of grant, and the term of an SAR shall be no more than ten years from the date of grant. At the discretion of the Administrator, the payment upon an SAR exercise may be in cash, in shares equivalent thereof, or in some combination thereof.

Upon exercise of a SAR, the participant shall be entitled to receive payment from the Company in an amount determined by multiplying the excess of the fair market value of a share of common stock on the date of exercise over the exercise price of the SAR by the number of shares with respect to which the SAR is exercised.

**Restricted Stock and Restricted Stock Units.** Restricted stock and restricted stock units may be awarded or sold to participants under such terms and conditions as shall be established by the Administrator. Restricted stock and restricted stock units shall be subject to such



restrictions as the Administrator determines, including vesting requirements, a prohibition against sale, assignment, transfer, pledge or hypothecation, and a requirement that the participant forfeit such shares or units in the event of termination of employment. A restricted stock unit provides a participant the right to receive payment representing the value of a share of our common stock at a future date after the lapse of restrictions or achievement of performance criteria or other conditions determined by the Administrator. Participants are not required to pay any consideration to us at the time of grant of restricted stock or restricted stock units.

Performance Stock. The Administrator shall designate the participants to whom long-term performance stock/units are to be awarded and determine the number of shares, the length of the performance period and the other vesting terms and conditions of each such award. Each award of performance stock/units shall entitle the participant to a payment in the form of shares/units of common stock upon the attainment of performance criteria and other vesting terms and conditions specified by the Administrator. The Administrator may, in its discretion, make a cash payment equal to the fair market value of shares of common stock otherwise required to be issued to a participant pursuant to a performance stock award. All awards made under the Plan may be subject to vesting and other contingencies as determined by the Administrator and will be evidenced by agreements approved by the Administrator which set forth the terms and conditions of each award. If performance stock/units are intended to qualify as performance-based compensation under Section 162(m) of the Code, the award must specify a predetermined amount of cash or shares that may be earned by the covered employee to the extent that one or more of the following predetermined performance criteria are attained within a predetermined performance period: (i) earnings per share; (ii) operating cash flow; (iii) operating income; (iv) profit after-tax; (v) profit before-tax; (vi) return on assets; (vii) return on equity; (viii) return on sales; (ix) revenue; (x) total shareholder return; (xi) return on capital, including but not limited to return on invested capital against a weighted average cost of capital; (xii) return on net assets; (xiii) economic value added; (xiv) market share; (xv) customer service; (xvi) customer satisfaction; (xvii) safety; (xviii) total stockholder return; (xix) free cash flow; (xx) net operating income; (xxi) operating cash flow; (xxii) return on investment; (xxiii) employee satisfaction; (xxiv) employee retention; (xxv) balance of cash, cash equivalents and marketable securities; (xxvi) product development; (xxvii) research and development expenses; (xxviii) completion of an identified special project; (xxix) completion of a joint venture or other corporate transaction; (xxx) filing of patents; (xxxii) submission and/or publication of scientific works; (xxxiii) execution or expansion of strategic partnerships or relationships; or (xxxiiii) such other measures as determined by the Compensation Committee consistent with the terms of the Plan. Performance criteria may be expressed on an absolute basis or relative to a standard specified by the Compensation Committee.

#### New Plan Benefits and Previously Granted Awards

Awards that may be granted to eligible persons under the Plan are subject to the discretion of the Compensation Committee, so we cannot currently determine the benefits or amounts that will be received or allocated to our current named executive officers, executive officers as a group, directors who are not executive officers as a group, and employees, including all current officers who are not executive officers, as a group. Consequently, no New Plan Benefits Table is included in this Proxy Statement.

We granted equity awards under the Plan during our fiscal year ended March 31, 2018 to our named executive officers, non-employee directors, and other eligible employees. Grants made during our last fiscal year to our named executive officers are reflected in the “Grants of Plan-Based Awards” table in the “Executive Compensation” section of this Proxy Statement. Likewise, grants made to our non-employee directors are reflected in the “Director Compensation Table” in the “Director Compensation” section of this Proxy Statement. The number of shares subject to awards granted under the Plan during our fiscal year ended March 31, 2018 to all employees (who are not executive officers) and consultants as a group was 1,111,434 shares.

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Pursuant to SEC rules, the following table sets forth, for each of the individuals and various groups indicated, the number of equity awards granted under the 2012 Plan since its inception through May 29, 2018:

| Name and Principal Position   | Stock Awards | Option Awards | Warrants |
|---|--------------|---------------|----------|
| Taylor Crouch<br>Chairman, Chief Executive Officer, President   | 148,760      | 600,000       | —        |
| Craig Kussman<br>Chief Financial Officer  | 426,380      | 630,000       | —        |
| Sharon Presnell, Ph.D.<br>Chief Scientific Officer  | 324,380      | 960,000       | —        |
| Jennifer Kinsbruner Bush, JD<br>SVP, General Counsel, Corporate Secretary and Compliance Officer          | 345,248      | 658,333       | —        |
| Paul Gallant<br>General Manager   | 273,615      | 586,667       | —        |
| Keith Murphy<br>Former Chairman, Chief Executive Officer, President                                       | 608,000      | 1,831,454     | —        |
| Eric David, MD, JD<br>Former Chief Strategy Officer, Executive Vice President of Pre-Clinical Development | 240,000      | 1,070,000     | —        |
| All current executive officers (5 persons)  | 1,518,383    | 3,435,000     | —        |
| All current non-executive directors (6 persons)   | 128,651      | 937,000       | —        |
| All current employees (excluding current executive officers)  | 2,127,509    | 2,988,770     | —        |
| All non-employees (2 vendors)   | 215,000      | —             | 650,000  |

All other future grants under the Plan are within the discretion of the Board of Directors and the benefits of such grants are, therefore, not determinable.

#### Duration, Amendment, and Termination

Unless sooner terminated by the Board, the Amended Plan will terminate ten years after its adoption by the Company's stockholders at the 2018 Annual Meeting. The Board may amend, alter, suspend or terminate the Amended Plan at any time or from time to time without stockholder approval or ratification, unless necessary and desirable to comply with applicable law. However, before an amendment may be made that would adversely affect a participant who has already been granted an award; the participant's consent must be obtained.

#### Federal Income Tax Consequences

The following is a general summary of the federal income tax treatment of equity awards, which are authorized for grant under the Plan, based upon the provisions of the Code as of the date of this Proxy Statement. Non-U.S. residents should consult with their tax adviser regarding the specific tax consequences as a result of the grant of awards under the Plan in their country of origin. This summary is not intended to be exhaustive and the exact tax consequences to any award holder depend upon his or her particular circumstances and other facts. Plan participants should consult their tax advisor with respect to any state, local and non-U.S. tax considerations or relevant federal tax implications of options granted under the Plan.

Incentive Stock Options. An option holder recognizes no taxable income for regular income tax purposes as a result of the grant or exercise of an incentive stock option that qualifies under Section 422 of the Code. Option holders who neither dispose of their shares within two years of the date that the option was granted or within one year following the exercise of the option, normally recognize a capital gain or loss on the sale of the shares equal to the difference, if any, between the sale price and the purchase price of the shares. If an option holder satisfies these holding periods, on the sale of the shares, we are not entitled to any deduction for federal income tax purposes. Where an option holder disposes of shares within two years after the date of grant of those options or within one year after the date of exercise (a “disqualifying disposition”), the difference between the fair market value of the shares on the exercise date and the option exercise price (which is not to exceed the gain realized on the sale, if the disposition is a transaction with respect to which a loss, if sustained, would be recognized) is taxed as ordinary income at the time of disposition. Any gain in excess of that amount is a capital gain. If a loss is recognized, there is no ordinary income, and such loss is a capital loss. Any ordinary income recognized by the option holder on the disqualifying disposition of the shares generally results in a deduction by us for federal income tax purposes.

**Non-statutory Stock Options.** Options not designated or qualifying as incentive stock options are non-statutory stock options having no special tax status. An option holder generally recognizes no taxable income as a result of the grant of the option. On the exercise of a nonstatutory stock option, the option holder normally recognizes ordinary income in the amount of the difference between the option exercise price and the fair market value of the shares on the exercise date. Where the option holder is an employee, such ordinary income generally is subject to withholding of income and employment taxes. On the sale of shares acquired by the exercise of a non-statutory stock option, any gain or loss (based on the difference between the sale price and the fair market value on the exercise date), is taxed as a capital gain or loss. No tax deduction is available to us with respect to the grant of a non-statutory stock option or the sale of the stock acquired pursuant to such grant. We should generally be entitled to a deduction equal to the amount of ordinary income recognized by the option holder as a result of the exercise of a non-statutory stock option.

**Stock Appreciation Rights (“SAR”).** In general, no taxable income results upon the grant of a SAR. A participant will generally recognize ordinary income in the year of exercise equal to the value of the ordinary shares or other consideration received, in the case of employees subject to tax withholding.

**Restricted Stock.** A participant who receives an award of restricted stock does not generally recognize taxable income at the time of award. Instead, the participant recognizes ordinary income when the shares vest, subject to tax withholding in the case of employees. The amount of taxable income is equal to the fair market value of the ordinary shares on the vesting date(s) less the cash, if any, paid for the ordinary shares. A participant may make a one-time election to recognize income at the time the participant receives restricted shares in an amount equal to the fair market value of the restricted shares (less any cash paid) on the date of the award by making an election under Section 83(b) of the Code.

**Restricted Stock Units.** In general, no taxable income results upon the grant of a restricted stock unit. The recipient will generally recognize ordinary income (subject to tax withholding in the case of employees) equal to the fair market value of the shares and/or cash that are delivered to the recipient upon settlement of the restricted stock units.

**Deductibility of Compensation.** In general, we are entitled to an income tax deduction at the time and to the extent a participant recognizes ordinary income as a result of an award un the Plan. However, Section 162(m) of the Code may limit the deductibility of awards granted under the Plan. Section 162(m) of the Code places a limit of \$1,000,000 on the amount of compensation we may deduct in any one year with respect to our CEO and other covered employees. Prior to recent changes in tax law, there was an exception to the 162(m) deduction limit for performance-based compensation that was payable solely based on the attainment of one or more performance criteria and where certain statutory requirements are satisfied. This exception has been eliminated for taxable years beginning after December 31, 2017.

## EQUITY COMPENSATION PLAN INFORMATION

The table below shows, as of March 31, 2018, information for all equity compensation plans previously approved by stockholders and for all compensation plans not previously approved by stockholders.

| (A)  | (B)  | (C)  |
|--|--|--|
| Number of securities to be issued upon exercise/vesting of outstanding | Weighted average exercise price of outstanding | Number of securities available for future issuance under Equity Compensation Plans (excluding securities |

| Plan category   | options, warrants,<br>units and rights<br>(2) | options,<br>warrants,<br>units and<br>rights<br>\$ | reflected in<br>column (A)) (3) |
|---|---|--|---------------------------------|
| Equity compensation plans approved by security holders (1)        | 10,299,445                                    | 3.55   | 5,880,124                       |
| Equity compensation plans not approved by security holders<br>(4) | 2,288,682                                     | 2.49   | —                               |

(1) Includes the 2008 Equity Incentive Plan, the 2012 Equity Incentive Plan, and the 2016 Employee Stock Purchase Plan.

(2) Includes stock options and warrants to purchase 8,044,100 shares of common stock with a per share weighted-average exercise price of \$4.34. Also includes 2,035,345 restricted stock units with no exercise price.

(3) Includes 1,285,103 shares of common stock available for purchase under the ESPP as of March 31, 2018.

(4) Includes 2,088,212 stock options with a per share exercise price of \$2.73 and 200,470 performance-based restricted stock units with no exercise price, collectively, the “Inducement Award Agreements,” granted to the Chief Executive Officer upon commencement of his employment. While outside the Company’s 2012 Plan, the terms and conditions of this award are consistent with awards granted to the Company’s executive officers pursuant to the 2012 Plan.

Vote Required

If a quorum is present, approval of the Amended Plan requires the affirmative vote of a majority of the votes cast at the 2018 Annual Meeting. Abstentions and broker non-votes will each be counted as present for purposes of determining the presence of a quorum. Abstentions and broker non-votes will not be considered as votes cast for or against the proposal and will therefore have no effect on the outcome of the vote.

Board Recommendation

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT THE STOCKHOLDERS VOTE TO APPROVE THE AMENDMENT AND RESTATEMENT OF THE ORGANOVO HOLDINGS, INC. 2012 EQUITY INCENTIVE PLAN.

**PROPOSAL 5: ADVISORY VOTE TO APPROVE COMPENSATION OF NAMED EXECUTIVE OFFICERS**

The Board of Directors is providing stockholders with the opportunity to cast an advisory vote on the compensation of our named executive officers. This proposal, commonly known as a “Say-on-Pay” proposal, gives you, as a stockholder, the opportunity to endorse or not endorse our executive compensation program and the compensation paid to our named executive officers as reported in this Proxy Statement.

The Say-on-Pay vote is advisory, and therefore not binding on the Compensation Committee or the Board. Although the vote is non-binding, the Compensation Committee and the Board will review the voting results, seek to determine the cause or causes of any significant negative voting, and take them into consideration when making future decisions regarding executive compensation.

The Compensation Committee and the Board have designed our executive compensation program to attract and retain talented executives, to motivate them to achieve our key financial, operational, and strategic goals, and to reward them for superior performance. They also designed our compensation program to align our executive officers’ interests with those of our stockholders by rewarding their achievement of the specific corporate and individual goals approved by our Compensation Committee. The performance goals set by the Compensation Committee are focused on achieving our commercialization objectives, increasing long-term stockholder value, and advancing our product development and technology platform. Stockholders are encouraged to read the Compensation Discussion and Analysis and Executive Compensation sections of this Proxy Statement for a more detailed discussion of how our compensation program reflects the Company’s core objectives and aligns our executive officers’ interests with those of our stockholders.

**Vote Required**

The Board believes the Company’s executive compensation program uses appropriate structures and sound pay practices that are effective in achieving our core compensation objectives. Accordingly, the Board recommends that you vote in favor of the following resolution:

“RESOLVED, that the stockholders of Organovo Holdings, Inc. approve, on an advisory basis, the compensation of the Company’s named executive officers as disclosed in the Company’s 2018 Proxy Statement pursuant to the Securities and Exchange Commission’s compensation disclosure rules, including the Compensation Discussion and Analysis and Executive Compensation sections.”

If a quorum is present, the proposal to approve, on an advisory basis, the compensation of the Company’s named executive officers requires the affirmative vote of a majority of the votes cast at the 2018 Annual Meeting. Abstentions and broker non-votes will each be counted as present for purposes of determining the presence of a quorum. Abstentions and broker non-votes will not be considered as votes cast for or against the proposal and will therefore have no effect on the outcome of the vote.

**Board Recommendation**

**THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT THE STOCKHOLDERS VOTE FOR THE APPROVAL, ON AN ADVISORY BASIS, OF THE COMPENSATION OF OUR NAMED EXECUTIVE OFFICERS.**

## BOARD OF DIRECTORS INFORMATION

Presently, our Board of Directors is comprised of seven directors. Our Board is divided into three classes, with one class standing for election each year for a three-year term. There is one Class I director, three Class II directors, and three Class III directors. Our Class I director, whose term will expire at our 2018 Annual Meeting, is our Chairman, Kirk Malloy, Ph.D. Our Class II directors, whose terms will expire at our 2019 Annual Meeting, are Tamar Howson, Mark Kessel, and Taylor Crouch, our Chief Executive Officer and President. Our Class III directors, whose terms will expire at our 2020 Annual Meeting, are Robert Baltera, Jr., James Glover, and Richard Maroun.

The Board, based on the recommendation of the Nominating and Corporate Governance Committee, has nominated Kirk Malloy, Ph.D. for election at the Annual Meeting as a Class I director, for a three-year term expiring at the 2021 Annual Meeting of Stockholders. Directors are elected by a plurality of the votes cast at the Annual Meeting, which means that the director nominee receiving the highest number of “FOR” votes will be elected as the Class I director. Dr. Malloy has indicated his willingness to serve if elected, but if he should be unable or unwilling to stand for election, the shares represented by proxies may be voted for a substitute as the Board may designate, unless a contrary instruction is indicated in the Proxy.

In addition to the information set forth below regarding our directors and our director candidates and the skills that led our Board to conclude that these individuals should serve as directors, we also believe that all of our directors and director nominees have a reputation for integrity, honesty and adherence to the highest ethical standards. We believe they each have demonstrated business acumen and an ability to exercise sound judgment, as well as a commitment of service to our Company and to their Board duties.

## Information About Our Directors

The following sets forth information regarding the business experience of our director nominee and our current directors with terms that continue after the 2018 Annual Meeting:

| Name                   | Age | Position  |
|------------------------|-----|---|
| Robert Baltera, Jr.    | 53  | Director  |
| Taylor Crouch          | 58  | Director, Chief Executive Officer and President |
| James Glover           | 68  | Director  |
| Tamar Howson           | 69  | Director  |
| Mark Kessel            | 77  | Director  |
| Kirk Malloy, Ph.D. (1) | 51  | Independent Chairman and Director Nominee       |
| Richard Maroun         | 63  | Director  |

(1)Dr. Malloy was appointed Chairman after Mr. Keith Murphy’s resignation from the Board in August 2017.

## Nominee for Class I Director Continuing in Office until the 2021 Annual Meeting of Stockholders

Kirk Malloy, Ph.D., Lead Independent Director, joined our board in December 2014, and has served as our Lead Independent Director since August 2016. Dr. Malloy has held management and executive leadership positions in rapidly growing life science and diagnostic companies for more than 20 years. Dr. Malloy is currently the Chief Executive Officer and President of Verogen, Inc., a sequencing company solely dedicated to forensic science. He also currently serves as an independent consultant for life science companies and serves as an independent director for public and private companies, including NanoString Technologies, Inc. and iGenomX. Dr. Malloy previously served as the Senior Vice President and General Manager of the Life Sciences and Applied Markets Business of Illumina, Inc., a position he held from January 2014 to April 2016. At that time, the Life Sciences and Applied Markets



Business was Illumina's largest business unit, with annual revenues greater than \$1 billion. Dr. Malloy joined Illumina in 2002, and served in a number of executive leadership positions, including Vice President, Global Customer Solutions from 2007 to 2013, Vice President, Global Quality from 2005 to 2007 and Senior Director, Global Customer Solutions from 2002 to 2005. Prior to joining Illumina, Dr. Malloy held leadership positions at Biosite, Inc. and commercial management positions at Qiagen, Inc. Before joining the industry, Dr. Malloy spent several years as an academic scientist teaching and conducting research. Dr. Malloy received his B.S. degrees in Biology and Marine Science from the University of Miami, College of Arts & Sciences and his M.S. and Ph.D. degrees in Marine Biology/Biochemistry from the University of Delaware, College of Earth, Ocean and Environment and held post-doctoral positions at Boston University and Northeastern University. He completed a certification for Corporate Directors at UCLA's Anderson School in 2012. Dr. Malloy has 12 peer-reviewed publications and book chapters, dozens of invited and contributed scientific presentations and has been a reviewer for various scientific journals.

Dr. Malloy's managerial and leadership experience, including his many years of experience in managing and supervising the commercialization of biotechnology products, permit him to contribute valuable strategic management insight, and qualify him to be a member of our Board of Directors.

Class II Directors Continuing in Office Until the 2019 Annual Meeting of Stockholders

Taylor Crouch, Director, Chief Executive Officer, and President, joined the Company as Chief Executive Officer and President and was appointed to the Board in April 2017. Mr. Crouch has over 25 years of experience building and leading technology, expertise and product-based companies in the life sciences and biotech industries. For more than seven years, he managed and served as an operational investor in a group of leading clinical research site companies. Specifically, Mr. Crouch served as Chief Executive Officer at eStudySite from January 2009 to June 2016; as Executive Chairman of Meridien Research from December 2013 to September 2016; and as a Director of the National Research Institute from September 2011 through July 2016. Prior to this, Mr. Crouch served as senior vice president of operations/president international at Ligand Pharmaceuticals, Inc., a publicly traded company, from 2005 to 2007, with responsibilities for new business development, technical operations, international sales and clinical research. Prior to Ligand, he was president and chief operating officer of Discovery Partners International, a publicly traded drug discovery services and technology provider. Earlier in his career, he was Chief Executive Officer of Variagenics, Inc., a publicly traded pharmacogenomics company, Senior Vice President of Marketing and Sales at Parexel International (a global CRO), and he also held international management positions in new product development and commercialization at Pfizer and Schering Plough.

Mr. Crouch's previous service as a chief executive officer or as a senior executive officer for other leading life science and biotech companies, especially his experience and leadership in growing their commercial operations and sales, as well as his new role as our Chief Executive Officer and President, qualify him to be a member of our Board of Directors.

Tamar Howson, Director, joined our Board in June 2013. Ms. Howson has served as a corporate business development and strategy consultant to biopharmaceutical companies since 2011. From 2009 to 2011, she served as a member of the transaction advisory firm, JSB-Partners, providing business development support to life sciences companies. From 2007 to 2008, Ms. Howson served as Executive Vice President, Corporate Business Development at Lexicon Pharmaceuticals, a biotech company. Prior to joining Lexicon Pharmaceuticals, Ms. Howson served as Senior Vice President, Corporate and Business Development at Bristol-Myers Squibb. Ms. Howson currently serves on the board of directors of the following publicly traded companies: ContraVir Pharmaceuticals, Inc. and Enzymotec PLC. During the prior five years, Ms. Howson served as a director of the following publicly traded companies: OXiGENE, Inc., Cynapsus Therapeutics Inc., Actavis plc, Idenix Pharmaceuticals Inc., Warner Chilcott plc, Soligenix, Inc. and Cardax, Inc. In addition, Ms. Howson serves as a director of the International Partnership for Microbicides, a non-profit product development partnership. She previously served on the boards of Aradigm, S\*BIO, Ariad Pharmaceuticals, SkyePharma, NPS Pharma, Targacept, and HBA. Ms. Howson holds an MBA from Columbia University, a MS from City University of New York, and a BS in Chemical Engineering from the Technion, Israel.

Ms. Howson's extensive experience in the pharmaceutical and biotech industries, including as a corporate business development and strategy consultant to biopharmaceutical companies and as a senior professional at leading pharmaceutical companies, and her past and current board and board committee service qualify her to be a member of our Board of Directors.

Mark Kessel, Director, joined our Board in August 2016. Mr. Kessel is a partner of Symphony Capital, LLC, a private equity firm he co-founded in 2002 that invests in biopharmaceutical company clinical development programs. He is also Of Counsel at the law firm of Shearman & Sterling, and a member of the firm's capital markets group. Previously, from 1971 to 2001, Mr. Kessel held various roles at Shearman & Sterling, including as managing partner leading the international law firm's day-to-day operations. He helped build the firm, serving as a leader in the healthcare, biopharmaceutical, agricultural biotech, high-tech, and financial services practices. He also established the firm's San Francisco office, serving as its managing partner and turning it into the leader in M&A, capital markets, corporate governance, and intellectual property and licensing issues. Mr. Kessel has previously served on several public biopharmaceutical company boards.

Mr. Kessel's extensive experience in corporate governance, licensing, and strategic finance, as well as his deep experience advising pharmaceutical and biotech companies, qualify him to be a member of our Board of Directors.

Class III Directors Continuing in Office until the 2020 Annual Meeting of Stockholders

Robert Baltera, Jr., Director, has served as a member of the Board since October 2009, and served as the Lead Independent Director from June 2014 through August 2016. Mr. Baltera joined Frazier Healthcare Partners, a venture capital firm, as entrepreneur-in-residence in January 2016, and co-founded Hawkeye Therapeutics, a search company focused on in-licensing and developing high-quality assets from pharmaceutical companies. Since March 2017, he has served as Chief Executive Officer at a Frazier portfolio company Cirius Therapeutics, Inc., which is developing a next-generation insulin sensitizer for the treatment of nonalcoholic steatohepatitis (NASH). He has also served as the Executive Chairman of Mavupharma, Inc. since March 2017. From February 2015 until December 2015, Mr. Baltera served as Chief Executive Officer and a member of the board of directors of Laguna Pharmaceuticals, a privately-funded biotechnology company. Mr. Baltera was the Chief Executive Officer of Amira Pharmaceuticals, a private pharmaceutical development company, a position he held from July 2007 through September 2011. Amira was sold to Bristol-Myers Squibb in September 2011 for \$325 million in cash, plus additional milestone payments of up to \$150 million. Before becoming Amira's Chief Executive Officer, he held a number of senior management positions at Amgen Inc., a publicly-held biopharmaceutical company, the last being Vice President of Corporate and Contract Manufacturing. Mr. Baltera previously served on the board of directors of

Xencor, Inc., a publicly-held biotechnology development company. He currently serves on the board of directors of Panmira Pharmaceuticals, LLC, as well as an industry group, the San Diego Venture Group. Mr. Baltera holds an M.B.A. from the Anderson School at the University of California, Los Angeles and earned a B.S. in Microbiology and an M.S. in Genetics from The Pennsylvania State University. Mr. Baltera attended the Director Education and Certification program at the University of California, Los Angeles.

Mr. Baltera's executive leadership experience, his experience in developing therapeutic and pharmaceutical products, his past and current board and board committee service, and as his educational background qualify him to be a member of our Board of Directors.

James T. Glover, Director, has served as a director since July 2012. Mr. Glover was the Senior Vice President, Operations and Chief Financial Officer of Anadys Pharmaceuticals, Inc., a publicly-held biopharmaceutical company acquired by Hoffmann-La Roche Inc., from 2006 to 2009. From 1989 to 2006, he served at Beckman Coulter, Inc., a leading biomedical testing instruments company, most recently as Senior Vice President and Chief Financial Officer. Mr. Glover served as a director of Varian, Inc., a publicly-traded scientific instruments company purchased by Agilent Technologies, and was Varian's audit committee chairman. Mr. Glover received his BS in accounting from California State Polytechnic University and his MBA from Pepperdine University. Mr. Glover attended the Director Education and Certification program at the University of California, Los Angeles and passed the certification exam. Mr. Glover is a certified public accountant (CPA) and a chartered global management accountant (CGMA).

Mr. Glover's previous service as a Chief Financial Officer for pharmaceutical and life sciences companies, his past and current board and board committee experience and his finance and accounting expertise and experience qualify him to be a member of our Board of Directors.

Richard Maroun, Director, joined our Board in August 2016. Mr. Maroun has held management and executive leadership positions in pharmaceutical and life science companies for more than 20 years. He is currently an Executive Partner of Frazier Healthcare Partners, a position he has held since June 2014. From 2012 through February 2014, Mr. Maroun was the Senior Vice President, General Counsel and Corporate Secretary of Aptalis Pharma US, Inc. From 2007 to 2011, Mr. Maroun served as the Executive Vice President, Chief Administrative Officer, General Counsel, Business Development Officer, and Corporate Secretary of APP Pharmaceuticals, Inc. From 2006 to 2007, Mr. Maroun was the Executive Vice President, Chief Administrative Officer, General Counsel, and Corporate Secretary of Abraxis BioScience, Inc. From 2004 to 2006, Mr. Maroun was Vice President, Business Development and General Counsel of American BioScience, Inc. Prior to joining American BioScience, Mr. Maroun was a Director of Merrill Lynch, Pierce, Fenner & Smith, and before that he was a Senior Tax Manager of Deloitte & Touche. Mr. Maroun received his B.S. degree in economics from John Carroll University in 1977, his J.D. Degree from Santa Clara University in 1979, and his L.L.M. in Taxation from Boston University Law School in 1981. Mr. Maroun is currently a member of the Board of Trustees of John Carroll University, a director of Aadi Bioscience, Inc., and a board member or advisor of several privately held companies funded by Frazier Healthcare Partners, including Leiter's Enterprises, Inc., Golden State Medical Supply Co., Elements Behavioral Health, Inc., and Orthotic Holdings, Inc.

Mr. Maroun's managerial and leadership experience at pharmaceutical and life sciences companies, his experience in mergers, acquisitions, and finance, and as his legal and accounting expertise and education qualify him to be a member of our Board of Directors.

The following figures reflect the current independence status and tenure of our Board:

No Family Relationships

There are no family relationships between any of our officers and directors.

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## CORPORATE GOVERNANCE

### Overview

We are committed to maintaining high standards of business conduct and corporate governance, which we believe are fundamental to the overall success of our business, serving our stockholders well and maintaining our integrity in the marketplace. Our Corporate Governance Guidelines and Code of Business Conduct, together with our Certificate of Incorporation, Bylaws and the charters of our Board Committees, form the basis for our corporate governance framework. As discussed below, our Board of Directors has established three standing committees to assist it in fulfilling its responsibilities to the Company and its stockholders: the Audit Committee, the Compensation Committee, and the Nominating and Corporate Governance Committee. The references to our website address below do not constitute incorporation by reference of the information contained at or available on our website.

### Corporate Governance Guidelines

Our Corporate Governance Guidelines are designed to facilitate the effective corporate governance of our Company. Our Corporate Governance Guidelines cover topics including, but not limited to, director qualification criteria, director responsibilities, director compensation, director orientation and continuing education, communications from stockholders to the Board, succession planning and the annual evaluations of the Board and its committees. Our Corporate Governance Guidelines are reviewed regularly by the Nominating and Corporate Governance Committee and amended by our Board when appropriate. The full text of our Corporate Governance Guidelines is available on our website at [www.organovo.com](http://www.organovo.com). A printed copy may also be obtained by any stockholder upon request to our Corporate Secretary.

### Code of Business Conduct

We have adopted a Code of Business Conduct that applies to all of our officers, directors, employees and consultants. Among other matters, our Code of Business conduct is designed to deter unlawful or unethical behavior and to promote the following:

- Prohibiting conflicts of interest (including protecting corporate opportunities);
- Protecting our confidential and proprietary information and that of our customers and vendors;
- Treating our employees, customers, suppliers and competitors fairly;
- Encouraging full, fair, accurate, timely and understandable disclosure;
- Protecting and properly using company assets;
- Complying with laws, rules and regulations (including insider trading laws); and
- Encouraging the reporting of any unlawful or unethical behavior.

Any waiver of the Code of Business Conduct for our executive officers, directors or employees may be made only by our Nominating and Corporate Governance Committee and will be promptly disclosed on our website. We have posted a copy of our Code of Business Conduct, and intend to post amendments to this code, on our website as permitted under SEC rules and regulations.

### Board Independence

Our shares of common stock are listed for trading on the NASDAQ Stock Market. As a result, our Board utilizes the definition of “independence” as that term is defined by the listing standards of the NASDAQ Stock Market and the rules and regulations of the SEC, including the additional independence requirements for members of our Audit and Compensation Committees. Our Board considers that a director is independent when the director is not an officer or employee of the Company or its subsidiaries, does not have any relationship which would, or could reasonably appear to, materially interfere with the independent judgment of such director, and the director otherwise meets the independence requirements under the listing standards of the NASDAQ Stock Market and the rules and regulations of

the SEC. Our Board has reviewed the materiality of any relationship that each of our directors has with the Company, either directly or indirectly. Based on this review, our Board has affirmatively determined that six of our seven directors, including Robert Baltera, Jr., James Glover, Tamar Howson, Mark Kessel, Kirk Malloy, Ph.D., and Richard Maroun, qualify as “independent” directors. One of our directors, Taylor Crouch, does not qualify as independent directors due to his current service as our Chief Executive Officer and President. In addition, Keith Murphy did not qualify as an “independent” director during his Board service, which ended in August 2017.

#### Board Leadership Structure

Our Bylaws provide our Board with flexibility to combine or separate the positions of Chairman of the Board and Chief Executive Officer in accordance with its determination that utilizing one or the other structure would be in the best interests of our Company and its stockholders. At present, Dr. Malloy serves as the independent Chairman of the Board and Mr. Crouch serves as our Chief Executive Officer. Our Board has determined that separating the positions of Chief Executive Officer. Our Board has determined that separating

the positions of Chief Executive Officer and Chairman of the Board is in the best interests of the Company and its stockholders at this time.

Our Board believes that the current leadership structure, which separates the Chairman and Chief Executive Officer roles, enhances the accountability of our Chief Executive Officer to our Board and encourages balanced decision making. In addition, our Board believes that this structure provides an environment in which the independent directors are fully informed, have significant input into the content of Board meetings, and are able to provide objective and thoughtful oversight of management. Our Board also adopted this leadership structure in recognition of the differences in responsibilities. While our Chief Executive Officer is responsible for the day-to-day leadership and operations of the Company, the Chairman of the Board provides guidance to our Board and sets the agenda for Board meetings. Our Chairman also provides performance feedback on behalf of our Board to our Chief Executive Officer. Our Board also considered that our Audit, Compensation, and Nominating and Corporate Governance Committees, which oversee critical matters such as the integrity of our financial statements, the compensation of executive management, the selection and evaluation of directors, the development and implementation of corporate governance policies, and the oversight of the Company's compliance with laws and regulations, each consist entirely of independent directors. Our Board intends to evaluate from time to time whether our Chief Executive Officer and Chairman positions should remain separate based on what our Board determines is best for the Company and its stockholders.

#### Board Committees

|                                   | Audit Committee | Compensation Committee | Nominating and Corporate Governance Committee |
|-----------------------------------|-----------------|------------------------|---|
| <b>Independent Director</b>       |                 |                        |   |
| Robert Baltera, Jr., M.S., M.B.A. | Member          | Chair                  |   |
| James T. Glover, M.B.A., C.P.A.   | Chair           |                        | Member  |
| Tamar D. Howson, M.S., M.B.A.     | Member          | Member                 |   |
| Mark Kessel, J.D.                 |                 | Member                 | Member  |
| Kirk Malloy, Ph.D.                |                 |                        | Chair   |
| Richard Maroun, J.D.              | Member          | Member                 |   |

#### Non-Independent Director

##### Taylor Crouch

Compensation Committee. Our Compensation Committee currently consists of Mr. Baltera (Chair), Mr. Kessel, Ms. Howson, and Mr. Maroun. The functions of the Compensation Committee include the approval of the compensation offered to our executive officers and recommending to the full Board the compensation to be offered to our non-employee directors. Additionally, in accordance with NASDAQ listing standards, the Compensation Committee evaluates the independence of each compensation consultant, outside counsel and advisor retained by or providing advice to the Compensation Committee. The Board has determined that Mr. Baltera, Ms. Howson, Mr. Kessel, and Mr. Maroun are each an "independent director" under NASDAQ listing standards and the applicable rules and regulations of the SEC. In addition, the members of the Compensation Committee qualify as "non-employee directors" for purposes of Rule 16b-3 under the Exchange Act and as "outside directors" for purposes of Section 162(m) of the Internal Revenue Code of 1986, as amended. The Compensation Committee is governed by a written charter approved by the Board of Directors, a copy of which is available on our website at [www.organovo.com](http://www.organovo.com).

Audit Committee. Our Audit Committee currently consists of Mr. Glover (Chair), Ms. Howson, Mr. Baltera, and Mr. Maroun. The functions of the Audit Committee include the retention of our independent registered public accounting firm, reviewing and approving the planned scope, proposed fee arrangements and results of the Company's



annual audit, reviewing the adequacy of the Company's accounting and financial controls and reviewing the independence of the Company's independent registered public accounting firm. The Board has determined that each member of the Audit Committee is an "independent director" under the NASDAQ listing standards, are financially literate under NASDAQ listing standards, and at least one member has financial sophistication under NASDAQ listing standards. The Board has also determined that Ms. Howson and Messrs. Glover, Baltera, and Maroun are each an "audit committee financial expert" within the applicable definition of the SEC. The Audit Committee is governed by a written charter approved by the Board of Directors, a copy of which is available on our website at [www.organovo.com](http://www.organovo.com).

Nominating and Corporate Governance Committee. Our Nominating and Corporate Governance Committee currently consists of Dr. Malloy (Chair), Mr. Glover, and Mr. Kessel. The functions of the Nominating and Corporate Governance Committee include the identification, recruitment and nomination of candidates for the Board and its committees, making recommendations to the Board concerning the structure, composition and functioning of the Board and its committees (including the reporting channels through which the Board receives information and the quality and timeliness of the information), developing and recommending to the Board corporate governance guidelines applicable to the Company and annually reviewing and recommending changes (as necessary or appropriate), overseeing the annual evaluation of the Board's effectiveness and performance, and periodically conducting an individual evaluation of each director. The Board has determined that each current and former member of the Nominating and Corporate Governance Committee is an "independent director" under the NASDAQ listing standards and the applicable rules and regulations of the SEC. The Nominating

and Corporate Governance Committee is governed by a written charter approved by the Board of Directors, a copy of which is available on our website at [www.organovo.com](http://www.organovo.com).

#### Board and Committee Attendance

During the fiscal year ended March 31, 2018, all directors attended at least 75% or more of the aggregate of the meetings of the Board and of each of the Board committees on which they served. The Board met six times and acted by written consent three times during the fiscal year ended March 31, 2018; the Audit Committee met six times and did not act by written consent during the fiscal year ended March 31, 2018; the Compensation Committee met seven times and acted by written consent one time during the fiscal year ended March 31, 2018; and the Nominating and Corporate Governance Committee met five times and did not act by written consent during the fiscal year ended March 31, 2018.

#### Director Attendance at the Annual Meeting

We believe the Annual Meeting provides a good opportunity for our directors to hear any feedback that our stockholders may desire to share with the Company and the Board. As a result, we encourage our directors to attend our Annual Meetings. We reimburse our directors for the reasonable expenses they may incur in attending the Annual Meeting.

#### Executive Sessions

Executive sessions of our independent directors are held at each regularly scheduled meeting of our Board and at other times they deem necessary. The Board's policy is to hold executive sessions without the presence of management, including our President and Chief Executive Officer. Our Board committees also generally meet in executive session at the end of each committee meeting.

#### Board Oversight of Risk

Our Board is actively involved in the oversight of risks that could affect our Company. The Board as a whole has responsibility for risk oversight of the Company's risk management policies and procedures, with specific reviews of certain areas being conducted by the relevant Board committee. The Board satisfies this responsibility through reports by each Committee Chair to the Board regarding the Committee's considerations and actions, as well as through regular reports directly from the member or members of management responsible for oversight of particular risks within the Company. Specifically, the Board committees address the following risk areas:

- The Compensation Committee is responsible for overseeing the management of risks related to the Company's executive compensation plans and arrangements.
- The Audit Committee discusses with management the Company's major financial risk exposures, regulatory and compliance matters and the steps management has taken to monitor and control such exposures.
- The Nominating Committee is responsible for overseeing the Company's compliance with good corporate governance practices, including the requirements established by the SEC and the NASDAQ Stock Market.

The Board encourages management to promote a corporate culture that incorporates risk management into the Company's day-to-day business operations.

#### Compensation Committee Interlocks and Insider Participation

No member of our Compensation Committee has at any time been our employee. Except as set forth herein, none of our executive officers serves, or has served during the last fiscal year, as a member of the board of directors or compensation committee of any other entity that has one or more executive officers serving as a member of our Board or our Compensation Committee.

## Stock Ownership Guidelines

All of our executive officers and non-employee Directors are subject to stock ownership guidelines approved by the Board within five years of starting employment or becoming a Director. Our Chief Executive Officer is required to beneficially hold a number of shares of the Company's common stock with a value equal to five times (5x) his base salary. All other executive officers are required to hold a number of shares with a value equal to three times (3x) their base salary. Non-employee Directors are required to beneficially hold a number of shares of the Company's common stock with a value equal to four times (4x) the annual cash retainer paid to them for service as a member of our Board. Equity value is calculated based on all shares owned and expected to be owned within the compliance period plus the value of all options expected to be vested within the compliance period. Stock Options, for purposes of the Stock Ownership Guidelines, are valued at the greater of (i) the original Black-Scholes per share valuation at the date of the respective Option Grant or (ii) the "in the money" value of the Vested Stock Options based on the closing market stock price on the applicable annual evaluation date. Each of our executive officers and each of our non-employee Directors who have been a member of the Board for more than one year are in compliance with the Stock Ownership Guidelines.

## Succession Planning

The Corporate Governance Guidelines provide for an annual succession planning process for the Company's Chief Executive Officer and its other executives and key employees.

## Consideration of Director Nominees

General. In evaluating nominees for membership on our Board, our Nominating and Corporate Governance Committee applies the Board membership criteria set forth in our Corporate Governance Guidelines. Under these criteria, the Committee takes into account many factors, including an individual's business experience and skills (including skills in core areas such as operations, management, technology, relevant industry knowledge (e.g., research tools, contract research services, therapeutics, drug discovery, reimbursement, medical/surgical), accounting and finance, regulatory matters and clinical trials, leadership, strategic planning and international markets), as well as independence, judgment, professional reputation, integrity and ability to represent the best interests of the Company and its stockholders. In addition, the Nominating and Corporate Governance Committee will also consider the ability of the nominee to commit sufficient time and attention to the activities of the Board, as well as the absence of any potential conflicts with the Company's interests. The Nominating and Corporate Governance Committee does not assign specific weights to particular criteria and no particular criterion is necessarily applicable to all prospective nominees. The Board does not have a formal policy with respect to diversity of nominees. Rather, our Nominating and Corporate Governance Committee considers Board membership criteria as a whole and seeks to achieve diversity of occupational and personal backgrounds on the Board. Our Board will be responsible for selecting candidates for election as directors based on the recommendation of the Nominating and Corporate Governance Committee.

Our Nominating and Corporate Governance Committee regularly assesses the appropriate size of our Board, and whether any vacancies on our Board are expected due to retirement or other reasons. In the event that vacancies are anticipated, or otherwise arise, the Committee will consider various potential nominees who may come to the attention of the Committee through current Board members, professional search firms, stockholders or other persons. Each potential nominee brought to the attention of the Committee, regardless of who recommended such potential nominee, is considered on the basis of the criteria set forth in our Corporate Governance Guidelines.

Stockholder Nominees. The Nominating and Corporate Governance Committee will review a reasonable number of candidates for director recommended by a single stockholder who has held over 1.0% of the Company's common stock for over one year and who satisfies the notice, information and consent provisions set forth in the Company's Bylaws. The Board will use the same evaluation criteria and process for director nominees recommended by stockholders as it uses for other director nominees. A stockholder wishing to formally nominate an individual for election to the Board must do so by following the procedures described in the Company's Bylaws. There has been no change to the procedures set forth in the Company's Bylaws by which stockholders may recommend nominees to our Board. For information concerning stockholder proposals, see "Stockholder Proposals for the 2018 Annual Meeting" below in this Proxy Statement.

## Communications with the Board of Directors

The Board desires that the views of stockholders will be heard by the Board, its Committees or individual directors, as applicable, and that appropriate responses will be provided to stockholders on a timely basis. Stockholders wishing to formally communicate with the Board, the independent directors as a group or any individual director may send communications directly to the Company at 6275 Nancy Ridge Dr., Suite 110, San Diego, California 92121, Attention: Corporate Secretary. All clearly marked written communications, other than unsolicited advertising or promotional materials, are logged and copied, and forwarded to the director(s) to whom the communication was addressed. Please note that the foregoing communication procedure does not apply to (i) stockholder proposals pursuant to Exchange Act Rule 14a-8 and communications made in connection with such proposals or (ii) service of process or any other notice in a legal proceeding.



## DIRECTOR COMPENSATION

Our directors play a critical role in guiding our strategic direction and overseeing the management of our Company. Ongoing developments in corporate governance and financial reporting have resulted in an increased demand for such highly qualified and productive public company directors. The many responsibilities and risks and the substantial time commitment of being a director of a public company require that we provide adequate incentives for our directors' continued performance by paying compensation commensurate with our directors' workload. Our non-employee directors are compensated based upon their respective levels of Board participation and responsibilities, including service on Board Committees. Our employee directors receive no separate compensation for their service as directors.

Our director compensation is overseen by the Compensation Committee, which makes recommendations to our Board of Directors on the appropriate structure for our non-employee director compensation program and the appropriate amount of compensation. Our Board of Directors is responsible for final approval of our non-employee director compensation program and the compensation paid to our non-employee directors.

In connection with establishing our non-employee director compensation for Fiscal 2018, the Compensation Committee retained the Compensation Consulting Division of Marsh & McLennan Agency LLC ("Marsh") as its independent compensation consultant. With the assistance of Marsh, the Board of Directors and Compensation Committee conducted a formal review of our non-employee director compensation and incentive programs relative to the same peer group used in benchmarking the compensation for our executive officers. The Compensation Committee and the Board determined that a philosophy of targeting total compensation for our non-employee directors at the 50th percentile (based on peer group benchmarks), is in the best interests of the Company and its stockholders.

## Non-Employee Director Compensation Framework

For Fiscal 2018, our non-employee director compensation program consisted of: (i) annual cash retainers for Board service and for service as the chair or member of one of the standing Board Committees and (ii) long-term equity awards granted on an annual basis to continuing non-employee directors immediately following the Annual Meeting of Stockholders or upon their initial appointment to the Board for new directors. Our non-employee directors are not entitled to any Board or Board Committee meeting fees.

Annual Cash Retainers. For Fiscal 2018, each of our non-employee directors was eligible to receive an annual cash retainer of \$50,000 for Board membership and the Lead Independent Director or Independent Chairman was eligible to receive an additional \$50,000. In addition, for Fiscal 2018 each of our non-employee directors was eligible to receive the applicable annual retainers set forth below for Committee Chairs and for service as a member of a Board Committee:

| Position                              | Nominating &       |                           |                         |
|---------------------------------------|--------------------|---------------------------|-------------------------|
|                                       | Audit<br>Committee | Compensation<br>Committee | Governance<br>Committee |
| Committee Chair (additional retainer) | \$ 15,000          | \$ 10,000                 | \$ 9,500                |
| Committee Member                      | \$ 10,000          | \$ 7,750                  | \$ 5,000                |

No additional meeting fees were paid to our non-employee directors.

Annual Long-Term Equity Awards. In addition to the annual cash retainers, each non-employee director continuing in office after the adjournment of the 2017 Annual Meeting of Stockholders received a stock option award (the “Annual Award”) immediately following the adjournment of the annual meeting. The number of shares subject to the Annual Award was calculated by taking the number of shares of common stock equal to 0.04% of the outstanding shares of common stock of the Company as of the date of the Annual Award, with the number of shares subject to the option rounded to the nearest 500 shares.

The Annual Award has an exercise price equal to the closing market price of the Company’s common stock on the date of the Annual Awards. Each such Annual Award will vest in full on the earlier of (i) one year from the date of the Annual Award or (ii) the next Annual Meeting of Stockholders held by the Company, subject to acceleration in the event of the change of control.

Initial Long-Term Equity Awards. During Fiscal 2018, our non-employee director compensation program provided that upon joining the Board of Directors (whether by appointment or election by stockholders), a non-employee director will receive an initial stock option award (the “Initial Award”). The Initial Award is calculated on the same basis as the Annual Award, provided that the Initial Award shall be pro-rated based on the date of the director’s appointment or election and the number of months remaining in the twelve-month period between the last regularly scheduled Annual Meeting held by the Company and the next regularly scheduled Annual Meeting to be held by the Company. The Initial Award will have an exercise price equal to the closing market price of the Company’s common stock on the date of the Initial Award. Each such Initial Award will vest quarterly over a period of twelve quarters from the vesting commencement date, subject to acceleration in the event of the change of control.

Reimbursement. Our non-employee Directors are entitled to reimbursement for their reasonable travel and lodging expenses for attending Board and Board Committee meetings.

#### Director Compensation Table

The following table sets forth the compensation earned and paid to each non-employee director for service as a director during Fiscal 2018:

| Name                   | Fees       |        |        |              | Total (\$) |   |           |
|------------------------|------------|--------|--------|--------------|------------|---|-----------|
|                        | Earned     | Stock  | Option | All Other    |            |   |           |
|                        | or Paid in | Awards | Awards | Compensation |            |   |           |
| Name                   | Cash (\$)  | (\$)   | \$(1)  | \$(4)        | Total (\$) |   |           |
| Robert Baltera, Jr.    | \$77,750   | \$     | —      | \$53,218     | \$         | — | \$130,968 |
| James Glover           | \$87,750   | \$     | —      | \$53,218     | \$         | — | \$140,968 |
| Tamar Howson           | \$67,750   | \$     | —      | \$53,218     | \$         | — | \$120,968 |
| Mark Kessel            | \$58,875   | \$     | —      | \$53,218     | \$         | — | \$112,093 |
| Kirk Malloy, Ph.D. (2) | \$114,500  | \$     | —      | \$53,218     | \$         | — | \$167,718 |
| Richard Maroun         | \$67,750   | \$     | —      | \$53,218     | \$         | — | \$120,968 |
| Keith Murphy (3)       | \$22,222   | \$     | —      | \$—          | \$         | — | \$22,222  |

(1) These amounts represent the grant date fair value of stock option awards granted by the Board, determined in accordance with FASB ASC Topic 718. All awards are amortized over the vesting life of the award. For the assumptions used in our valuations, see “Note 7 – Stockholders’ Equity” of our notes to consolidated financial statements in the annual report on Form 10-K for the year ended March 31, 2018, as filed with the SEC.

(2) Dr. Malloy served as our Lead Independent Director from August 2016 through August 2017 until Mr. Murphy resigned from the Board, at which time Dr. Malloy was appointed Chairman.

(3) Mr. Murphy resigned from the Board in August 2017.

(4) Excludes amounts reimbursed for reasonable travel to Board and Board Committee meetings.

#### Director Compensation – Equity

The following table shows the total number of unvested RSUs and total option awards held by each of our non-employee directors as of March 31, 2018:

| Name                | Unvested    | Vested Stock | Unvested Stock |
|---------------------|-------------|--------------|----------------|
|                     | RSUs        | Options      | Options        |
|                     | Outstanding | Outstanding  | Outstanding    |
| Name                | (#)         | (#)          | (#)            |
| Robert Baltera, Jr. | 7,500       | 166,500      | 42,500         |
| James Glover        | 7,500       | 166,500      | 42,500         |
| Tamar Howson        | 7,500       | 163,000      | 42,500         |
| Mark Kessel         | 13,750      | 27,750       | 51,750         |
| Kirk Malloy, Ph.D.  | 7,500       | 112,000      | 42,500         |
| Richard Maroun      | 13,750      | 27,750       | 51,750         |



|                  |     |     |     |
|------------------|-----|-----|-----|
| Keith Murphy (1) | n/a | n/a | n/a |
|------------------|-----|-----|-----|

(1) Mr. Murphy resigned from the Board in August 2017 prior to receiving any grants related to his non-employee directorship. All of Mr. Murphy's unvested RSUs and options related to his service as Chief Executive Officer of the Company and are discussed within "Compensation Discussion and Analysis" in this Proxy Statement.

## EXECUTIVE OFFICERS

The following persons are our executive officers and hold the positions set forth opposite their names as of this filing:

| Name                         | Age | Position   |
|------------------------------|-----|--|
| Taylor Crouch                | 58  | Chief Executive Officer and President  |
| Craig Kussman                | 59  | Chief Financial Officer  |
| Sharon Presnell, Ph.D.       | 49  | Chief Scientific Officer and President of Samsara Sciences, Inc.                   |
| Jennifer Kinsbruner Bush, JD | 43  | Senior Vice President, General Counsel, Corporate Secretary and Compliance Officer |
| Paul Gallant                 | 53  | General Manager  |

See the section entitled “Board of Directors Information” above, for a description of the business experience and educational background of Mr. Crouch.

Craig Kussman, Chief Financial Officer, joined us in August 2016. Prior to joining Organovo, Mr. Kussman served as the Chief Financial Officer at Alphaeon Corporation, a lifestyle healthcare company, from October 2014 to August 2016. From August 2010 until October 2014, Mr. Kussman served as Chief Financial Officer of XIFIN, Inc., a healthcare information technology company. Mr. Kussman also formerly served as Chief Financial Officer and Senior Vice President of Corporate Development for Ascenta Therapeutics, a developmental stage biopharmaceutical company. He has also held senior executive positions at Breach Security, Discovery Partners International, Inc., SYNAVANT Inc., Cognizant Corp., and IMS Health. Mr. Kussman received an MBA in Finance from The Wharton School, and a BA in Economics and Mathematics from Pomona College.

Sharon Collins Presnell, Ph.D., Chief Scientific Officer of Organovo, President of Samsara Sciences, Inc., joined as our Chief Scientific Officer in May 2011, and has served as President of our wholly-owned subsidiary, Samsara Sciences, Inc., since January 2016. Dr. Presnell has more than 16 years of experience in the leadership of product-focused R&D. As an Assistant Professor at the University of North Carolina, Dr. Presnell’s research in liver and prostate biology and carcinogenesis produced cell- and tissue-based technologies that were industry-funded or out licensed for industrial applications. She joined Becton Dickinson & Co. (BD) in 2001, and played a key role in the early discovery and development of cell-based tools and reagent for BD’s life science portfolio. At BD, she grew and led a large multi-disciplinary team to build and validate screening platforms and products for cell growth, differentiation, and characterization and secured revenue-generating commercial partnerships with pharma partners. Dr. Presnell joined Tengion, Inc. in 2007, and as the Senior Vice President of Regenerative Medicine Research, was responsible for leading the discovery and early development of Tengion’s Neo-Kidney Augment™, a clinical-stage cell-based therapy for patients with chronic kidney disease. As the Chief Scientific Officer at Organovo, Dr. Presnell has led the growth and development of the R&D organization, including evolution of the Company’s technology portfolio, and has played an instrumental role in securing funds in support of corporate growth initiatives. Dr. Presnell holds a Ph.D. in Pathology from the Medical College of Virginia. Dr. Presnell is a member of the American Society of Investigative Pathology, the American Society of Nephrology, and the International Society of Cell Transplantation, serves on the editorial board of the journal ‘3D Printing and Additive Manufacturing’, and remains active as an NIH reviewer as an industry representative in the biomedical engineering space.

Jennifer Kinsbruner Bush, JD, General Counsel, Corporate Secretary and Compliance Officer, joined us in September 2014. Ms. Bush has more than 15 years of intellectual property, corporate legal, regulatory, compliance, and transactional experience. Prior to joining Organovo, from October 2010 to August 2014, Ms. Bush held positions of increasing responsibility at Broadcom Corp., where she was most recently Associate General Counsel. Before joining Broadcom, from February 2010 to October 2010, Ms. Bush served as Associate General Counsel of DivX, Inc. prior

to its acquisition by Sonic Solutions in October 2010. Ms. Bush practiced for 10 years at nationally ranked law firms, serving as an associate and then as a principal with Fish & Richardson, P.C. from 2002 to 2010 and as an associate with Irell & Manella LLP from 2001 to 2002, where she represented clients focused on a variety of technologies, including in the areas of medical devices, life sciences, software, and consumer products. Prior to entering into private practice, Ms. Bush served as a law clerk to the Honorable Stanley Marcus, 11th Circuit Court of Appeals, from 2000 to 2001. Ms. Bush received a J.D. from Yale Law School and an A.B. in history and Latin American Studies from Princeton University.

Paul Gallant, General Manager, joined us in August 2015 as General Manager. Mr. Gallant has more than 20 years of management and research and development experience in the drug discovery industry, most recently serving as Chief Operating Officer for DiscoveRx, a global scientific product and services company, from November 2010 to August 2015. As Chief Operating Officer at DiscoveRx, Mr. Gallant was responsible for the company's largest business unit, drug discovery services. Mr. Gallant formerly served as senior director at Ambit Pharmaceuticals, acquired by DiscoveRx in 2010, from September 2005 to November 2010, where he led the development and commercialization for the KINOMEscan platform. The world's largest commercial kinase screening panel, KINOMEscan became a key element of DiscoveRx's offering post-acquisition. Mr. Gallant has also led research and development and service teams at Amgen, Millennium Pharmaceuticals, Cubist Pharmaceuticals and Massachusetts General Hospital. Mr. Gallant received a B.A. in biology from Colby College.

## SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following tables set forth certain information regarding the beneficial ownership of our common stock as of May 29, 2018 (the record date) by (i) each person who, to our knowledge (based solely on our review of Schedules 13D and 13G filed with the SEC), beneficially owns more than 5% of our common stock; (ii) each of our directors, director nominees and named executive officers (as disclosed in this Proxy Statement); and (iii) all of our executive officers, directors and director nominees as a group. Unless otherwise indicated in the table or the footnotes to the following table, each person named in the table has sole voting and investment power and such person's address is c/o Organovo Holdings, Inc., 6275 Nancy Ridge Dr., Suite 110, San Diego, California 92121.

We determined the number of shares of common stock beneficially owned by each person under rules promulgated by the SEC, based on information obtained from Company records and filings with the SEC on or before May 29, 2018. In cases of holders who are not directors, director nominees and named executive officers, Schedules 13G or 13D filed with the SEC (and, consequently, ownership reflected here) often reflect holdings as of a date prior to May 29, 2018. The information is not necessarily indicative of beneficial ownership for any other purpose. Under these rules, beneficial ownership includes any shares as to which the individual or entity has sole or shared voting power or investment power and also any shares which the individual or entity had the right to acquire within sixty days of May 29, 2018. These shares, however, are not deemed outstanding for the purpose of computing the percentage ownership of any other individual.

Applicable percentages are based on 111,126,625 shares of common stock outstanding as of May 29, 2018, as adjusted as required by the rules promulgated by the SEC.

| Name of Beneficial Owner                               | Beneficial Ownership(1) |            |        |   |
|--|-------------------------|------------|--------|---|
|  | Number of               | Percent of |        |   |
|  | Common                  | Common     |        |   |
|  | Shares                  |            | Shares |   |
| <b>5% Stockholders</b>                                 |                         |            |        |   |
| ARK Investment Management, LLC                         | 12,019,144              | (2)        | 10.8   | % |
| BlackRock, Inc.  | 6,121,354               | (3)        | 5.5    | % |
| <b>Directors and Named Executive Officers</b>          |                         |            |        |   |
| Sharon Presnell, Ph.D.                                 | 1,294,160               | (4)        | 1.2    | % |
| Taylor Crouch  | 694,333                 | (5)        | *      |   |
| Jennifer Kinsbruner Bush, JD                           | 330,655                 | (6)        | *      |   |
| Robert Baltera, Jr.                                    | 355,006                 | (7)        | *      |   |
| Paul Gallant   | 232,127                 | (8)        | *      |   |
| James Glover   | 226,500                 | (9)        | *      |   |
| Tamar Howson   | 213,000                 | (10)       | *      |   |
| Craig Kussman  | 193,888                 | (11)       | *      |   |
| Kirk Malloy, Ph.D.                                     | 162,000                 | (12)       | *      |   |
| Richard Maroun   | 85,209                  | (13)       | *      |   |
| Mark Kessel  | 85,209                  | (14)       | *      |   |
| <b>All executive officers and directors as a group</b> |                         |            |        |   |
| (11 persons)   | 3,872,087               | (15)       | 3.5    | % |

\*Less than one percent.

- (1) Beneficial ownership of shares and percentage ownership are determined in accordance with the rules of the SEC. Unless otherwise indicated and subject to community property laws where applicable, the individuals named in the table above have sole voting and investment power with respect to all shares of our common stock shown as beneficially owned by them.
- (2) Based solely upon a Schedule 13G/A filed on May 22, 2018, by ARK Investment Management LLC, 155 West 19th Street, 5th Floor, New York, NY 10011. According to the Schedule 13G/A, ARK Investment Management LLC has sole voting power with respect to 11,895,873 shares and has shared voting power with respect to 123,271 shares. According to the Schedule 13G/A, ARK Investment Management LLC has sole dispositive power with respect to 12,019,144 shares.
- (3) Based solely upon a Schedule 13G filed on January 24, 2018, by BlackRock, Inc., 55 East 52nd Street, New York, NY 10055. According to the Schedule 13G, BlackRock, Inc. has sole voting power with respect to 6,000,820 shares and sole dispositive power with respect to 6,121,354 shares.
- (4) Includes options to purchase 1,199,692 option shares currently exercisable or exercisable within 60 days of May 29, 2018. Does not include 382,500 additional option shares of common stock subject to future vesting pursuant to the terms of stock option agreements. Does not include 249,380 additional RSUs subject to future vesting pursuant to the terms of restricted stock unit agreements. An RSU represents a conditional right to receive one share of our common stock at a specified future date.
- (5) Includes options to purchase 652,567 option shares currently exercisable or exercisable within 60 days of May 29, 2018. Also includes 41,766 performance-based restricted stock units (“PBRsUs”) vesting within 60 days of May 29, 2018. Does not include

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a stock option to purchase 2,035,645 shares of common stock subject to future vesting pursuant to the terms of stock option agreements. Does not include a PBRsUs representing the right to receive up to 307,464 shares of common stock contingent upon the Company's achievement of financial performance metrics.

- (6) Includes options to purchase 284,375 option shares currently exercisable or exercisable within 60 days of May 29, 2018. Does not include 340,038 additional option shares of common stock subject to future vesting pursuant to the terms of stock option agreements. Does not include 259,623 additional restricted stock units subject to future vesting pursuant to the terms of restricted stock unit agreements. An RSU represents a conditional right to receive one share of our common stock at a specified future date.
- (7) Includes options to purchase 209,000 option shares currently exercisable or exercisable within 60 days of May 29, 2018.
- (8) Includes options to purchase 202,188 option shares currently exercisable or exercisable within 60 days of May 29, 2018. Does not include 369,640 additional option shares of common stock subject to future vesting pursuant to the terms of stock option agreements. Does not include 209,865 additional restricted stock units subject to future vesting pursuant to the terms of restricted stock unit agreements. An RSU represents a conditional right to receive one share of our common stock at a specified future date.
- (9) Includes options to purchase 209,000 option shares currently exercisable or exercisable within 60 days of May 29, 2018.
- (10) Includes options to purchase 205,500 option shares currently exercisable or exercisable within 60 days of May 29, 2018.
- (11) Includes options to purchase 144,375 option shares currently exercisable or exercisable within 60 days of May 29, 2018. Does not include 485,625 additional option shares of common stock subject to future vesting pursuant to the terms of stock option agreements. Does not include 313,630 additional restricted stock units subject to future vesting pursuant to the terms of restricted stock unit agreements. An RSU represents a conditional right to receive one share of our common stock at a specified future date.
- (12) Includes options to purchase 154,500 option shares currently exercisable or exercisable within 60 days of May 29, 2018.
- (13) Includes options to purchase 73,334 option shares currently exercisable or exercisable within 60 days of May 29, 2018. Does not include 6,166 additional option shares of common stock subject to future vesting pursuant to the terms of stock option agreements. Does not include 3,125 additional restricted stock units subject to future vesting pursuant to the terms of restricted stock unit agreements. An RSU represents a conditional right to receive one share of our common stock at a specified future date.
- (14) Includes options to purchase 73,334 option shares currently exercisable or exercisable within 60 days of May 29, 2018. Does not include 6,166 additional option shares of common stock subject to future vesting pursuant to the terms of stock option agreements. Does not include 3,125 additional restricted stock units subject to future vesting pursuant to the terms of restricted stock unit agreements. An RSU represents a conditional right to receive one share of our common stock at a specified future date.
- (15) Includes options to purchase 3,407,865 option shares currently exercisable or exercisable within 60 days of May 29, 2018. Also includes 41,766 performance-based restricted stock units ("PBRsUs") vesting within 60 days of May 29, 2018. A PBRsU represents a conditional right to receive one share of our common stock at a specified future date. Does not include 3,674,539 additional option shares of common stock subject to future vesting pursuant to the terms of stock option agreements. Does not include 1,187,508 additional restricted stock units subject to future vesting pursuant to the terms of restricted stock unit agreements. Does not include a performance-based restricted stock unit award representing the right to receive up to 158,704 shares of common stock contingent upon the Company's achievement of financial performance metrics.

#### Changes in Control

We are not aware of or a party to any arrangements, including any pledge by any person of our securities, the operation of which may at a subsequent date result in a change of control.

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

Section 16(a) of the Securities Exchange Act of 1934, as amended (the “Act”), requires our executive officers and directors and persons who beneficially own more than 10% of our common stock to file initial reports of beneficial ownership and reports of changes in beneficial ownership with the SEC. These persons are required by SEC regulations to furnish us with copies of all Section 16(a) forms they file. To the Company’s knowledge, no person who, during Fiscal 2018, was a director or officer of the Company, or beneficial owner of more than 10% of the Company’s common stock (which is the only class of securities of the Company registered under Section 12 of the Act), failed to file on a timely basis reports required by Section 16 of the Act. The foregoing is based solely upon a review by the Company of Forms 3 and 4 relating to the most recent fiscal year as furnished to the Company under Rule 16a-3(d) under the Act, and Forms 5 and amendments thereto furnished to the Company with respect to its most recent fiscal year, and any representation received by the Company from any reporting person that no Form 5 is required.

## COMPENSATION DISCUSSION AND ANALYSIS

The following Compensation Discussion and Analysis is designed to provide our stockholders with an understanding of our compensation philosophy and objectives as well as an overview of the analysis that our Compensation Committee performed in setting the compensation of our executive officers for Fiscal 2018 (i.e., the period from April 1, 2017 to March 31, 2018).

This Compensation Discussion and Analysis summarizes the Compensation Committee's determination of how and why, in addition to what, compensation actions were taken for our Chief Executive Officer, our Chief Financial Officer and our three other most highly compensated executive officers serving as of the end of Fiscal 2018, including:

- Taylor Crouch, our Chief Executive Officer and President;
- Craig Kussman, our Chief Financial Officer;
- Sharon Presnell, Ph.D., our Chief Scientific Officer and President of Samsara Sciences, Inc.;
- Paul Gallant, our General Manager; and
- Jennifer Kinsbruner Bush, JD, our Senior Vice President, General Counsel, Corporate Secretary and Compliance Officer.

In addition, our Compensation Discussion and Analysis summarizes the compensation received by our former Chief Executive Officer and President, Keith Murphy, and our former Chief Strategy Officer and Executive Vice President of Pre-Clinical Development, Eric David, MD, JD, for their services during Fiscal 2018.

These seven individuals are collectively referred to in this Proxy Statement as our "named executive officers".

### Recent "Say-on-Pay" Vote

At our 2017 Annual Meeting of Stockholders, we held a stockholder advisory vote, commonly referred to as a "say-on-pay" vote, to approve the compensation of our named executive officers for Fiscal 2017 (i.e., the period from April 1, 2016 to March 31, 2017). We received favorable consideration from our stockholders, with over 92% of stockholder votes cast in favor of the proposal. As a result, the Compensation Committee decided to retain our general compensation framework and approach in Fiscal 2018. The Compensation Committee will consider the outcome of the annual say-on-pay votes when making future compensation decisions.

### Compensation Philosophy and Objectives

Our executive compensation program focuses on creating alignment between our stockholders and executive officers by including both performance and incentive-based compensation elements. Our compensation package also combines both short- and long-term components (cash and equity, respectively) at the levels the Compensation Committee determined to be appropriate to motivate, reward, and retain our executive officers. Our executive compensation program is designed to achieve the following key objectives:

- Attract, retain, and reward talented executives and motivate them to contribute to the Company's success and to build long-term stockholder value;
- Establish financial incentives for executives to achieve our key financial, operational, and strategic goals;
- Enhance the relationship between executive pay and stockholder value by utilizing long-term equity incentives; and
- Recognize and reward executives for superior performance.

### Use of Market Data and Benchmarking

The Compensation Committee endeavors to set compensation at competitive levels. In order to do this, the Compensation Committee compares our compensation packages with the packages offered by other companies that are similarly situated, and with which we compete for talent.





For Fiscal 2018, the Compensation Committee engaged the Compensation Consulting division of Marsh & McLennan Agency LLC (“Marsh”) as its independent compensation consultant advisor reporting directly to the chair of the Committee. The Compensation Committee determined that no conflict of interest exists that would preclude Marsh from serving as an independent consultant to the Committee.

The Compensation Committee requested Marsh to conduct a review and analysis of our executive compensation programs as compared against competitive benchmarks. This included a benchmarking analysis against prevailing market practices of a peer group of comparable companies approved by the Compensation Committee as well as broader industry trends and benchmarks. The analysis included a review of the “Total Direct Compensation” (which includes, salary, cash incentives, and equity awards) of our executive officers, and was based on an assessment of market trends covering available public information as well as proprietary information provided by Marsh.

For Fiscal 2018, based on recommendations from Marsh, our Compensation Committee determined that our peer group should be modified to better reflect our market valuation, revenues, employee size, and stage of lead therapeutic candidate. With input from Marsh, our Compensation Committee added a group of companies focused on human therapies, with comparable size, revenues, market valuations, and stage of leading therapeutic candidate. These additions to our peer group included: Agenus, Anika Therapeutics, Asterias Bio, BioTime, CryoLife, Cutera, Exactech, Fate Therapeutics, Ignyta, Lion Biotechnologies, Nanotring Technologies, Ocular Therapeutix, Progenics Pharmaceuticals, and Sientra. Our Compensation Committee also replaced some of the companies previously included in our peer group because their market valuations had grown too low for direct comparison to our Company, such as Caladrius, CytRx, Neuralstem, and Regulus Therapeutics. Our Compensation Committee then used the compensation data from this revised peer group in setting executive compensation for Fiscal 2018.

The peer group for Fiscal 2018 included:

|                                |                           |                           |
|--------------------------------|---------------------------|---------------------------|
| AcelRx Pharmaceuticals, Inc.   | Fate Therapeutics         | Luminex                   |
| Agenus                         | Ignyta                    | NanoString Technologies   |
| Anika Therapeutics             | Immunomedics              | Ocular Pharmaceuticals    |
| Arrowhead Research Corporation | Inovio Pharmaceuticals    | Peregrine Pharmaceuticals |
| Asterias Bio                   | Insmmed Inc.              | Progenics Pharmaceuticals |
| BioTime                        | InVivo Therapeutics Corp. | Retrophin                 |
| CryoLife                       | Keryx Biopharmaceuticals  | Sangamo BioSciences       |
| Exactech                       | Lion Biotechnologies      | Sientra                   |

#### Determination of Executive Compensation

In setting executive compensation for Fiscal 2018, the Compensation Committee generally targeted Total Direct Compensation at or near the median of the peer group it approved.

In addition to peer group data, the Compensation Committee considered relevant publicly available market data and surveys and the compensation reports it received from Marsh. The Compensation Committee also reviewed and considered the compensation recommendations of our Chief Executive Officer (other than with respect to determining his own compensation), the Company’s overall performance during Fiscal 2017, the Company’s financial status and operating runway, each executive officer’s responsibilities and contribution to the Company’s achievement of the Fiscal 2017 corporate goals, and each executive officer’s individual performance during Fiscal 2017. With respect to new hires, our Compensation Committee considered the executive officer’s background and historical compensation in lieu of prior year performance in addition to benchmark data for the newly hired executive’s position.

Commitment to Good Compensation Governance Practices

In designing our executive compensation program, our Compensation Committee intends to create alignment between our stockholders and executive officers and to implement good compensation governance by:

- **Annual Advisory Vote on the Compensation of our Named Executive Officers** – We provide our stockholders with the ability to vote annually on the compensation of our named executive officers.
- **Independent Compensation Consultant** – The Compensation Committee engaged Marsh during fiscal 2018 to serve as its independent compensation consultant. Marsh did not provide any other services to the Company during the periods it served as a consultant to the Compensation Committee.
- **Performance and Incentive Based** – A significant percentage of the Total Direct Compensation our executive officers can earn is performance and incentive based, thereby aligning the interests of our executive officers with our stockholders' interests.

**Stock Ownership Guidelines** – The Compensation Committee established stock ownership guidelines to further align our executive officers’ interests with those of our stockholders. The guidelines require each of our named executive officers to acquire and hold a meaningful ownership interest in our Company.

**Compensation Risk Assessment** – The Compensation Committee oversees and evaluates an annual risk assessment of the Company’s compensation program. The Compensation Committee believes that the performance goals established for incentives do not encourage excessive risk-taking or have the potential to encourage behavior that may have a material adverse effect on the Company.

**Prohibitions on Hedging, Pledging and Margin Activities** – Our insider trading policy prohibits hedging transactions by Company employees. Under the policy, all short-term, speculative or hedging transactions in Organovo securities are prohibited by all employees. In addition, the policy specifically prohibits the use of Organovo securities for pledging and margin activities.

The Compensation Committee believes that the program and policies described above demonstrate the Company’s commitment to, and consistent execution of, an effective performance-oriented executive compensation program. Please see our “2018 Proxy Statement Summary” for an additional list of our compensation best practices.

### Components of Executive Compensation

The framework established by the Compensation Committee, based on the data provided by Marsh, for our executive compensation program consists of a base salary, performance-based cash incentives and long-term equity-based incentives. The Compensation Committee endeavors to combine these compensation elements to develop a compensation package that provides competitive pay, rewards our executive officers for achieving our commercial, operational and strategic objectives and aligns the interests of our executive officers with those of our stockholders.

**Base Salary:** The Compensation Committee has provided, and will continue to provide, our executive officers with a base salary to compensate them for services provided during the fiscal year. In addition to benchmark data from our peer group, our Compensation Committee considers the Company’s overall performance during the prior fiscal year, cash burn, the Company’s financial status and operating profile, each executive officer’s responsibilities and contribution to the achievement of the prior year’s corporate goals, and each executive officer’s individual performance during the prior fiscal year. The evaluations and recommendations proposed by our Chief Executive Officer are also considered (other than with respect to determining his own compensation). With respect to new hires, the Compensation Committee considers an executive’s background and historical compensation in lieu of prior year performance as well as benchmark data for the new hire’s position. Our Compensation Committee evaluates and sets the base salaries for our executives following annual performance evaluations, as well as upon a promotion or other change in responsibility. Our Compensation Committee expects to continue to utilize these policies going forward.

For Fiscal 2018, the Compensation Committee provided approximately a 3% cost of living adjustment to our executive officers compared to Fiscal 2017

The base salaries of our named executive officers for Fiscal 2018 as compared to Fiscal 2017 are set forth in the following table:

| Name and Title                                       | Fiscal      | Fiscal      | Increase |      |
|--|-------------|-------------|----------|------|
|  | 2017        | 2018        |          |      |
|  | Base Salary | Base Salary |          |      |
| Taylor Crouch, Chief Executive Officer and President | n/a         | \$500,000   | —        | (1)  |
| Craig Kussman, Chief Financial Officer               | \$375,000   | \$387,000   | 3.2      | %(3) |
| Sharon Presnell, Ph.D., Chief Scientific Officer     | \$361,000   | \$372,000   | 3.0      | %(3) |

|  |           |           |     |       |
|--|-----------|-----------|-----|-------|
| Jennifer Kinsbruner Bush, JD, SVP, General Counsel, Corporate Secretary and Compliance Officer             | \$347,000 | \$347,000 | 0.0 | % (2) |
| Paul Gallant, General Manager  | \$273,000 | \$281,000 | 2.9 | % (3) |
| Keith Murphy, former Chief Executive Officer and President   | \$525,000 | n/a       | —   | (1)   |
| Eric David, MD, JD, former Chief Strategy Officer and Executive Vice President of Pre-Clinical Development | \$335,000 | \$345,000 | 3.0 | % (3) |

(1) Mr. Murphy resigned as CEO on April 21, 2017 and Mr. Crouch's employment as CEO began on April 24, 2017.

(2) Effective November 15, 2016, Ms. Bush's salary was increased to \$347,000 per year in connection with her promotion to the position of Senior Vice President, General Counsel. Prior to that, her Fiscal 2017 base salary was \$335,000.

(3) Fiscal 2018 base salary increases were based on the factors described in the above section and were effective April 2, 2017.

Performance-Based Cash Incentive Awards. Our executive compensation program includes an annual performance-based cash incentive award, which provides our executive officers with an annual cash incentive opportunity as a percentage of their base salaries based upon the achievement of corporate and individual performance goals evaluated and approved by the Compensation Committee. For Fiscal 2018, the Compensation Committee determined that the annual target bonus opportunity expressed as a percentage of base salary for Mr. Crouch should be 50% of his base salary, the annual target bonus opportunities for Dr. Presnell, Mr. Kussman, and Ms. Bush should be 40% of their respective base salaries, and the annual target bonus opportunity for Mr. Gallant should be 35% of his base salary. Each executive officer is eligible to receive up to 150% of his or her target bonus amount based on the achievement of “stretch” corporate and individual performance goals evaluated and approved by the Compensation Committee. If the minimum base performance level is met for a corporate or individual performance goal, the Compensation Committee has the discretion to assign zero percentage to that performance goal or a bonus percentage on an interpolated basis between zero and 100%. For performance between the target and stretch levels for an individual or corporate performance goal, the bonus percentage for that performance goal is determined on an interpolated basis. The percentage of each executive’s annual performance-based cash incentive award based on the achievement of the Company’s corporate goals ranged from 70% to 100%; and the percentage of each executive’s annual performance-based cash incentive award based on the achievement of individual performance goals ranged from 0% to 30%, each as discussed further below.

For Fiscal 2018, our Compensation Committee established four corporate target and stretch performance goals, including: (i) total revenue recognized during Fiscal 2018, (ii) cash management, capital strategy, and certain financial metrics, (iii) commercial pipeline progress, and (iv) technology platform advancement. The revenue and financial goals were weighted at 45% and 25%, respectively, and the commercial pipeline and technology platform goals were weighted at 15% each. For Fiscal 2018, the Compensation Committee evaluated the Company’s performance relative to each of these corporate performance goals. For performance goals with minimum base performance levels, the Compensation Committee assigned a zero percentage to those performance goals if the Company did not meet the minimum base performance level. For performance goals that did not have a minimum base performance level or for which the Company exceeded the minimum performance level, the Compensation Committee determined the bonus percentage on an interpolated basis between zero and 100%. Based on this evaluation, the Compensation Committee assigned the following values to the corporate performance goals: (i) 0% related to total revenue goal because the Company did not meet the minimum base performance level, (ii) 150% related to meeting both the base and stretch metrics for the cash management, capital strategy, and financial metrics goals, (iii) 100% related to meeting the base metric for commercial pipeline goals, and (iv) 150% related to achieving both the base and stretch metrics for the technology platform advancement goals.

Based on these scores and the relative weights applied to each goal, the Company achieved an overall aggregate of 75% of the corporate performance goals established by the Compensation Committee and described above. Our Compensation Committee expected that the objectives it set as the corporate performance goals at the target level of performance would be challenging and require effective execution by the Company’s management team and that the objectives it set for the stretch level of performance would be difficult to achieve.

The Compensation Committee then considered the respective performance of each of the executive officers in achieving their individual target and stretch performance goals. Similar to the corporate performance goals, each executive officer is eligible to receive up to 150% of the target bonus amounts assigned to his or her respective individual performance goals based on his or her achievement of “stretch” performance goals. If the minimum base performance level is met for an individual performance goal, the Compensation Committee has the discretion to assign zero percentage to that performance goal or a bonus percentage on an interpolated basis between zero and 100%. For performance between the target and stretch levels for an individual performance goal, the bonus percentage for that performance goal is determined on an interpolated basis. In addition, the Compensation Committee may award discretionary credit for achievements that were not contemplated in the individual performance goals.

Mr. Crouch's annual performance-based cash incentive award was based 100% on the achievement of the Company's corporate goals, for which the Committee awarded 75% credit as described above. The Compensation Committee exercised its discretion to award Mr. Crouch an additional 5% credit in recognition of his extraordinary leadership in refocusing the Company and in substantially reducing the Company's negative adjusted EBITDA. Accordingly, the Compensation Committee set Mr. Crouch's bonus at 80% of his target.

Mr. Kussman's annual performance-based cash incentive award was based 80% on the achievement of the Company's corporate goals, and 20% on the achievement of his individual performance goals. Mr. Kussman's individual performance goals included: (i) improving the Company's financial planning and financial operational review process (30%), (ii) achievement of cash management, capital strategy, and certain financial metrics (50%), and (iii) strategic planning regarding entity structure for the therapeutics business (20%). Based on his achievement of his individual goals, and the Company's achievement of 75% of the corporate goals, the Compensation Committee set Mr. Kussman's bonus at 90% of target.

Dr. Presnell's annual performance-based cash incentive award was based 70% on the achievement of the Company's corporate goals, and 30% on the achievement of her individual performance goals. Dr. Presnell's individual performance goals included: (i) assuming company-wide leadership of key scientific development programs (35%), (ii) ensuring completion of certain deliverables by the Company's research and development teams (25%); (iii) restructuring the research and development function around prioritized goals and operational effectiveness (15%), (iv) achievement of operational and revenue goals for Samsara Sciences, Inc. the Company's

wholly-owned subsidiary (10%); and (v) completion of technology landscape assessment and publication goals (15%). Based on her achievement of her individual goals and the Company's achievement of 75% of the corporate goals, the Compensation Committee set Dr. Presnell's bonus at 94% of target.

Ms. Bush's annual performance-based cash incentive award was based 70% on the achievement of the Company's corporate goals, and 30% on the achievement of her individual performance goals. Ms. Bush's individual performance goals included: (i) legal support for strategic commercial, research and development and business development initiatives (30%), (ii) achievement of internal stakeholder requirements (10%), (iii) strategic planning regarding entity structure for therapeutics business (15%), (iv) intellectual property licensing and patent landscape assessments (25%), and (v) achievement of government relations objectives (20%). Based on her achievement of her individual goals and the Company's achievement of 75% of the corporate goals, the Compensation Committee set Ms. Bush's bonus at 100% of target.

Mr. Gallant's annual performance-based cash incentive award was based 80% on the achievement of the Company's corporate goals, and 20% on the achievement of his individual performance goals. Mr. Gallant's individual performance goals involved a number of operational and sales performance objectives, including: (i) on-time data delivery (25%), (ii) cell supply goals (25%), (iii) conducting strategic meetings with specified potential clients (25%), and (iv) contracting goals (25%). Based on his achievement of his individual goals and the Company's achievement of 75% of the corporate goals, the Compensation Committee set Mr. Gallant's bonus at 75% of target.

Mr. Murphy resigned on April 21, 2017. As part of his separation agreement, he was paid a prorated target bonus for his services to the Company as Chief Executive Officer during Fiscal 2018.

Dr. David did not receive a bonus for Fiscal 2018 because he resigned from the Company prior to the Compensation Committee's determination and payment of the annual performance-based cash incentive awards for Fiscal 2018.

Our Compensation Committee expected that the objectives it approved for each executive officer's individual performance goals at the target level of performance could be achieved and that the objectives it approved for the stretch level of performance would be difficult to achieve.

Based on the achievement of the corporate and respective individual performance goals, our Compensation Committee awarded our executive officers cash bonuses ranging between 26.0% and 50.0% of their respective base salaries. In some instances, these bonus amounts were less than the target bonus award opportunities established for our executive officers for Fiscal 2018 because the Company did not achieve all of the corporate performance goals established by the Compensation Committee, and because the executives did not achieve all of their individual performance goals, which the Compensation Committee views as alignment of pay with performance.

Specifically, the bonus payments for Fiscal 2018 were as follows:

| Name and Title                                       | Percentage of Base Salary | Fiscal 2018 Bonus Award |
|--|---------------------------|-------------------------|
| Taylor Crouch, Chief Executive Officer and President | 40%                       | \$200,000               |
| Craig Kussman, Chief Financial Officer               | 36%                       | \$140,000               |
| Sharon Presnell, Ph.D., Chief Scientific Officer     | 38%                       | \$140,000               |
|  | 40%                       | \$140,000               |



Jennifer Kinsbruner Bush, JD, SVP, General Counsel, Corporate Secretary and Compliance Officer

|   |     |          |
|---|-----|----------|
| Paul Gallant, General Manager   | 26% | \$73,763 |
| Eric David, MD, JD, Chief Strategy Officer and Executive Vice President of Pre-Clinical Development (2) | 0%  | \$—      |
| Keith Murphy, former Chief Executive Officer and President (1)  | 50% | \$15,103 |

(1)Mr. Murphy resigned on April 21, 2017. As part of his separation agreement, he was paid a prorated target bonus for his services to the Company as its Chief Executive Officer and President during Fiscal 2018.

(2)Dr. David resigned on December 12, 2017 and received no bonus for Fiscal 2018.

Equity-Based Incentive Awards. In addition to base salaries and annual performance-based cash incentives, the Compensation Committee provides long-term, equity-based incentive awards to our executive officers. For Fiscal 2018, these grants consisted of restricted stock units (“RSU’s”) that vest over a four-year period service period for our continuing executive officers. In determining the size and terms of the RSU awards, the Compensation Committee considered benchmark data from our peer group, publicly available market and survey data and the individual performance of the named executive officers. The Compensation Committee also considered the equity award levels recommended by the Company’s Chief Executive Officer for the named executive officers (other than himself).

For Mr. Crouch, our newly-hired Chief Executive Officer and President, the Compensation Committee determined that his initial awards should consist of a time-based stock option award and a performance-based RSU award. Mr. Crouch's stock option award vests over a four-year period measured from his start date based on his continued services to the Company. The vesting of Mr. Crouch's performance-based RSU is divided into five separate tranches, each with independent vesting criteria. The first four tranches have performance criteria related to annual revenue goals with measurement dates at the end of Fiscal Year 2018 (20%), Fiscal Year 2019 (20%), Fiscal Year 2020 (20%), and Fiscal Year 2021 (20%). The fifth tranche has a performance metric related to a path to profitability goal measured as Negative Adjusted Earnings Before Interest, Taxes, Depreciation and Amortization ("EBITDA") achievable at any point between the grant date and the end of Fiscal Year 2020 (20%). The number of shares that ultimately vest for each tranche of the performance-based RSU will range from 0% to 120% of the target amount, not to exceed 208,822 shares of common stock in aggregate.

The Compensation Committee believes that time-based RSU and stock option awards help further the Company's compensation objectives by encouraging executives to remain with the Company through at least the vesting period for these awards. Performance and time-based RSU and stock option awards also align the interests of the Company's executives with the interests of its stockholders. In addition, because the option awards are granted at the fair market value of the Company's common stock on the date of grant, the option awards only have value to the executive officer if the value of the Company's common stock increases during the vesting period, which the Compensation Committee views as alignment of pay with performance. The Compensation Committee has and plans to continue to grant long-term equity incentive awards to the Company's executive officers in connection with their initial hire, following promotions and on an annual basis.

For Fiscal 2018, the Compensation Committee approved equity awards as follows:

| Name                         | Incentive      | Incentive       | Incentive                |                 | Total       | Multiple of<br>Fiscal 2018<br>Base Salary |
|------------------------------|----------------|-----------------|--------------------------|-----------------|-------------|---|
|                              | Stock<br>Award | Option<br>Award | Incentive<br>Stock Award | Option<br>Award |             |   |
|                              | (#)            | (#)             | (\$)(4)                  | (\$)(5)         | (\$)        |   |
| Taylor Crouch(2)             | 208,822        | 2,088,212       | \$ 392,585               | \$5,700,819     | \$6,093,404 | 12.2                                      |
| Craig Kussman                | 220,000        | —               | \$ 585,200               | \$—             | \$585,200   | 1.5                                       |
| Sharon Presnell, Ph.D.       | 200,000        | —               | \$ 532,000               | \$—             | \$532,000   | 1.4                                       |
| Jennifer Kinsbruner Bush, JD | 190,000        | —               | \$ 505,400               | \$—             | \$505,400   | 1.5                                       |
| Paul Gallant                 | 160,000        | —               | \$ 425,600               | \$—             | \$425,600   | 1.5                                       |
| Eric David, MD, JD(3)        | 190,000        | —               | \$ 505,400               | \$—             | \$505,400   | 1.5                                       |
| Keith Murphy(1)              | n/a            | n/a             | n/a                      | n/a             | n/a         | n/a                                       |

(1)Mr. Murphy resigned on April 21, 2017.

(2)Mr. Crouch's start date was on April 24, 2017. Amounts represent Inducement Awards.

(3)Dr. David resigned on December 12, 2017.

(4)Calculated based on the fair market value on the date of grant.

(5)Calculated based on Black Scholes value computed on the date of grant.

Additional information regarding the potential accelerated vesting applied to the equity awards held by each executive officer in the event his or her services to the Company are terminated in the event of a change in control of the

Company (i.e., “double trigger” accelerated vesting) is discussed below under “Potential Payments upon Termination or Change in Control.”

#### Other Benefits

In order to attract and retain qualified individuals and pay market levels of compensation, we have historically provided, and will continue to provide, our executives with the following benefits:

- **Health Insurance** – We provide each of our executives and their spouses and children the same health, dental, and vision insurance coverage we make available to our other eligible employees.
- **Life and Disability Insurance** – We provide each of our executives with the same life and disability insurance as we make available to our other eligible employees.
- **Pension Benefits** – We do not provide pension arrangements or post-retirement health coverage for our executives or employees. We implemented a 401(k) Plan effective January 1, 2014. We provide a company matching contribution up to 3.5% of compensation for all participants in the 401(k) plan, including our executive officers, to help attract and retain top talent.
- **Nonqualified Deferred Compensation** – We do not provide any nonqualified defined contribution or other deferred compensation plans to any of our employees.

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Perquisites – We limit the perquisites that we make available to our executive officers. In certain cases, we have reimbursed our executives officers for their relocation expenses on their initial hire.

#### Severance Plan Participation Agreements

In November 2015 (the “Effective Date”), we entered into a Severance and Change in Control Plan Participation Agreement (the “Participation Agreement”) with each of our executive officers and certain key employees pursuant to our Severance and Change in Control Plan (the “Severance Plan”) approved by our Compensation Committee. The Severance Plan establishes the amount of severance payments and benefits available in the event of a (i) termination of employment by the Company for reasons other than Cause, death or Disability or by the participant for Good Reason and (ii) termination of employment by the Company for reasons other than Cause, death or Disability or by the participant for Good Reason within six months before or within 12 months after a Change in Control (as defined in the Severance Plan).

The Severance Plan establishes four tiers of employees: Tier 1, Tier 2, Tier 3 and Tier 4. In Fiscal 2018, the Company’s Tier 1 employees included Taylor Crouch, our Chief Executive Officer, and Craig Kussman, the Company’s Chief Financial Officer. The Company’s Tier 2 employees included all non-Tier 1 members of the Company’s executive team, including Dr. Presnell, Ms. Bush, and Mr. Gallant. The Company’s Tier 3 employees include all Senior Vice Presidents who are not members of the Company’s executive team. The Company’s Tier 4 employees include all Vice Presidents who are not members of the Company’s executive team.

Upon termination of employment by the Company for reasons other than Cause, death or Disability or by the participant for Good Reason, each (i) Tier 1 employee is eligible for a cash severance payment equal to 2.0 times the employee’s base salary, paid in a lump sum, plus a pro-rated target bonus for the fiscal year in which the termination occurs, Health Benefit Continuation (as defined in the Severance Plan) for up to 18 months, and Outplacement Assistance (as defined in the Severance Plan) for 18 months; (ii) Tier 2 employee is eligible for a cash severance payment equal to 1.0 times the employee’s base salary, paid in a lump sum, plus a pro-rated target bonus for the fiscal year in which the termination occurs, Health Benefit Continuation for up to 12 months, and Outplacement Assistance for 12 months. The Severance Plan does not provide for accelerated vesting of the equity awards held by the Tier 1 or Tier 2 employees in the event of their termination without Cause or their resignation for Good Reason.

Upon termination of employment by the Company for reasons other than Cause, death or Disability or by the participant for Good Reason within 6 months before or within 24 months after a Change in Control (as defined in the Severance Plan), each (i) Tier 1 employee is eligible for a cash severance payment equal to 2.0 times the employee’s base salary, paid in a lump sum, plus a pro-rated target bonus for the fiscal year in which the termination occurs, Health Benefit Continuation (as defined in the Severance Plan) for up to 18 months, and Outplacement Assistance (as defined in the Severance Plan) for 18 months; (ii) Tier 2 employee is eligible for a cash severance payment equal to 1.0 times the employee’s base salary, paid in a lump sum, plus a pro-rated target bonus for the fiscal year in which the termination occurs, Health Benefit Continuation for up to 12 months, and Outplacement Assistance for 12 months. In addition, each Tier 1-4 employee will receive full accelerated vesting of all outstanding equity grants and a one-year time period to exercise any stock options or stock appreciation rights which are not cashed out upon the Change in Control.

Payment of awards under the Severance Plan is conditioned upon the employee signing a general release of claims in favor of the Company and agreeing to abide by restrictive covenants including maintaining confidential information of the Company, non-solicitation and non-recruitment of Company employees for the Restricted Period (as defined below), non-solicitation of the Company’s customers or potential customers during the Restricted Period, non-employment by and limitations on investment in competitors of the Company for the Restricted Period, and no disparagement of the Company. The Restricted Period is twenty-four months for Tier 1 employees and twelve months for Tier 2 employees.

Further, pursuant to the terms of the Severance Plan Participation Agreements, any existing employment or severance agreement between the Company and the participant was immediately terminated and replaced with the provisions of the Severance Plan, subject to limited exceptions required to comply with the requirements of Internal Revenue Code Section 409A.

“Cause” as defined in the Severance Plan means (i) the willful and continued failure of the Participant to perform substantially the Participant’s duties with Organovo (other than any such failure resulting from incapacity due to physical or mental illness), as determined by the Board with respect to any Tier 1 or Tier 2 Employee, and as determined by Organovo’s Chief Executive Officer with respect to Employees in Tiers 3-4 no earlier than thirty (30) days after a written demand for substantial performance is delivered to the Participant, which specifically identifies the manner in which Organovo believes that the Participant has willfully and continuously failed to perform substantially the Participant’s duties with Organovo (provided, however, that with respect to any Tier 1 or Tier 2 Employee, the failure to achieve individual or Company-based performance goals, budgets or targets shall not be deemed to be a failure of the Participant to perform his or her duties for purposes of this definition of Cause); (ii) the willful engaging by the Participant in illegal conduct or gross misconduct which is materially and demonstrably injurious to Organovo or Participant’s ability to perform his or her duties with Organovo; (iii) conviction (including a plea of guilty or nolo contendere ) of a felony; (iv) a material violation of a material written policy of Organovo or any Affiliate, violation of which would be grounds for immediate dismissal under applicable Company policy; (v) failure to comply in any material respect with the Foreign Corrupt Practices Act, the Securities Act of 1933, as amended, the Securities Exchange Act of 1934, as amended, the Sarbanes-Oxley Act of 2002, the Dodd-Frank Wall Street Reform and

Consumer Protection Act of 2010, or the Truth in Negotiations Act, or any rules or regulations thereunder; (vi) a material breach of the restrictive covenants in Section 7(b) subject to the cure provisions provided in Section 7(b) of the Plan.

“Disability” means incapacity due to physical or mental illness which has rendered the Participant unable effectively to carry out his/her duties and obligations to Organovo or unable to participate effectively and actively in the management of Organovo for a period of ninety (90) consecutive days or for shorter periods aggregating to one-hundred twenty (120) days (whether or not consecutive) during any consecutive twelve (12) months.

“Good Reason” as defined in the Severance Plan means, means, without the Participant’s consent: (i) in the case of a Tier 1, 2, 3, or 4 Employee, a material diminution in the Participant’s Base Salary or Target Bonus Potential. This does not apply to a material diminution in the case of a Tier 1 or Tier 2 Employee resulting from a determination by both the CEO and the Compensation Committee that Organovo’s financial condition is such that a reduction in compensation is appropriate and the reduction is applied uniformly to all Company officers; (ii) a material diminution in the Participant’s authority, duties, or responsibilities, which shall include (A) with respect to any Participant who is a member of the Board, any failure of the Board to appoint or the stockholders of Organovo to elect such Participant as a member of the Board, or any removal of Participant from the Board for reasons other than Cause, (B) with respect to any Participant who is a Tier 1 or Tier 2 Employee, removal from Organovo’s Executive Team; (iii) with respect to any Participant who is a Tier 1, 2, 3, or 4 Employee, a material diminution in the authority, duties, or responsibilities of the supervisor to whom the Participant is required to report; (iv) any requirement that the Participant relocate, by more than fifty (50) miles, the principal location from which the Participant performs services for Organovo immediately prior to the termination of employment or the occurrence of the Change in Control. It shall be a condition precedent to the Participant’s right to terminate Participant’s employment for Good Reason (whether before or after a Change in Control) that (i) the Participant shall have first given Organovo written notice stating with reasonable specificity the breach on which such termination is premised within ninety (90) days after the Participant becomes aware or should have become aware of such breach, and (ii) if such breach is susceptible of cure or remedy, such breach has not been cured or remedied within thirty (30) days after receipt of such notice.

#### Death or Disability Benefits

The outstanding equity awards held by our executive officers provide such executive officers with accelerated vesting if the executive officer terminates services with the Company as a result of death or disability. In order for an equity award to be eligible for accelerated vesting, the executive officer’s death or disability must occur more than 90 days after the date the equity award was granted. With respect to performance based equity awards, an executive officer will vest at target levels upon the executive officer’s death or disability.

#### Separation Agreements with Former Executive Officers

Keith Murphy, our Chairman of the Board, stepped down as the Company’s Chief Executive Officer and President, effective April 21, 2017 (the “Separation Date”). In connection with his transition, Mr. Murphy and the Company entered into a Consulting, Separation Agreement and Release (the “Separation Agreement”), dated April 7, 2017. In the Separation Agreement, Mr. Murphy agreed to a general release of claims and other restrictions and covenants in favor of the Company, including a standstill, confidentiality, non-compete, non-disparagement, and non-solicitation provisions. Mr. Murphy also agreed to continue to provide consulting services for twelve months to help ensure a successful transition and provide other services. Under the Separation Agreement, Mr. Murphy will receive \$65,625 per month for his consulting services. The Separation Agreement also provides that Mr. Murphy will continue to vest as a “service” provider in his previously-issued and outstanding equity awards during his consultancy. Mr. Murphy received a prorated cash bonus for his services to the Company as Chief Executive Officer during Fiscal 2018 in an amount equal to the target rate. The Company has also agreed to provide Mr. Murphy with 18 months of continued health benefits after the Separation Date. Finally, the Company has agreed to pay Mr. Murphy \$262,500 for his delivery of a bring-down release in favor of the Company covering the time period between the effective date of the

Separation Agreement and the end of his consulting services.

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## Potential Payments upon Termination or Change in Control

As described in “Compensation Discussion and Analysis – Severance Plan Participation Agreements” we entered into Severance and Change in Control Plan Participation Agreements with our current named executive officers. The following table sets forth the amounts payable to each of our current named executive officers based on an assumed termination as of March 31, 2018 based upon certain designated events.

| Name  | Cash<br>Severance<br>(\$)(3) | Health<br>and<br>Other<br>Insurance<br>Benefits<br>(\$) | Stock<br>Options<br>(Unvested<br>and<br>Accelerated)<br>(\$)(1) | Restricted<br>Stock Units<br>(Unvested<br>and<br>Accelerated)<br>(\$)(2) | Fiscal<br>Year<br>2018 Total<br>(\$)(3) |
|---|------------------------------|---|---|--|---|
| <b>Taylor Crouch</b>                            |                              |   |   |  |   |
| Termination for reasons other than Cause, death |                              |   |   |  |   |
| or Disability, or for Good Reason               | 1,000,000                    | 31,240  | —   | —  | 1,031,240                               |
| Termination in connection with a Change of      |                              |   |   |  |   |
| Control   | 1,000,000                    | 31,240  | —   | 215,087  | 1,246,326                               |
| <b>Craig Kussman</b>                            |                              |   |   |  |   |
| Termination for reasons other than Cause, death |                              |   |   |  |   |
| or Disability, or for Good Reason               | 774,000                      | 36,668  | —   | —  | 810,668                                 |
| Termination in connection with a Change of      |                              |   |   |  |   |
| Control   | 774,000                      | 36,668  | —   | 269,088  | 1,079,756                               |
| <b>Sharon Presnell, Ph.D.</b>                   |                              |   |   |  |   |
| Termination for reasons other than Cause, death |                              |   |   |  |   |
| or Disability, or for Good Reason               | 372,000                      | 23,490  | —   | —  | 395,490                                 |
| Termination in connection with a Change of      |                              |   |   |  |   |
| Control   | 372,000                      | 23,490  | —   | 196,344  | 591,834                                 |
| <b>Jennifer Kinsbruner Bush, JD</b>             |                              |   |   |  |   |
| Termination for reasons other than Cause, death |                              |   |   |  |   |
| or Disability, or for Good Reason               | 347,000                      | 6,722   | —   | —  | 353,722                                 |
| Termination in connection with a Change of      |                              |   |   |  |   |
| Control   | 347,000                      | 6,722   | —   | 212,759  | 566,481                                 |



Paul Gallant

Termination for reasons other than Cause, death

|  |         |       |   |         |         |
|--|---------|-------|---|---------|---------|
| or Disability, or for Good Reason          | 281,000 | 1,576 | — | —       | 282,576 |
| Termination in connection with a Change of |         |       |   |         |         |
| Control                                    | 281,000 | 1,576 | — | 166,262 | 448,838 |

- (1) Requires a change of control plus a qualifying termination of employment before vesting of options would be accelerated. The value of the accelerated options is determined by multiplying (a) the difference between the closing price of our common stock on the NASDAQ Stock Market on the assumed termination date and the applicable exercise price of each option, by (b) the number of unvested and accelerated options. No value is included in the table above for the acceleration of stock option awards because the fair market value of our common stock on the NASDAQ Stock Market on March 31, 2018 was lower than each of the outstanding stock option awards held by our named executive officers.
- (2) Requires a change of control plus a qualifying termination of employment before vesting of RSUs would be accelerated. The values of the accelerated RSUs were determined by multiplying the closing price of our common stock on the assumed termination date (i.e., March 31, 2018) on the NASDAQ Stock Market by the number of unvested and accelerated RSUs.
- (3) Payable in a lump sum.

REPORT OF THE COMPENSATION COMMITTEE

The Compensation Committee has reviewed and discussed the Compensation Discussion and Analysis required by Item 402(b) of Regulation S-K with management and included in this Proxy Statement. Based on these reviews and discussions, the Compensation Committee has recommended to the Board of Directors that the Compensation Discussion and Analysis be included in this Proxy Statement.

The Compensation Committee of the Board of Directors:

Robert Baltera, Jr. (Chair)

Tamar Howson

Richard Maroun

Mark Kessel

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## EXECUTIVE COMPENSATION

The following tables contain compensation information for our named executive officers during the fiscal year ended March 31, 2018 (“Fiscal 2018”), the fiscal year ended March 31, 2017 (“Fiscal 2017”), and the fiscal year ended March 31, 2016 (“Fiscal 2016”). The information included in these tables should be read in conjunction with the Compensation Discussion and Analysis disclosed above.

## Summary Compensation Table

The following table summarizes the total compensation paid to or earned by each named executive officer for Fiscal 2018, Fiscal 2017, and Fiscal 2016.

| Name and Principal Position  | Year or Period | Salary (\$) | Bonus (\$) | Stock          | Option         | Non-Equity Incentive Plan | All Other            | Total (\$)  |
|--|----------------|-------------|------------|----------------|----------------|---------------------------|----------------------|-------------|
|  |                |             |            | Awards (\$)(4) | Awards (\$)(5) | Compensation (\$)(6)      | Compensation (\$)(7) |             |
| Taylor Crouch (1)<br>Chairman, Chief Executive Officer, President  | 2018           | \$471,154   | \$—        | \$157,034      | \$3,748,029    | \$200,000                 | \$14,183             | \$4,590,400 |
| Craig Kussman(3)<br>Chief Financial Officer  | 2018           | \$387,000   | \$37,500   | \$585,200      | \$—            | \$140,000                 | \$9,572              | \$1,159,272 |
|  | 2017           | \$216,346   | \$37,500   | \$529,320      | \$848,314      | \$89,599                  | \$8,918              | \$1,729,997 |
| Sharon Presnell, Ph.D.<br>Chief Scientific Officer   | 2018           | \$372,000   | \$—        | \$532,000      | \$—            | \$140,000                 | \$—                  | \$1,044,000 |
|  | 2017           | \$360,577   | \$—        | \$199,500      | \$252,556      | \$118,980                 | \$—                  | \$931,613   |
|  | 2016           | \$349,462   | \$—        | \$—            | \$418,711      | \$86,812                  | \$—                  | \$854,985   |
| Jennifer Kinsbruner<br>Bush, JD(2)<br>SVP, General Counsel, Corporate Secretary and Compliance Officer                       | 2018           | \$351,570   | \$—        | \$598,500      | \$—            | \$140,000                 | \$9,466              | \$1,099,536 |
|  | 2017           | \$334,615   | \$—        | \$199,500      | \$252,556      | \$128,682                 | \$9,287              | \$924,640   |
|  | 2016           | \$323,115   | \$20,000   | \$—            | \$402,607      | \$88,573                  | \$8,624              | \$842,919   |
| Paul Gallant<br>Eric David, MD, JD(8)<br>Former Chief Strategy Officer, Executive Vice President of Pre-Clinical Development | 2018           | \$281,000   | \$—        | \$425,600      | \$—            | \$73,763                  | \$9,121              | \$789,484   |
|  | 2018           | \$297,231   | \$—        | \$505,400      | \$—            | \$—                       | \$—                  | \$802,631   |
|  | 2017           | \$334,615   | \$—        | \$199,500      | \$252,556      | \$124,090                 | \$—                  | \$910,761   |
|  | 2016           | \$324,597   | \$—        | \$—            | \$418,711      | \$72,080                  | \$—                  | \$815,388   |
| Keith Murphy(9)  | 2018           | \$89,656    | \$—        | \$—            | \$—            | \$15,103                  | \$3,365              | \$108,124   |
|  | 2017           | \$524,039   | \$—        | \$829,920      | \$1,048,107    | \$227,938                 | \$9,390              | \$2,639,394 |

Former Chairman,  
Chief Executive  
Officer, President

|      |           |     |     |             |           |         |             |
|------|-----------|-----|-----|-------------|-----------|---------|-------------|
| 2016 | \$499,058 | \$— | \$— | \$1,529,378 | \$172,000 | \$9,083 | \$2,209,519 |
|------|-----------|-----|-----|-------------|-----------|---------|-------------|

- (1) Mr. Crouch was hired as the Company's Chief Executive Officer and President, effective April 24, 2017
- (2) Fiscal year 2016 includes the final installment of a \$40,000 sign-on bonus earned by Ms. Bush with \$20,000 payable in Fiscal 2015 and \$20,000 payable in Fiscal 2016.
- (3) Mr. Kussman joined the Company as Chief Financial Officer effective August 22, 2016. Includes a \$75,000 sign-on bonus earned by Mr. Kussman, of which \$37,500 was paid in Fiscal 2017 and \$37,500 was paid in Fiscal 2018.
- (4) These amounts represent the grant date fair value of time-based and performance-based restricted stock unit awards granted by the Company during the periods presented, determined in accordance with FASB ASC Topic 718. All awards are amortized over the vesting life of the award. For the assumptions used in our valuations, see "Note 7 – Stockholders' Equity" of the Notes to Consolidated Financial Statements in our Annual Report on Form 10-K for the year ended March 31, 2018, as filed with the SEC.
- (5) These amounts represent the grant date fair value of time-based stock option awards granted by the Company during the periods presented, determined in accordance with FASB ASC Topic 718. All awards are amortized over the vesting life of the award. For the assumptions used in our valuations, see "Note 7 – Stockholders' Equity" of the Notes to Consolidated Financial Statements in our Annual Report on Form 10-K for the year ended March 31, 2018, as filed with the SEC.
- (6) Includes amounts paid under the Company's Performance-Based Cash Incentive Award program based on the achievement of corporate and individual performance goals established and measured by the Compensation Committee.
- (7) These amounts represent the matching contributions to the 401(k) Plan made for each named executive officer. The formula for determining the matching contributions is the same for named executive officers as it is for all salaried employees (and are subject to the same statutory maximum). Excludes payments made for the reimbursement of medical insurance premiums and life insurance available for all salaried employees. For more information regarding these benefits, see above under "Other Benefits."
- (8) Dr. David resigned from the Company on December 12, 2017.
- (9) Mr. Murphy resigned from the Company on April 24, 2017.

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## CEO Pay Ratio

In connection with Item 402(u) of Regulation S-K adopted pursuant to Section 953(b) of the Dodd-Frank Wall Street Reform and Consumer Protection Act, we are required to calculate and disclose the median annual compensation of all of our employees (excluding our CEO), the annual compensation of our CEO, and the ratio of these two amounts. The following is a reasonable estimate, calculated and disclosed in accordance with the new SEC rules.

We determined our median employee using the entire population of our employees (excluding our CEO) as of March 31, 2018, based on a consistently applied compensation measure (“CACM”) defined as the annual sum of total cash compensation for the fiscal year then ended.

For the identified median employee, annual total compensation was then calculated in accordance with the SEC’s rules for the Summary Compensation Table. For our CEO, annual total compensation was equivalent to the Summary Compensation Table value with the exception of base salary, which was annualized to \$500,000 based on the rate approved coincident with Mr. Crouch’s appointment to the CEO role effective April 24, 2017. The annual total compensation of the median employee (excluding our CEO) for Fiscal 2018 was \$83,301 and our CEO’s annualized total compensation for 2018 was \$4,619,246.

Based on the above, our estimated ratio of the annual total compensation of our CEO to the median employees was 55 to 1 for Fiscal 2018.

As a result of the variability of inputs, including differences in the methodologies other companies may use to define their CACM, employee populations, and the structure of compensation philosophies and benefit programs, pay ratios reported by other companies may not be directly comparable to our pay ratio. The above pay ratio has not been considered by our management or our Compensation Committee in compensation-related decisions.

## Grants of Plan-Based Awards

The following table provides information on the grants of awards made to each named executive officer during Fiscal 2018.

| Name                         | Grant Date | Estimated future payouts under non-equity incentive plan awards |               | Estimated future payouts under equity incentive plan awards |               | All other stock awards: |              | All other option awards: |              | Exercise or base price of option awards | Grant date fair value of stock and option awards |
|------------------------------|------------|---|---------------|---|---------------|-------------------------|--------------|--------------------------|--------------|---|--|
|                              |            | Through (\$)  | Targeted (\$) | Through (\$)  | Targeted (\$) | Maximum units (#)       | Targeted (#) | Maximum options (#)      | Targeted (#) |   |  |
| Taylor Crouch                |            |   |               |   |               |                         |              |                          |              |   |  |
| 2018 Annual Bonus(1)         | —          | —   | \$235,577     | \$353,365   | —             | —                       | —            | —                        | —            | —                                       | —  |
| Inducement Stock Options(2)  | 4/24/2017  | —   | —             | —   | —             | —                       | —            | 2,088,212                | —            | \$2.73                                  | \$3,748,029                                      |
| Inducement PBRs(4)           | 8/23/2017  | —   | —             | —   | 208,822       | 208,822                 | —            | —                        | —            | —                                       | \$392,585  |
| Craig Kussman                |            |   |               |   |               |                         |              |                          |              |   |  |
| 2018 Annual Bonus(1)         | —          | —   | \$154,800     | \$232,200   | —             | —                       | —            | —                        | —            | —                                       | —  |
| 2018 RSUs(3)                 | 6/27/2017  | —   | —             | —   | —             | —                       | 220,000      | —                        | —            | —                                       | \$585,200  |
| Sharon Presnell, Ph.D.       |            |   |               |   |               |                         |              |                          |              |   |  |
| 2018 Annual Bonus(1)         | —          | —   | \$148,800     | \$223,200   | —             | —                       | —            | —                        | —            | —                                       | —  |
| 2018 RSUs(3)                 | 6/27/2017  | —   | —             | —   | —             | —                       | 200,000      | —                        | —            | —                                       | \$532,000  |
| Jennifer Kinsbruner Bush, JD |            |   |               |   |               |                         |              |                          |              |   |  |
|                              | —          | —   | \$138,800     | \$208,200   | —             | —                       | —            | —                        | —            | —                                       | —  |

|  |           |   |            |           |      |         |   |   |           |
|--|-----------|---|------------|-----------|------|---------|---|---|-----------|
| 2018 Annual<br>Bonus(1)<br>2018                              |           |   |            |           |      |         |   |   |           |
| RSUs(3)  | 6/27/2017 | — | —          | —         | —    | 225,000 | — | — | \$598,500 |
| Paul Gallant<br>2018 Annual<br>Bonus(1)<br>2018              |           | — | —\$98,350  | \$147,525 | —\$— | \$—     | — | — | —         |
| RSUs(3)  | 6/27/2017 | — | —          | —         | —    | 160,000 | — | — | \$425,600 |
| Eric David,<br>MD, JD (5)<br>2018 Annual<br>Bonus(1)<br>2018 |           | — | —\$120,750 | \$181,125 | —\$— | \$—     | — | — | —         |
| RSUs(3)  | 6/27/2017 | — | —          | —         | —    | 190,000 | — | — | \$505,400 |
| Keith<br>Murphy<br>2018 Annual<br>Bonus(6)                   |           | — | —\$15,103  | —         | —    | —       | — | — | —         |

- (1) The amounts shown reflect payments under the Company's Performance-Based Cash Incentive Award program for Fiscal 2018, under which the named executive officers were eligible to receive a cash bonus based on a percentage of base salary upon the achievement of certain pre-established corporate and individual performance established and measured by the Compensation Committee. The named executive officers received payouts pursuant to this program for Fiscal 2018. Please see "Executive Compensation – Compensation Discussion and Analysis" for more information regarding our annual performance-based cash incentive plan.
- (2) Represents the grant date fair value of a time-based stock option award granted to Mr. Crouch upon joining the Company as its Chief Executive Officer and President, determined in accordance with FASB ASC Topic 718. One-fourth of the shares underlying the stock option will vest on the one-year anniversary of Mr. Crouch's start date, and the remaining shares will vest in equal quarterly installments over the next 12 quarterly periods, subject to Mr. Crouch's continuous service through the applicable vesting date.
- (3) Represents value of restricted stock unit ("RSU") awards determined in accordance with FASB ASC Topic 718. The RSU awards vest on a quarterly basis over sixteen quarters.
- (4) Represents the grant date fair value of a performance-based RSU award granted to Mr. Crouch upon joining the Company as its Chief Executive Officer and President, determined in accordance with FASB ASC Topic 718. The vesting of Mr. Crouch's

performance-based RSU is divided into five separate tranches, each with independent vesting criteria. The first four tranches have performance criteria related to annual revenue goals with measurement dates at the end of Fiscal Year 2018 (20%), Fiscal Year 2019 (20%), Fiscal Year 2020 (20%), and Fiscal Year 2021 (20%). The fifth tranche has a performance metric related to a path to profitability goal measured as Negative Adjusted Earnings Before Interest, Taxes, Depreciation and Amortization (“EBITDA”) achievable at any point between the grant date and the end of Fiscal Year 2020 (20%). The number of shares that ultimately vest for each tranche of the performance-based RSU will range from 0% to 120% of the target amount, not to exceed 208,822 shares of common stock in aggregate. As of March 31, 2018, no tranches had vested.

(5) Dr. David resigned from the Company on December 12, 2017. As a result, he did not qualify to receive a 2018 Annual Bonus.

(6) Mr. Murphy resigned from the Company on April 24, 2017. As part of his separation agreement, he was paid a prorated target bonus for his services to the Company as its Chief Executive Officer and President during a portion of Fiscal 2018

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Outstanding Equity Awards at Fiscal Year End

The following table shows certain information regarding outstanding equity awards as of March 31, 2018 for our named executive officers:

|                              | Option Awards  |  |                            |                        |  | Stock Awards   |   |   | Equity Incentive Awards: | Equity Incentive Awards: |           |
|------------------------------|--|--|----------------------------|------------------------|--|--|---|---|--------------------------|--------------------------|-----------|
|                              | No. of Securities Underlying Unexercised Options (#) | No. of Securities Underlying Unexercised Options (#) | Option Exercise Price (\$) | Option Expiration Date | No. of Shares or Units of Stock That Have Not Vested (#) | Market Value of Shares or Units of Stock That Have Not Vested (\$) | No. of Unearned Shares, Other Rights That Have Not Vested (#) | Market Value of Unearned Shares, Other Rights That Have Not Vested (\$) |                          |                          |           |
| Taylor Crouch                | —  | (12)   | 2,088,212                  | \$2.73                 | 4/24/2027  |  |   |   | 200,470                  | (15)                     | \$206,484 |
| Craig Kussman                | 123,750  | (10)   | 206,250                    | \$4.01                 | 8/23/2026  | 82,500   | (11)  | \$84,975  | 178,750                  | (13)                     | \$184,113 |
| Sharon Presnell, Ph.D.       | 622,192  | (1)  | —                          | \$0.08                 | 10/14/2021   |  |   |   |                          |                          |           |
|                              | 175,000  | (2)  | —                          | \$2.25                 | 4/18/2022  |  |   |   |                          |                          |           |
|                              | 100,000  | (3)  | —                          | \$3.93                 | 3/12/2023  |  |   |   |                          |                          |           |
|                              | 155,000  | (4)  | —                          | \$9.86                 | 2/19/2024  |  |   |   |                          |                          |           |
|                              | 89,375   | (6)  | 40,625                     | \$4.92                 | 6/4/2025   |  |   |   |                          |                          |           |
|                              | 43,750   | (8)  | 56,250                     | \$3.99                 | 7/11/2026  | 28,125   | (9)   | \$28,969  | 162,500                  | (13)                     | \$167,375 |
| Jennifer Kinsbruner Bush, JD | 131,250  | (5)  | 18,750                     | \$6.84                 | 11/6/2024  |  |   |   |                          |                          |           |
|                              | 85,938   | (6)  | 39,062                     | \$4.92                 | 6/4/2025   |  |   |   |                          |                          |           |
|                              | 43,750   | (8)  | 56,250                     | \$3.99                 | 7/11/2026  | 28,125   | (9)   | \$28,969  | 154,375                  | (13)                     | \$159,006 |
|                              |  |  |                            |                        |  | 24,062   | (14)  | \$24,784  |                          |                          |           |
| Paul Gallant                 | 140,625  | (7)  | 84,375                     | \$2.09                 | 8/20/2025  |  |   |   |                          |                          |           |
|                              | 41,563   | (8)  | 53,437                     | \$3.99                 | 7/11/2026  | 26,718   | (9)   | \$27,520  | 130,000                  | (13)                     | \$133,900 |
| Eric David, MD, JD           | 600,000  | (17)   |                            | \$1.65                 | 7/23/2022  |  |   |   |                          |                          |           |
|                              | 100,000  | (3)  |                            | \$3.93                 | 3/12/2023  |  |   |   |                          |                          |           |
|                              | 131,250  | (4)  | 8,750                      | \$9.86                 | 2/19/2024  |  |   |   |                          |                          |           |
|                              | 81,250   | (6)  | 48,750                     | \$4.92                 | 6/4/2025   |  |   |   |                          |                          |           |

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|        |     |        |        |           |         |      |           |
|--------|-----|--------|--------|-----------|---------|------|-----------|
| 37,500 | (8) | 62,500 | \$3.99 | 7/11/2026 | 31,250  | (9)  | \$32,188  |
|        |     |        |        |           | 166,250 | (13) | \$171,238 |

Keith Murphy

|         |      |         |         |           |         |     |           |
|---------|------|---------|---------|-----------|---------|-----|-----------|
| 24,690  | (16) |         | \$4.585 | 2/13/2023 |         |     |           |
| 215,000 | (3)  |         | \$3.93  | 3/12/2023 |         |     |           |
| 54,654  | (16) |         | \$5.60  | 8/28/2023 |         |     |           |
| 27,105  | (16) |         | \$9.92  | 2/13/2024 |         |     |           |
| 27,307  | (16) |         | \$9.86  | 2/19/2024 |         |     |           |
| 550,000 | (4)  |         | \$9.86  | 2/19/2024 |         |     |           |
| 28,008  | (16) |         | \$6.34  | 2/13/2025 |         |     |           |
| 319,688 | (6)  | 124,987 | \$4.92  | 6/4/2025  |         |     |           |
| 24,690  | (16) | —       | \$2.04  | 2/13/2026 |         |     |           |
| 181,563 | (8)  | 233,437 | \$3.99  | 7/11/2026 | 117,000 | (9) | \$120,510 |

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- (1) 25% of the stock options vested and became exercisable on May 2, 2012, with the remaining option shares vesting 25% annually over the following three years. As of March 31, 2018, Dr. Presnell had exercised her stock option to purchase 274,064 shares, with 622,192 options shares vested and exercisable.
- (2) 25% of the stock options vested and became exercisable on April 18, 2013, with the remaining option shares vesting in equal quarterly amounts over the following three years.
- (3) 25% of the stock options vested and became exercisable on January 1, 2014, with the remaining option shares vesting in equal quarterly amounts over the following three years.
- (4) 25% of the stock options vested and became exercisable on February 19, 2015, with the remaining option shares vesting in equal quarterly amounts over the following three years.
- (5) 25% of the stock options vested and became exercisable on September 2, 2015, with the remaining option shares vesting in equal quarterly amounts over the following three years.
- (6) 25% of the stock options vested and became exercisable on June 4, 2016, with the remaining option shares vesting in equal quarterly amounts over the following three years.
- (7) 25% of the stock options vested and became exercisable on August 20, 2016, with the remaining option shares vesting in equal quarterly amounts over the following three years.
- (8) The stock options began vesting and become exercisable equally over sixteen quarters for a total of 48 months beginning on May 15, 2016.
- (9) The RSUs began vesting and settle for shares of the Company's common stock equally over sixteen quarters for a total of 48 months beginning on May 15, 2016.
- (10) 25% of the stock options will vest and become exercisable on August 23, 2017, with the remaining option shares vesting in equal quarterly amounts over the next three years.
- (11) 25% of the RSUs will vest and settle for shares of the Company's common stock on August 23, 2017, with the remaining RSUs vesting and settling for shares in equal quarterly amounts over the next three years.
- (12) 25% of the stock options vested and became exercisable on April 24, 2018, with the remaining option shares vesting in equal quarterly amounts over the following three years.
- (13) The RSUs began vesting and settle for shares of the Company's common stock equally over sixteen quarters for a total of 48 months beginning on June 27, 2017.
- (14) 25% of the RSUs will vest and settle for shares of the Company's common stock on November 15, 2017, with the remaining RSUs vesting and settling for shares in equal quarterly amounts over the next three years.
- (15) The vesting the performance-based RSU is divided into five separate tranches, each with independent vesting criteria. The first four tranches have performance criteria related to annual revenue goals with measurement dates at the end of Fiscal Year 2018 (20%), Fiscal Year 2019 (20%), Fiscal Year 2020 (20%), and Fiscal Year 2021 (20%). The fifth tranche has a performance metric related to a path to profitability goal measured as Negative Adjusted Earnings Before Interest, Taxes, Depreciation and Amortization ("EBITDA") achievable at any point between the grant date and the end of Fiscal Year 2020 (20%). The number of shares that ultimately vest for each tranche of the performance-based RSU will range from 0% to 120% of the target amount, not to exceed 208,822 shares of common stock in aggregate. As of March 31, 2018, no tranches had vested.
- (16) Upon the return of vested shares of common stock by Mr. Murphy to cover the tax liability related to the vesting of 50,000, 100,000, 50,000, 50,000, 50,000, and 50,000 restricted stock units on February 13, 2013, August 28, 2013, February 13, 2014, February 19, 2014, February 13, 2015, and February 13, 2016, respectively, stock options were granted the same day with immediate vesting at an exercise price equal to the closing price of the Company's common stock on that day.
- (17) 25% of the stock options vested and became exercisable on May 14, 2013, with the remaining option shares vesting in equal quarterly amounts over the following three years.

## Option Exercises and Stock Vested

The following table sets forth the number of shares acquired and the value realized upon exercise of stock options and vesting of stock awards during Fiscal 2018 by each of our named executive officers.

| Name                         | Option Awards                         |                                 | Stock Awards                         |                                   |
|------------------------------|---------------------------------------|---------------------------------|--------------------------------------|-----------------------------------|
|                              | Number of Shares Acquired on Exercise | Value Realized on Exercise (\$) | Number of Shares Acquired on Vesting | Value Realized on Vesting (\$)(1) |
| Taylor Crouch (2)            | —                                     | —                               | —                                    | —                                 |
| Craig Kussman                | —                                     | —                               | 90,750                               | 154,825                           |
| Sharon Presnell, Ph.D.       | —                                     | —                               | 50,000                               | 81,063                            |
| Jennifer Kinsbruner Bush, JD | —                                     | —                               | 59,063                               | 92,738                            |
| Paul Gallant                 | —                                     | —                               | 41,875                               | 68,327                            |
| Keith Murphy (3)             | —                                     | —                               | 13,000                               | 14,300                            |
| Eric David, MD, JD (4)       | —                                     | —                               | 33,125                               | 61,669                            |

- (1) The value realized on vesting is determined by multiplying the number of shares that vested during Fiscal 2018 under outstanding restricted stock unit (“RSU”) awards, times the closing price of our common stock on the NASDAQ Stock Market on the applicable vesting and settlement date.
- (2) Mr. Crouch joined the Company as Chief Executive Officer and President on April 24, 2017.
- (3) Mr. Murphy resigned as the Company’s Chief Executive Officer and President on April 24, 2017. He continued serving as our Chairman of the Board until he submitted his resignation in August 2017.
- (4) Dr. David resigned as Chief Strategy Officer and Executive Vice President of Pre-Clinical Development in December 2017.

## REPORT OF THE AUDIT COMMITTEE

The following is the report of our Audit Committee with respect to our audited financial statements included in our Annual Report on Form 10-K for the fiscal year ended March 31, 2018, filed with the SEC on May 31, 2018 (the “Form 10-K”). The information contained in this report shall not be deemed to be “soliciting material” or to be “filed” with the SEC, nor shall such information be incorporated by reference into any future filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, except to the extent that the Company specifically incorporates it by reference in such filing.

The Audit Committee currently consists of four directors, each of whom is an “independent director” as defined under the listing standards for the NASDAQ Stock Market and the rules and regulations of the SEC. The Audit Committee acts pursuant to a written charter that has been adopted by the Board of Directors. A copy of the charter is available on the Company’s website at [www.organovo.com](http://www.organovo.com).

The Audit Committee oversees our financial reporting process on behalf of the Board of Directors. Management has the responsibility for the financial statements and the reporting process, including internal control systems. Our independent registered public accounting firm, Mayer Hoffman, is responsible for expressing an opinion as to the conformity of our audited financial statements with generally accepted accounting principles.

### Review with Management

The Audit Committee reviewed and discussed the audited financial statements with management of the Company.

### Review and Discussions with Independent Accountants

The Audit Committee met with Mayer Hoffman to review the financial statements included in the Form 10-K. The Audit Committee discussed with a representative of Mayer Hoffman the matters required to be discussed by the Auditing Standard No. 1301, “Communicating with Audit Committees.” In addition, the Audit Committee met with Mayer Hoffman, with and without management present, to discuss the overall scope of Mayer Hoffman’s audit, the results of its examinations and the overall quality of the Company’s financial reporting. The Audit Committee received the written disclosures and the letter from Mayer Hoffman required by Rule 3526 of the Public Company Accounting Oversight Board, Communication with Audit Committee Concerning Independence, and has discussed with Mayer Hoffman its independence, and satisfied itself as to the independence of Mayer Hoffman.

### Conclusion

Based on the above review, discussions, and representations received, the Audit Committee recommended to the Board of Directors that the audited financial statements for the each of the fiscal years ended March 31, 2018, 2017, and 2016 be included in the Company’s Form 10-K and filed with the SEC.

The Audit Committee of the Board of Directors:

James Glover (Chair)

Robert Baltera, Jr.

Tamar Howson

Richard Maroun, JD



## CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

During Fiscal 2018, there was no transaction or series of similar transactions to which we were or are a party in which the amount involved exceeded or exceeds \$120,000 and in which any of our directors or executive officers, any holder of more than 5% of any class of our voting securities or any member of the immediate family of any of the foregoing persons had or will have a direct or indirect material interest, other than (i) the transactions described below and (ii) the compensation arrangements with our executive officers and non-employee directors described in “Executive Compensation” and “Director Compensation,” respectively.

### Research Services Agreement with Cirius Therapeutics, Inc.

In August 2017, the Company entered into a research services agreement with Cirius Therapeutics, Inc., an entity for which Robert Baltera, Jr., a director of the Company, serves as Chief Executive Officer and President. Under this agreement, the Company is providing standard research services to Cirius Therapeutics, Inc. utilizing its ExVive™ Liver Tissue platform. During the fiscal year ended March 31, 2017, the Company recognized \$161,000 in revenue from Cirius Therapeutics, Inc. The Company is required to provide another \$7,000 of research services to Cirius Therapeutics during the first quarter of fiscal 2019. The agreement with Cirius Therapeutics does not require the Company to make any payments to Cirius Therapeutics or Mr. Baltera, and Mr. Baltera has no direct interest in the transaction.

The Company entered into the agreement with Cirius Therapeutics in the ordinary course of business and on terms and conditions it believes are as fair as those it offers and receives from non-related third parties. In addition, a committee of the Board of Directors comprised entirely of independent, non-employee directors approved the Company’s transactions with Cirius Therapeutics in accordance with the Related Party Transaction Policy and Procedures described below.

In addition, the Company’s Board evaluated Mr. Baltera’s continued status as an “independent” director in light of the Company’s transactions with Cirius Therapeutics. Based on that evaluation, the Board determined that Mr. Baltera continues to qualify as an independent director in accordance with the listing standards of the NASDAQ Stock Market and the rules and regulations of the SEC. The Board also determined that Mr. Baltera continues to qualify as an “independent” director for purposes of his service on the Company’s Audit and Compensation Committees, and that he also qualifies as a “non-employee director” for purposes of Rule 16b-3 under the Exchange Act and as an “outside director” for purposes of Section 162(m) of the Internal Revenue Code of 1986, as amended.

### Collaboration Agreement with Viscient Biosciences, Inc.

In November 2017, the Company entered into a collaboration agreement with Viscient Biosciences, Inc. to develop a custom research platform for studying liver disease. Keith Murphy, who served on the Company’s Board of Directors until August 2017 and as the Company’s Chief Executive Officer and President until April 2017, is the Chief Executive Officer and President of Viscient Biosciences. Mr. Murphy is also a 10% or greater stockholder of Viscient Biosciences. Under this agreement and its amendments, the Company is providing research services to Viscient Biosciences in exchange for cash payments. The Company also expects that the research platform being developed through the collaboration will enable it to expand its current service portfolio for compound screening in disease models, and facilitate future drug discovery work for other customers. Viscient Biosciences intends to use the research platform to target early discovery work for non-alcoholic fatty liver disease (“NAFLD”) and non-alcoholic steatohepatitis (“NASH”). The Company recognized \$358,000 in revenue during the fiscal year ended March 31, 2018 for the research services it provided to Viscient Biosciences. Additionally, the Company recognized \$13,500 of revenue in the 2018 fiscal year from sales of primary human cell-based products to Viscient Biosciences. The agreement with Viscient Biosciences does not require the Company to make any payments to Viscient Biosciences or Mr. Murphy, and Mr. Murphy has no direct interest in the transaction.

The Company entered into the agreement with Viscient Biosciences in the ordinary course of business and on terms and conditions it believes are as fair as those it offers and receives from non-related third parties. In addition, the Audit Committee approved the Company's transactions with Viscient Biosciences in accordance with the Related Party Transaction Policy and Procedures described below.

#### Related Party Transaction Policy and Procedures

Pursuant to our Related Party Transaction Policy and Procedures, our executive officers, directors, and principal stockholders, including their immediate family members and affiliates, are prohibited from entering into a related party transaction with us without the prior consent of our Audit Committee or a committee of our independent directors. Any request for us to enter into a transaction with an executive officer, director, principal stockholder, or any of such persons' immediate family members or affiliates, in which the amount involved exceeds \$120,000 must first be presented to our Audit Committee for review, consideration and approval. In approving or rejecting the proposed agreement, our Audit Committee will consider the relevant facts and circumstances available and deemed relevant, including, but not limited, to the risks, costs and benefits to us, the terms of the transaction, the availability of other sources for comparable services or products, and, if applicable, the impact on a director's independence. Our Audit Committee shall approve only those agreements that, in light of known circumstances, are in, or are not inconsistent with, our best interests, as our Audit Committee determines in the good faith exercise of its discretion.



## OTHER MATTERS

The Company is not aware of any matter to be acted upon at the Annual Meeting other than the matters described in this Proxy Statement. However, if any other matter properly comes before the Annual Meeting, the proxy holders will vote the proxies thereon in accordance with their best judgment on such matter.

## PROXY SOLICITATION

The Company will bear the expenses of calling and holding the Annual Meeting and the soliciting of proxies therefor. The Company has retained \_\_\_\_\_ to assist in the solicitation of proxies in connection with the Annual Meeting. The Company will pay such firm customary fees, expected to be no more than \$\_\_\_\_\_, plus expenses. This Proxy Statement and the accompanying materials are being made available to stockholders, in accordance with SEC rules, by providing access to these documents on the internet instead of mailing printed copies. Most stockholders will not receive printed copies of the proxy materials unless requested. Instead, the notice provides instructions on how to access and review the proxy materials on the internet. The notice also provides instructions on how to cast your vote via the internet or by telephone. If you would like to receive a printed or email copy of our proxy materials, please follow the instructions for requesting the materials in the notice. The Company may consider the engagement of a proxy solicitation firm. Our directors, officers and employees may also solicit proxies by mail, telephone and personal contact, but they will not receive any additional compensation for these activities.

## STOCKHOLDER PROPOSALS FOR 2019 ANNUAL MEETING

Stockholders interested in submitting a proposal for consideration at our 2019 Annual Meeting must do so by sending the proposal to our Corporate Secretary at Organovo Holdings, Inc., 6275 Nancy Ridge Dr., Suite 110, San Diego, California 92121. Under the SEC's proxy rules, the deadline for submission of proposals to be included in our proxy materials for the 2019 Annual Meeting is February \_\_, 2019, which is not more than 120 days prior to the one-year anniversary of the date on which the Company first mailed its proxy materials or a notice of availability of proxy materials (whichever is earlier) for the 2018 Annual Meeting (i.e., June \_\_, 2019). Accordingly, in order for a stockholder proposal to be considered for inclusion in our proxy materials for the 2019 Annual Meeting, any such stockholder proposal must be received by our Corporate Secretary on or before February \_\_, 2019, and comply with the procedures and requirements set forth in Rule 14a-8 under the Securities Exchange Act of 1934, as well as the applicable requirements of our Bylaws. Any stockholder proposal received after February \_\_, 2019 will be considered untimely, and will not be included in our proxy materials. In addition, stockholders interested in submitting a proposal outside of Rule 14a-8 must properly submit such a proposal in accordance with our Bylaws.

Our Bylaws require advance notice of business to be brought before a stockholders' meeting, including nominations of persons for election as directors. To be timely, notice to our Corporate Secretary must be received at our principal executive offices not less than 45 days but not more than 75 days prior to the one-year anniversary of the date on which the Company first mailed its proxy materials or a notice of availability of proxy materials (whichever is earlier) for the 2018 Annual Meeting (i.e., June \_\_, 2019) and must contain specified information concerning the matters to be brought before such meeting and concerning the stockholder proposing such matters. Therefore, to be presented at our 2019 Annual Meeting, such a proposal must be received by the Company on or after March \_\_, 2019 but no later than April \_\_, 2019. If the date of the 2019 Annual Meeting is advanced by more than 30 days, or delayed by more than 60 days, from the anniversary date of the 2018 Annual Meeting, notice must be received no earlier than the 120th day prior to such Annual Meeting and not later than the close of business on the later of (i) the 90th day prior to such Annual Meeting or (ii) the 10th day following the day on which the public announcement of the date of such Annual Meeting is first made.

## HOUSEHOLDING OF ANNUAL MEETING MATERIALS

We have adopted “householding,” a procedure approved by the SEC under which stockholders who share an address will receive a single copy of the Annual Report, Proxy Statement and Notice. This procedure reduces printing costs and mailing fees, while also reducing the environmental impact of the distribution of documents related to the Annual Meeting. If you reside at the same address as another Organovo Holdings, Inc. stockholder and wish to receive a separate copy of the Annual Meeting materials, you may do so by making a written or oral request to: Organovo Holdings, Inc., 6275 Nancy Ridge Dr., Suite 110, San Diego, California 92121, Attn: Corporate Secretary, telephone (858) 224-1000. Upon your request, we will promptly deliver a separate copy to you. The Annual Report, Proxy Statement and Notice are also available at [www.proxydocs.com/onvo](http://www.proxydocs.com/onvo).

Some brokers household proxy materials, delivering a single Proxy Statement or notice to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Once you have received notice from your broker that they will be householding materials to your address, householding will continue until you are notified otherwise or until you revoke your consent. If, at any time, you no longer wish to participate in householding and would prefer to receive a separate Proxy Statement or notice, please notify your broker directly. You may also write to: Continental Stock Transfer and Trust, 1 State Street Plaza, 30th Floor,

New York, NY 10004, Attention: Kevin Jennings, and include your name, the name of your broker or other nominee, and your account number(s). Any stockholders who share the same address and currently receive multiple copies of the Annual Report, Proxy Statement and Notice who wish to receive only one copy in the future may contact their bank, broker, or other holder of record, or Organovo Holdings, Inc. at the contact information listed above, to request information about householding.

ANNUAL REPORT ON FORM 10-K

The Company filed an Annual Report on Form 10-K for the year ended March 31, 2018 with the Securities and Exchange Commission. A copy of the Company's Annual Report on Form 10-K will also be made available (without exhibits), free of charge, to interested stockholders upon written request to Organovo Holdings, Inc., 6275 Nancy Ridge Dr., Suite 110, San Diego, California 92121, Attention: Corporate Secretary. The Annual Report on Form 10-K is not incorporated into this Proxy Statement and is not considered to be proxy-soliciting material.

BY ORDER OF THE BOARD OF DIRECTORS

Jennifer Bush

Senior Vice President, General Counsel, Corporate Secretary and Compliance Officer

Appendix A

ORGANOVO HOLDINGS, INC.

AMENDED AND RESTATED  
2012 EQUITY INCENTIVE PLAN

1. Purposes of the Plan. The purposes of this Plan are:

- to attract and retain the best available personnel for positions of substantial responsibility;
- to provide incentives to individuals who perform services for the Company; and
- to promote the success of the Company's business.

The Plan permits the grant of Incentive Stock Options, Nonstatutory Stock Options, Stock Appreciation Rights, Restricted Stock, Restricted Stock Units, Performance Units, Performance Shares and other stock or cash awards as the Administrator may determine.

2. Definitions. As used herein, the following definitions will apply:

- (a) "Administrator" means the Board or any of its Committees as will be administering the Plan, in accordance with Section 4 hereof.
- (b) "Affiliate" means any corporation or any other entity (including, but not limited to, partnerships and joint ventures) controlling, controlled by, or under common control with the Company.
- (c) "Applicable Laws" means the requirements relating to the administration of equity-based awards under U.S. federal and state corporate laws, U.S. federal and state securities laws, the Code, any stock exchange or quotation system on which the Common Stock is listed or quoted and the applicable laws of any foreign country or jurisdiction where Awards are, or will be, granted under the Plan.
- (d) "Award" means, individually or collectively, a grant under the Plan of Options, Stock Appreciation Rights, Restricted Stock, Restricted Stock Units, Performance Units, Performance Shares and other stock or cash awards as the Administrator may determine.
- (e) "Award Agreement" means the written or electronic agreement setting forth the terms and provisions applicable to each Award granted under the Plan. The Award Agreement is subject to the terms and conditions of the Plan.
- (f) "Board" means the Board of Directors of the Company.
- (g) "Change in Control" means the occurrence of any of the following events:
- (i) A change in the ownership of the Company which occurs on the date that any one person, or more than one person acting as a group ("Person"), acquires ownership of stock in the Company that, together with the stock already held by such Person, constitutes more than 50% of the total voting power of the stock of the Company; provided, however, that for purposes of this subsection (i), the acquisition of additional stock by any Person who is considered to own more than 50% of the total voting power of the stock of the Company before the acquisition will not be considered a Change in Control; or
  - (ii) A change in the effective control of the Company, which occurs on the date that a majority of the members of the Board are replaced during any twelve (12) month period by Directors whose appointment or



election is not endorsed by a majority of the members of the Board prior to the date of the appointment or election. For purposes of this subsection (ii), if any Person is considered to effectively control the Company, the acquisition of additional control of the Company by the same Person will not be considered a Change in Control; or

(iii) A change in the ownership of a substantial portion of the Company's assets, which occurs on the date that any Person acquires (or has acquired during the twelve (12) month period ending on the date of the most recent acquisition by such Person) assets from the Company that have a total gross fair market value equal to or more than 50% of the total gross fair market value of all of the assets of the Company immediately prior to such acquisition or acquisitions; provided, however, that for purposes of this subsection (iii), the following will not constitute a change in the ownership of a substantial portion of the Company's assets or a Change in Control: (A) a transfer to an entity that is controlled by the Company's stockholders immediately after the transfer, or (B) a transfer of assets by the Company to: (1) a stockholder of the Company (immediately before the asset transfer) in exchange for or with respect to the Company's stock, (2) an entity, 50% or more of the total value or voting power of which is owned, directly or indirectly, by the Company, (3) a Person that owns, directly or indirectly, 50% or more of the total value or voting power of all the outstanding stock of the Company, or (4) an entity, at least 50% of the total equity or voting power of which is owned, directly or indirectly, by a Person described in subsection (iii)(B)(3) above. For purposes of this subsection (iii), gross fair market value means the value of the assets of the Company, or the value of the assets being disposed of, determined without regard to any liabilities associated with such assets.

Notwithstanding the foregoing, as to any Award under the Plan that consists of deferred compensation subject to Section 409A of the Code, the definition of "Change in Control" shall be deemed modified to the extent necessary to comply with Section 409A of the Code.

For purposes of this Section 2(g), persons will be considered to be acting as a group if they are owners of a corporation or other entity that enters into a merger, consolidation, purchase or acquisition of stock, or similar business transaction with the Company.

(h) "Code" means the Internal Revenue Code of 1986, as amended. Any reference to a section of the Code herein will be a reference to any successor or amended section of the Code.

(i) "Committee" means a committee of Directors or of other individuals satisfying Applicable Laws appointed by the Board in accordance with Section 4 hereof.

(j) "Common Stock" means the common stock, par value \$0.001 per share, of the Company.

(k) "Company" means Organovo Holdings, Inc., a Delaware corporation, or any successor thereto.

(l) "Consultant" means any person, including an advisor, engaged by the Company or a Parent, Subsidiary or Affiliate to render services to the Company or a Subsidiary.

(m) "Determination Date" means the latest possible date that will not jeopardize the qualification of an Award granted under the Plan as "performance-based compensation" under Section 162(m) of the Code.

(n) "Director" means a member of the Board.

(o) "Disability" means permanent and total disability as defined in Section 22(e)(3) of the Code, provided that in the case of Awards other than Incentive Stock Options, the Administrator in its discretion may determine whether a permanent and total disability exists in accordance with uniform and non-discriminatory standards adopted by the Administrator from time to time.





(p) “Employee” means any person, including Officers and Directors, employed by the Company or any Parent, Subsidiary or Affiliate of the Company. Neither service as a Director nor payment of a director’s fee by the Company will be sufficient to constitute “employment” by the Company.

(q) “Exchange Act” means the Securities Exchange Act of 1934, as amended.

(r) [Reserved]

(s) “Fair Market Value” means, as of any date, the value of the Common Stock determined as follows:

(i) If the Common Stock is listed on any established stock exchange or a national market system, including without limitation the Nasdaq Global Select Market, the Nasdaq Global Market or the Nasdaq Capital Market of The Nasdaq Stock Market, its Fair Market Value will be the closing sales price for such stock (or if no closing sales price was reported on that date, as applicable, on the last trading date such closing sales price was reported) as quoted on such exchange or system on the day of determination, as reported in The Wall Street Journal or such other source as the Administrator deems reliable;

(ii) If the Common Stock is regularly quoted by a recognized securities dealer but selling prices are not reported, the Fair Market Value of a Share will be the mean between the high bid and low asked prices for the Common Stock on the day of determination (or, if no bids and asks were reported on that date, as applicable, on the last trading date such bids and asks were reported), as reported in The Wall Street Journal or such other source as the Administrator deems reliable; or

(iii) In the absence of an established market for the Common Stock, or if such Common Stock is not regularly quoted or does not have sufficient trades or bid prices which would accurately reflect the actual Fair Market Value of the Common Stock, the Fair Market Value will be determined in good faith by the Administrator upon the advice of a qualified valuation expert.

(t) “Fiscal Year” means the fiscal year of the Company.

(u) “Incentive Stock Option” means an Option that by its terms qualifies and is otherwise intended to qualify as an incentive stock option within the meaning of Section 422 of the Code and the regulations promulgated thereunder.

(v) “Nonstatutory Stock Option” means an Option that by its terms does not qualify or is not intended to qualify as an Incentive Stock Option.

(w) “Officer” means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act and the rules and regulations promulgated thereunder.

(x) “Option” means a stock option granted pursuant to Section 6 hereof.

(y) “Parent” means a “parent corporation,” whether now or hereafter existing, as defined in Section 424(e) of the Code.

(z) “Participant” means the holder of an outstanding Award.

(aa) “Performance Goals” will have the meaning set forth in Section 11 hereof.

(bb) “Performance Period” means any Fiscal Year of the Company or such other period as determined by the Administrator in its sole discretion.



(cc) "Performance Share" means an Award denominated in Shares which may be earned in whole or in part upon attainment of Performance Goals or other vesting criteria as the Administrator may determine pursuant to Section 10 hereof.

(dd) "Performance Unit" means an Award which may be earned in whole or in part upon attainment of Performance Goals or other vesting criteria as the Administrator may determine and which may be settled for cash, Shares or other securities or a combination of the foregoing pursuant to Section 10 hereof.

(ee) "Period of Restriction" means the period during which transfers of Shares of Restricted Stock are subject to restrictions and, therefore, the Shares are subject to a substantial risk of forfeiture. Such restrictions may be based on the passage of time, the achievement of target levels of performance, or the occurrence of other events as determined by the Administrator.

(ff) "Plan" means this 2012 Equity Incentive Plan.

(gg) "Restricted Stock" means Shares issued pursuant to an Award of Restricted Stock under Section 8 hereof, or issued pursuant to the early exercise of an Option.

(hh) "Restricted Stock Unit" means a bookkeeping entry representing an amount equal to the Fair Market Value of one Share, granted pursuant to Section 9 hereof. Each Restricted Stock Unit represents an unfunded and unsecured obligation of the Company.

(ii) "Rule 16b-3" means Rule 16b-3 of the Exchange Act or any successor to Rule 16b-3, as in effect when discretion is being exercised with respect to the Plan.

(jj) "Section 16(b)" means Section 16(b) of the Exchange Act.

(kk) "Service Provider" means an Employee, Director, or Consultant.

(ll) "Share" means a share of the Common Stock, as adjusted in accordance with Section 15 hereof.

(mm) "Stock Appreciation Right" means an Award, granted alone or in connection with an Option, that pursuant to Section 7 is designated as a Stock Appreciation Right.

(nn) "Subsidiary" means a "subsidiary corporation," whether now or hereafter existing, as defined in Section 424(f) of the Code.

### 3. Stock Subject to the Plan.

(a) Subject to the provisions of Section 15 hereof, the maximum aggregate number of Shares that may be awarded and sold under the Plan is 28,553,986 Shares. The Shares may be authorized, but unissued or reacquired Common Stock.

(b) Lapsed Awards. If an Award expires or becomes unexercisable without having been exercised in full, or, with respect to Restricted Stock, Restricted Stock Units, Performance Shares or Performance Units, is forfeited to or repurchased by the Company, the unissued Shares (or for Awards other than Options and Stock Appreciation Rights, the forfeited or repurchased Shares) which were subject thereto will become available for future grant or sale under the Plan (unless the Plan has terminated). Upon exercise of a Stock Appreciation Right settled in Shares, the gross number of Shares covered by the portion of the Award so exercised will cease to be available under the Plan. Shares that have actually been issued under the Plan under any Award will not be returned to the Plan and will not become available for future distribution under the Plan; provided, however, that if unvested Shares of Restricted Stock, Restricted Stock Units, Performance Shares or Performance Units are repurchased by

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the Company, such Shares will not become available for future grant under the Plan. Shares withheld or tendered (actually or through attestation) to pay the tax and/or exercise price of an Award will not become available for future grant or sale under the Plan. To the extent an Award under the Plan is payable in cash rather than Shares, such cash payment will not result in reducing the number of Shares available for issuance under the Plan. Notwithstanding the foregoing provisions of this Section 3(b), subject to adjustment provided in Section 14 hereof, the maximum number of Shares that may be issued upon the exercise of Incentive Stock Options will equal the aggregate Share number stated in Section 3(a) above, plus, to the extent allowable under Section 422 of the Code, any Shares that become available for issuance under the Plan under this Section 3(b).

(c) Share Reserve. The Company, during the term of this Plan, will at all times reserve and keep available such number of Shares as will be sufficient to satisfy the requirements of the Plan.

(d) Limitation on Number of Shares Subject to Awards. Notwithstanding any provision in the Plan to the contrary, the maximum aggregate number of Shares with respect to one or more Awards that may be granted to any one person during any calendar year (measured from the date of any grant) shall be 2,000,000 and the maximum aggregate amount of cash that may be paid in cash during any calendar year (measured from the date of any payment) with respect to one or more Awards payable in cash shall be \$2,000,000.

#### 4. Administration of the Plan.

##### (a) Procedure.

(i) Multiple Administrative Bodies. Different Committees with respect to different groups of Service Providers may administer the Plan.

(ii) Section 162(m). To the extent that the Administrator determines it to be desirable to qualify Awards granted hereunder as “performance-based compensation” within the meaning of Section 162(m) of the Code, the Plan will be administered by a Committee of two (2) or more “outside directors” within the meaning of Section 162(m) of the Code.

(iii) Rule 16b-3. To the extent desirable to qualify transactions hereunder as exempt under Rule 16b-3, the transactions contemplated hereunder will be structured to satisfy the requirements for exemption under Rule 16b-3.

(iv) Other Administration. Other than as provided above, the Plan will be administered by (A) the Board or (B) a Committee, which committee will be constituted to satisfy Applicable Laws.

(b) Powers of the Administrator. Subject to the provisions of the Plan, and in the case of a Committee, subject to the specific duties delegated by the Board to such Committee, the Administrator will have the authority, in its discretion:

(i) to determine the Fair Market Value;

(ii) to select the Service Providers to whom Awards may be granted hereunder;

(iii) to determine the number of Shares to be covered by each Award granted hereunder;

(iv) to approve forms of Award Agreements for use under the Plan;

(v) to determine the terms and conditions, not inconsistent with the terms of the Plan, of any Award granted hereunder;

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- (vi) to construe and interpret the terms of the Plan and Awards granted pursuant to the Plan;
  - (vii) to prescribe, amend and rescind rules and regulations relating to the Plan, including rules and regulations relating to sub-plans established for the purpose of satisfying applicable foreign laws or for qualifying for favorable tax treatment under applicable foreign laws;
  - (viii) to modify or amend each Award (subject to Section 20(c) hereof), including but not limited to the discretionary authority to extend the post-termination exercisability period of Awards, but the Administrator cannot reduce the exercise price of an outstanding Award unless such action is approved by the Company's stockholders;
  - (ix) to allow Participants to satisfy withholding tax obligations in a manner described in Section 16 hereof;
  - (x) to authorize any person to execute on behalf of the Company any instrument required to effect the grant of an Award previously granted by the Administrator;
  - (xi) to allow a Participant to defer the receipt of the payment of cash or the delivery of Shares that would otherwise be due to such Participant under an Award pursuant to such procedures as the Administrator may determine; and
  - (xii) to make all other determinations deemed necessary or advisable for administering the Plan.
- (xiii) In addition, except in connection with a corporate transaction involving the Company (including, without limitation, any stock dividend, stock split, extraordinary cash dividend, recapitalization, reorganization, merger, consolidation, split-up, spin-off, combination, or exchange of shares), the Administration shall not be permitted without stockholder approval to reprice outstanding Awards or to cancel or exchange an outstanding Award for cash or any other Award with an exercise price that is less than the exercise price of the original Award. For purposes of clarity, a "repricing" means any of the following (or any other action that has the same effect as any of the following): (A) changing the terms of an Award to lower its exercise price; (B) any other action that is treated as a "repricing" under generally accepted accounting principles; and (C) repurchasing for cash or canceling Award at a time when its exercise price is greater than the Fair Market Value of the underlying stock in exchange for another Award, unless the cancellation and exchange occurs in connection with an event set forth in Section 15. Such cancellation and exchange would be considered a "repricing" regardless of whether it is treated as a "repricing" under generally accepted accounting principles and regardless of whether it is voluntary on the part of the Participant.
- (c) Effect of Administrator's Decision. The Administrator's decisions, determinations, and interpretations will be final and binding on all Participants and any other holders of Awards.
- (d) No Reload Awards. No Award shall contain a reload feature that results in a new Award granted automatically upon delivery of Shares to the Company in payment of the exercise price or any tax withholding obligation.
5. Eligibility. Nonstatutory Stock Options, Restricted Stock, Restricted Stock Units, Stock Appreciation Rights, Performance Units, Performance Shares, and such other cash or stock awards as the Administrator determines may be granted to Service Providers. Incentive Stock Options may be granted only to Employees.

6. Stock Options.

(a) Limitations.

(i) Each Option will be designated in the Award Agreement as either an Incentive Stock Option or a Nonstatutory Stock Option. However, notwithstanding such designation, to the extent that the aggregate Fair Market Value of the Shares with respect to which Incentive Stock Options are exercisable for the first time by the Participant during any calendar year (under all plans of the Company and any Parent or Subsidiary) exceeds \$100,000 (U.S.), such Options will be treated as Nonstatutory Stock Options. For purposes of this Section 6(a), Incentive Stock Options will be taken into account in the order in which they were granted. The Fair Market Value of the Shares will be determined as of the time the Option with respect to such Shares is granted.

(ii) The Administrator will have complete discretion to determine the number of Shares subject to an Option granted to any Participant.

(b) Term of Option. The Administrator will determine the term of each Option in its sole discretion; provided, however, that the term will be no more than ten (10) years from the date of grant thereof. Moreover, in the case of an Incentive Stock Option granted to a Participant who, at the time the Incentive Stock Option is granted, owns stock representing more than 10% of the total combined voting power of all classes of stock of the Company or any Parent or Subsidiary, the term of the Incentive Stock Option will be five (5) years from the date of grant or such shorter term as may be provided in the Award Agreement.

(c) Option Exercise Price and Consideration.

(i) Exercise Price. The per share exercise price for the Shares to be issued pursuant to exercise of an Option will be determined by the Administrator, but will be no less than 100% of the Fair Market Value per Share on the date of grant. In addition, in the case of an Incentive Stock Option granted to an Employee who, at the time the Incentive Stock Option is granted, owns stock representing more than 10% of the voting power of all classes of stock of the Company or any Parent or Subsidiary, the per Share exercise price will be no less than 110% of the Fair Market Value per Share on the date of grant. Notwithstanding the foregoing provisions of this Section 6(c), Options may be granted with a per Share exercise price of less than 100% of the Fair Market Value per Share on the date of grant pursuant to a transaction described in, and in a manner consistent with, Section 424(a) of the Code.

(ii) Waiting Period and Exercise Dates. At the time an Option is granted, the Administrator will fix the period within which the Option may be exercised and will determine any conditions that must be satisfied before the Option may be exercised.

(iii) Form of Consideration. The Administrator will determine the acceptable form(s) of consideration for exercising an Option, including the method of payment, to the extent permitted by Applicable Laws. In the case of an Incentive Stock Option, the Administrator will determine the acceptable form of consideration at the time of grant. Such consideration may consist entirely of: (1) cash; (2) check; (3) promissory note, to the extent permitted by Applicable Laws, (4) other Shares, provided that such Shares have a Fair Market Value on the date of surrender equal to the aggregate exercise price of the Shares as to which such Option will be exercised and provided further that accepting such Shares will not result in any adverse accounting consequences to the Company, as the Administrator determines in its sole discretion; (5) consideration received by the Company under cashless exercise program (whether through a broker or otherwise) implemented by the Company in connection with the Plan; (6) by net exercise, (7) such other consideration and method of payment for the issuance of Shares to the extent permitted by Applicable Laws, or (8) any combination of the foregoing methods of payment. In making its determination as to the type of consideration to accept, the Administrator will consider if acceptance of such consideration may be reasonably expected to benefit the Company.



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(d) Exercise of Option.

(i) Procedure for Exercise; Rights as a Stockholder. Any Option granted hereunder will be exercisable according to the terms of the Plan and at such times and under such conditions as determined by the Administrator and set forth in the Award Agreement. An Option may not be exercised for a fraction of a Share.

An Option will be deemed exercised when the Company receives: (A) notice of exercise (in such form as the Administrator specifies from time to time) from the person entitled to exercise the Option, and (B) full payment for the Shares with respect to which the Option is exercised (together with any applicable withholding taxes). Full payment may consist of any consideration and method of payment authorized by the Administrator and permitted by the Award Agreement and the Plan. Shares issued upon exercise of an Option will be issued in the name of the Participant or, if requested by the Participant, in the name of the Participant and his or her spouse. Until the Shares are issued (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company), no right to vote or receive dividends or any other rights as a stockholder will exist with respect to the Shares subject to an Option, notwithstanding the exercise of the Option. The Company will issue (or cause to be issued) such Shares promptly after the Option is exercised. No adjustment will be made for a dividend or other right for which the record date is prior to the date the Shares are issued, except as provided in Section 15 hereof.

(ii) Termination of Relationship as a Service Provider. If a Participant ceases to be a Service Provider, other than upon the Participant's termination as the result of the Participant's death or Disability, the Participant may exercise his or her Option within such period of time as is specified in the Award Agreement to the extent that the Option is vested on the date of termination (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement). In the absence of a specified time in the Award Agreement, the Option will remain exercisable for three (3) months following the Participant's termination. Unless otherwise provided by the Administrator, if on the date of termination the Participant is not vested as to his or her entire Option, the Shares covered by the unvested portion of the Option will revert to the Plan. If after termination the Participant does not exercise his or her Option within the time specified by the Administrator, the Option will terminate, and the Shares covered by such Option will revert to the Plan.

(iii) Disability of Participant. Unless otherwise specified in the Award Agreement, if a Participant ceases to be a Service Provider as a result of the Participant's Disability, the Participant will fully vest in and have the right to exercise all of his or her outstanding Options within such period of time as is specified in the Award Agreement (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement), provided, however, that the accelerated vesting shall only apply to Options granted to the Participant at least 90 days before the Participant ceases to be a Service Provider as a result of Participant's Disability. In the absence of a specified time in the Award Agreement, the Option will remain exercisable for six (6) months following the date a Participant ceases to be a Service Provider as a result of Participant's Disability. If a Participant's Award Agreement specifically provides that Participant will not fully vest in all of the Shares covered by the Option on the date Participant ceases to be a Service Provider as a result of Participant's Disability, the Shares covered by the unvested portion of the Option will revert to the Plan. If after Participant ceases to be a Service Provider as a result of Participant's Disability, Participant does not exercise his or her Option within the time specified herein, the Option will terminate, and the Shares covered by such Option will revert to the Plan.

(iv) Death of Participant. Unless otherwise specified in the Award Agreement, if a Participant dies while a Service Provider, the Participant's outstanding Options will fully vest and may be exercised within such period of time as is specified in the Award Agreement (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement), by the Participant's designated beneficiary, provided such beneficiary has been designated prior to Participant's death in a form acceptable to the Administrator, provided, further, that the accelerated vesting shall only apply to Options granted to the Participant at least 90 days before the Participant ceases to be a Service Provider as a result of Participant's death. If no such beneficiary has been

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designated by the Participant, then such Option may be exercised by the personal representative of the Participant's estate or by the person(s) to whom the Option is transferred pursuant to the Participant's will or in accordance with the laws of descent and distribution. In the absence of a specified time in the Award Agreement, the Option will remain exercisable for six (6) months following Participant's death. If a Participant's Award Agreement specifically provides that Participant will not fully vest in all of the Shares covered by the Option if Participant dies while a Service Provider, the Shares covered by the unvested portion of the Option will continue to vest in accordance with the Award Agreement. If the Option is not so exercised within the time specified herein, the Option will terminate, and the Shares covered by such Option will revert to the Plan.

#### 7. Stock Appreciation Rights.

(a) Grant of Stock Appreciation Rights. Subject to the terms and conditions of the Plan, a Stock Appreciation Right may be granted to Service Providers at any time and from time to time as will be determined by the Administrator, in its sole discretion.

(b) Number of Shares. The Administrator will have complete discretion to determine the number of Stock Appreciation Rights granted to any Participant.

(c) Exercise Price and Other Terms. The Administrator, subject to the provisions of the Plan, will have complete discretion to determine the terms and conditions of Stock Appreciation Rights granted under the Plan; provided, however, that the exercise price will be not less than 100% of the Fair Market Value of a Share on the date of grant.

(d) Stock Appreciation Rights Agreement. Each Stock Appreciation Right grant will be evidenced by an Award Agreement that will specify the exercise price, the term of the Stock Appreciation Right, the conditions of exercise, and such other terms and conditions as the Administrator, in its sole discretion, will determine.

(e) Expiration of Stock Appreciation Rights. A Stock Appreciation Right granted under the Plan will expire upon the date determined by the Administrator, in its sole discretion, and set forth in the Award Agreement; provided, however, that the term will be no more than ten (10) years from the date of grant thereof. Notwithstanding the foregoing, the rules of Section 6(d) above also will apply to Stock Appreciation Rights.

(f) Payment of Stock Appreciation Right Amount. Upon exercise of a Stock Appreciation Right, a Participant will be entitled to receive payment from the Company in an amount determined by multiplying:

(i) The difference between the Fair Market Value of a Share on the date of exercise over the exercise price; times

(ii) The number of Shares with respect to which the Stock Appreciation Right is exercised.

At the discretion of the Administrator, the payment upon Stock Appreciation Right exercise may be in cash, in Shares of equivalent value, or in some combination thereof.

(g) Death or Disability of Participant. Unless otherwise specified in the Award Agreement, if a Participant ceases to be a Service Provider as a result of the Participant's death or Disability, all of his or her outstanding Stock Appreciation Rights will fully vest and may be exercised within such period of time as is specified in the Award Agreement (but in no event later than the expiration of the term of such Stock Appreciation Rights as set forth in the Award Agreement) by the Participant or the Participant's designated beneficiary, provided such beneficiary has been designated prior to Participant's death in a form acceptable to the Administrator), provided, further, that the accelerated vesting shall only apply to Stock Appreciation Rights granted to the Participant at least 90 days before the Participant ceases to be a Service Provider as a result of Participant's death or Disability. If no such beneficiary has been designated by the Participant, then such Stock Appreciate Rights may be exercised by the personal representative of the Participant's estate or by the person(s) to whom the Stock Appreciation Right is transferred pursuant to the

Participant's will or in accordance with the laws of descent and

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distribution. In the absence of a specified time in the Award Agreement, the Stock Appreciation Rights will remain exercisable for six (6) months following the date the Participant ceases to be a Service Provider as a result of Participant's death or Disability. If the Stock Appreciation Right is not so exercised within the time specified herein, the Stock Appreciation Right will terminate.

#### 8. Restricted Stock.

(a) Grant of Restricted Stock. Subject to the terms and provisions of the Plan, the Administrator, at any time and from time to time, may grant Shares of Restricted Stock to Service Providers in such amounts as the Administrator, in its sole discretion, will determine.

(b) Restricted Stock Agreement. Each Award of Restricted Stock will be evidenced by an Award Agreement that will specify the Period of Restriction, the number of Shares granted, and such other terms and conditions as the Administrator, in its sole discretion, will determine. Unless the Administrator determines otherwise, the Company as escrow agent will hold Shares of Restricted Stock until the restrictions on such Shares have lapsed.

(c) Transferability. Except as provided in this Section 8, Shares of Restricted Stock may not be sold, transferred, pledged, assigned, or otherwise alienated or hypothecated until the end of the applicable Period of Restriction.

(d) Other Restrictions. The Administrator, in its sole discretion, may impose such other restrictions on Shares of Restricted Stock as it may deem advisable or appropriate.

(e) Removal of Restrictions. Except as otherwise provided in this Section 8, Shares of Restricted Stock covered by each Restricted Stock grant made under the Plan will be released from escrow as soon as practicable after the last day of the Period of Restriction. The Administrator, in its discretion, may accelerate the time at which any restrictions will lapse or be removed. Unless otherwise specified in the Award Agreement, if a Participant ceases to be a Service Provider as a result of the Participant's death or Disability, all restrictions on his or her outstanding Restricted Stock, other than those that are Performance Shares (see Section 10 below), will automatically lapse or be removed, provided, however, that the accelerated vesting shall only apply to Restricted Stock granted to the Participant at least 90 days before the Participant ceases to be a Service Provider as a result of Participant's death or Disability.

(f) Voting Rights. During the Period of Restriction, Service Providers holding Shares of Restricted Stock granted hereunder may exercise full voting rights with respect to those Shares, unless the Administrator determines otherwise.

(g) Dividends and Other Distributions. During the Period of Restriction, Service Providers holding Shares of Restricted Stock will be entitled to receive all dividends and other distributions paid with respect to such Shares unless otherwise provided in the Award Agreement. If any such dividends or distributions are paid in Shares, the Shares will be subject to the same restrictions on transferability and forfeitability as the Shares of Restricted Stock with respect to which they were paid.

(h) Return of Restricted Stock to Company. On the date set forth in the Award Agreement, the Restricted Stock for which restrictions have not lapsed will revert to the Company and again will become available for grant under the Plan.

(i) Section 162(m) Performance Restrictions. For purposes of qualifying grants of Restricted Stock as "performance-based compensation" under Section 162(m) of the Code, the Administrator, in its discretion, may set restrictions based upon the achievement of Performance Goals. The Performance Goals will be set by the Administrator on or before the Determination Date. In granting Restricted Stock which is intended to qualify under Section 162(m) of the Code, the Administrator will follow any procedures determined by it from time to time to be necessary or appropriate to ensure qualification of the Award under Section 162(m) of the Code (e.g., in determining the Performance Goals).

9. Restricted Stock Units.

(a) Grant. Restricted Stock Units may be granted at any time and from time to time as determined by the Administrator. Each Restricted Stock Unit grant will be evidenced by an Award Agreement that will specify such other

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terms and conditions as the Administrator, in its sole discretion, will determine, including all terms, conditions, and restrictions related to the grant, the number of Restricted Stock Units and the form of payout, which, subject to Section 9(d) hereof, may be left to the discretion of the Administrator.

(b) Vesting Criteria and Other Terms. The Administrator will set vesting criteria in its discretion, which, depending on the extent to which the criteria are met, will determine the number of Restricted Stock Units that will be paid out to the Participant. After the grant of Restricted Stock Units, the Administrator, in its sole discretion, may reduce or waive any restrictions for such Restricted Stock Units. Each Award of Restricted Stock Units will be evidenced by an Award Agreement that will specify the vesting criteria, and such other terms and conditions as the Administrator, in its sole discretion will determine. The Administrator, in its discretion, may accelerate the time at which any restrictions will lapse or be removed. Unless otherwise specified in the Award Agreement, if a Participant ceases to be a Service Provider as a result of the Participant's death or Disability, all restrictions on his or her outstanding Restricted Stock Units, other than those that are Performance Units (see Section 10 below), will automatically lapse or be removed, provided, however, that the accelerated vesting shall only apply to Restricted Stock Units granted to the Participant at least 90 days before the Participant ceases to be a Service Provider as a result of Participant's death or Disability.

(c) Earning Restricted Stock Units. Upon meeting the applicable vesting criteria, the Participant will be entitled to receive a payout as specified in the Award Agreement.

(d) Form and Timing of Payment. Payment of earned Restricted Stock Units will be made as soon as practicable after the date(s) set forth in the Award Agreement. The Administrator, in its sole discretion, may pay earned Restricted Stock Units in cash, Shares, or a combination thereof. Shares represented by Restricted Stock Units that are fully paid in cash again will be available for grant under the Plan.

(e) Cancellation. On the date set forth in the Award Agreement, all unearned Restricted Stock Units will be forfeited to the Company.

(f) Section 162(m) Performance Restrictions. For purposes of qualifying grants of Restricted Stock Units as "performance-based compensation" under Section 162(m) of the Code, the Administrator, in its discretion, may set restrictions based upon the achievement of Performance Goals. The Performance Goals will be set by the Administrator on or before the Determination Date. In granting Restricted Stock Units which are intended to qualify under Section 162(m) of the Code, the Administrator will follow any procedures determined by it from time to time to be necessary or appropriate to ensure qualification of the Award under Section 162(m) of the Code (e.g., in determining the Performance Goals).

#### 10. Performance Units and Performance Shares.

(a) Grant of Performance Units/Shares. Performance Units and Performance Shares may be granted to Service Providers at any time and from time to time, as will be determined by the Administrator, in its sole discretion. The Administrator will have complete discretion in determining the number of Performance Units/Shares granted to each Participant.

(b) Value of Performance Units/Shares. Each Performance Unit will have an initial value that is established by the Administrator on or before the date of grant. Each Performance Share will have an initial value equal to the Fair Market Value of a Share on the date of grant.

(c) Performance Objectives and Other Terms. The Administrator will set performance objectives or other vesting provisions. The Administrator may set vesting criteria based upon the achievement of Company-wide, business unit, or individual goals (including, but not limited to, continued employment), or any other basis





determined by the Administrator in its discretion. Each Award of Performance Units/Shares will be evidenced by an Award Agreement that will specify the Performance Period, and such other terms and conditions as the Administrator, in its sole discretion, will determine. Unless otherwise specified in the Award Agreement, if a Participant ceases to be a Service Provider as a result of the Participant's death or Disability, all Performance Goals or other vesting criteria will be deemed achieved at target levels and all other terms and conditions met), provided, however, that the accelerated vesting shall only apply to Performance Units/Shares granted to the Participant at least 90 days before the Participant ceases to be a Service Provider as a result of Participant's death or Disability.

(d) Earning of Performance Units/Shares. After the applicable Performance Period has ended, the holder of Performance Units/Shares will be entitled to receive a payout of the number of Performance Units/Shares earned by the Participant over the Performance Period, to be determined as a function of the extent to which the corresponding performance objectives or other vesting provisions have been achieved. After the grant of a Performance Unit/Share, the Administrator, in its sole discretion, may reduce or waive any performance objectives or other vesting provisions for such Performance Unit/Share.

(e) Form and Timing of Payment of Performance Units/Shares. Payment of earned Performance Units/Shares will be made as soon as practicable after the expiration of the applicable Performance Period. The Administrator, in its sole discretion, may pay earned Performance Units/Shares in the form of cash, in Shares (which have an aggregate Fair Market Value equal to the value of the earned Performance Units/Shares at the close of the applicable Performance Period) or in a combination thereof.

(f) Cancellation of Performance Units/Shares. On the date set forth in the Award Agreement, all unearned or unvested Performance Units/Shares will be forfeited to the Company, and again will be available for grant under the Plan.

(g) Section 162(m) Performance Restrictions. For purposes of qualifying grants of Performance Units/Shares as "performance-based compensation" under Section 162(m) of the Code, the Administrator, in its discretion, may set restrictions based upon the achievement of Performance Goals. The Performance Goals will be set by the Administrator on or before the Determination Date. In granting Performance Units/Shares which are intended to qualify under Section 162(m) of the Code, the Administrator will follow any procedures determined by it from time to time to be necessary or appropriate to ensure qualification of the Award under Section 162(m) of the Code (e.g., in determining the Performance Goals).

#### 11. Performance-Based Compensation Under Code Section 162(m).

(a) General. If the Administrator, in its discretion, decides to grant an Award intended to qualify as "performance-based compensation" under Code Section 162(m), the provisions of this Section 11 will control over any contrary provision in the Plan; provided, however, that the Administrator may in its discretion grant Awards that are not intended to qualify as "performance-based compensation" under Section 162(m) of the Code to such Participants that are based on Performance Goals or other specific criteria or goals but that do not satisfy the requirements of this Section 11.

(b) Performance Goals. The granting and/or vesting of Awards of Restricted Stock, Restricted Stock Units, Performance Shares and Performance Units and other incentives under the Plan may be made subject to the attainment of performance goals relating to one or more business criteria within the meaning of Code Section 162(m) and may provide for a targeted level or levels of achievement ("Performance Goals") including: (i) earnings per Share; (ii) operating cash flow; (iii) operating income; (iv) profit after-tax; (v) profit before-tax; (vi) return on assets; (vii) return on equity; (viii) return on sales; (ix) revenue; and (x) total shareholder return; (xi) return on capital, including but not limited to return on invested capital against a weighted average cost of capital; (xii) return on net assets; (xiii) economic value added; (xiv) market share; (xv) customer service; (xvi) customer satisfaction; (xvii) safety; (xviii) total stockholder return; (xix) free cash flow; (xx) net operating income; (xxi) operating cash flow; (xxii) return on investment; (xxiii) employee satisfaction; (xxiv) employee retention; (xxv) balance of cash, cash equivalents and marketable securities; (xxvi) product development;

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(xxvii) research and development expenses; (xxviii) completion of an identified special project; (xxix) completion of a joint venture or other corporate transaction; (xxx) filing of patents; (xxxi) submission and/or publication of Scientific Works; (xxxii) execution or expansion of strategic partnerships or relationships; or (xxxiii) such other measures as determined by the Committee consistent with the terms of the Equity Incentive Plan. Any Performance Goals may be used to measure the performance of the Company as a whole or a business unit of the Company and may be measured relative to a peer group or index. The Performance Goals may differ from Participant to Participant and from Award to Award. Prior to the Determination Date, the Administrator will determine whether any significant element(s) will be included in or excluded from the calculation of any Performance Goal with respect to any Participant.

(c) Procedures. To the extent necessary to comply with the performance-based compensation provisions of Code Section 162(m), with respect to any Award granted subject to Performance Goals, within the first twenty-five percent (25%) of the Performance Period, but in no event more than ninety (90) days following the commencement of any Performance Period (or such other time as may be required or permitted by Code Section 162(m)), the Administrator will, in writing, (i) designate one or more Participants to whom an Award will be made, (ii) select the Performance Goals applicable to the Performance Period, (iii) establish the Performance Goals, and amounts of such Awards, as applicable, which may be earned for such Performance Period, and (iv) specify the relationship between Performance Goals and the amounts of such Awards, as applicable, to be earned by each Participant for such Performance Period. Following the completion of each Performance Period, the Administrator will certify in writing whether the applicable Performance Goals have been achieved for such Performance Period. In determining the amounts earned by a Participant, the Administrator will have the right to reduce or eliminate (but not to increase) the amount payable at a given level of performance to take into account additional factors that the Administrator may deem relevant to the assessment of individual or corporate performance for the Performance Period. A Participant will be eligible to receive payment pursuant to an Award for a Performance Period only if the Performance Goals for such period are achieved.

(d) Limitation on Dividends and Dividend Equivalents. Any dividend or dividend-equivalent payment paid on an Award granted under this Section 11 may be (i) reinvested in additional Shares or units, in either case, subject to the same restrictions as the underlying Award, or (ii) withheld, credited with interest at the sole discretion of the Administrator, and later paid in cash or Shares (with a Fair Market Value per Share equal to any accumulated dividends or dividend-equivalent payments) once the underlying Award vests. If an Award granted under this this Section 11 is forfeited, any accumulated dividends or dividend-equivalent payments are also forfeited.

(e) Additional Limitations. Notwithstanding any other provision of the Plan, any Award which is granted to a Participant and is intended to constitute qualified performance based compensation under Code Section 162(m) will be subject to any additional limitations set forth in the Code (including any amendment to Section 162(m)) or any regulations and ruling issued thereunder that are requirements for qualification as qualified performance-based compensation as described in Section 162(m) of the Code, and the Plan will be deemed amended to the extent necessary to conform to such requirements.

12. Compliance with Code Section 409A. Awards will be designed and operated in such a manner that they are either exempt from the application of, or comply with, the requirements of Code Section 409A, except as otherwise determined in the sole discretion of the Administrator. The Plan and each Award Agreement under the Plan is intended to meet the requirements of Code Section 409A and will be construed and interpreted in accordance with such intent, except as otherwise determined in the sole discretion of the Administrator. To the extent that an Award or payment, or the settlement or deferral thereof, is subject to Code Section 409A the Award will be granted, paid, settled or deferred in a manner that will meet the requirements of Code Section 409A, such that the grant, payment, settlement or deferral will not be subject to the additional tax or interest applicable under Code Section 409A.



13. Leaves of Absence. Unless the Administrator provides otherwise, vesting of Awards granted hereunder will be suspended during any unpaid leave of absence. A Service Provider will not cease to be an Employee in the case of (i) any leave of absence approved by the Company, or (ii) transfers between locations of the Company or between the Company, its Parent, or any Subsidiary. For purposes of Incentive Stock Options, no such leave may exceed three (3) months, unless reemployment upon expiration of such leave is guaranteed by statute or contract. If reemployment upon expiration of a leave of absence approved by the Company is not so guaranteed, then six (6) months and one day following the commencement of such leave any Incentive Stock Option held by the Participant will cease to be treated as an Incentive Stock Option and will be treated for tax purposes as a Nonstatutory Stock Option.

14. Transferability of Awards. Unless determined otherwise by the Administrator, an Award may not be sold, pledged, assigned, hypothecated, transferred, or disposed of in any manner other than by will or by the laws of descent or distribution and may be exercised, during the lifetime of the Participant, only by the Participant. If the Administrator makes an Award transferable, such Award may only be transferred (i) by will, (ii) by the laws of descent and distribution, (iii) to a revocable trust, or (iii) as permitted by Rule 701 of the Securities Act of 1933, as amended.

15. Adjustments; Dissolution or Liquidation; Merger or Change in Control.

(a) Adjustments. In the event that any dividend or other distribution (whether in the form of cash, Shares, other securities, or other property), recapitalization, stock split, reverse stock split, reorganization, merger, consolidation, split-up, spin-off, combination, repurchase, or exchange of Shares or other securities of the Company, or other change in the corporate structure of the Company affecting the Shares occurs, the Administrator, in order to prevent diminution or enlargement of the benefits or potential benefits intended to be made available under the Plan, will adjust the number and class of Shares that may be delivered under the Plan and/or the number, class, and price of Shares covered by each outstanding Award, and the numerical Share limits set forth in Sections 3, 7, 8, 9 and 10 hereof.

(b) Dissolution or Liquidation. In the event of the proposed dissolution or liquidation of the Company, the Administrator will notify each Participant as soon as practicable prior to the effective date of such proposed transaction. To the extent it has not been previously exercised, an Award will terminate immediately prior to the consummation of such proposed action.

(c) Change in Control. In the event of a merger of the Company with or into another corporation or other entity or a Change in Control, each outstanding Award will be treated as the Administrator determines (subject to the provisions of the proceeding paragraph) without a Participant's consent, including, without limitation, that (i) Awards will be assumed, or substantially equivalent Awards will be substituted, by the acquiring or succeeding corporation (the "Successor Corporation") (or an affiliate thereof) with appropriate adjustments as to the number and kind of shares and prices; (ii) upon written notice to a Participant, that the Participant's Awards will terminate upon or immediately prior to the consummation of such merger or Change in Control; (iii) outstanding Awards will vest and become exercisable, realizable, or payable, or restrictions applicable to an Award will lapse, in whole or in part prior to or upon consummation of such merger or Change in Control, and, to the extent the Administrator determines, terminate upon or immediately prior to the effectiveness of such merger or Change in Control; (iv) (A) the termination of an Award in exchange for an amount of cash and/or property, if any, equal to the amount that would have been attained upon the exercise of such Award or realization of the Participant's rights as of the date of the occurrence of the transaction (and, for the avoidance of doubt, if as of the date of the occurrence of the transaction the Administrator determines in good faith that no amount would have been attained upon the exercise of such Award or realization of the Participant's rights, then such Award may be terminated by the Company without payment), or (B) the replacement of such Award with other rights or property selected by the Administrator in its sole discretion; or (v) any combination of the foregoing. In taking any of the actions permitted under this subsection (c), the Administrator will not be obligated to treat all Awards, all Awards held by a Participant, or all Awards of the same type, similarly.



In the event that the Successor Corporation does not assume or substitute for the Award, the Participant will fully vest in and have the right to exercise all of his or her outstanding Options and Stock Appreciation Rights, including Shares as to which such Awards would not otherwise be vested or exercisable, all restrictions on Restricted Stock will lapse, and, with respect to Restricted Stock Units, Performance Shares and Performance Units, all Performance Goals or other vesting criteria will be deemed achieved at target levels and all other terms and conditions met. In addition, if an Option or Stock Appreciation Right is not assumed or substituted for in the event of a Change in Control, the Administrator will notify the Participant in writing or electronically that the Option or Stock Appreciation Right will be fully vested and exercisable for a period of time determined by the Administrator in its sole discretion, and the Option or Stock Appreciation Right will terminate upon the expiration of such period.

For the purposes of this subsection (c), an Award will be considered assumed if, following the Change in Control, the Award confers the right to purchase or receive, for each Share subject to the Award immediately prior to the Change in Control, the consideration (whether stock, cash, or other securities or property) or, in the case of a Stock Appreciation Right upon the exercise of which the Administrator determines to pay cash or a Performance Share or Performance Unit which the Administrator can determine to pay in cash, the fair market value of the consideration received in the merger or Change in Control by holders of Common Stock for each Share held on the effective date of the transaction (and if holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding Shares); provided, however, that if such consideration received in the Change in Control is not solely common stock of the Successor Corporation, the Administrator may, with the consent of the Successor Corporation, provide for the consideration to be received upon the exercise of an Option or Stock Appreciation Right or upon the payout of a Performance Share or Performance Unit, for each Share subject to such Award (or in the case of Performance Units, the number of implied shares determined by dividing the value of the Performance Units by the per share consideration received by holders of Common Stock in the Change in Control), to be solely common stock of the Successor Corporation equal in fair market value to the per share consideration received by holders of Common Stock in the Change in Control.

Notwithstanding anything in this Section 15(c) to the contrary, an Award that vests, is earned or paid-out upon the satisfaction of one or more Performance Goals will not be considered assumed if the Company or its successor modifies any of such Performance Goals without the Participant's consent; provided, however, a modification to such Performance Goals only to reflect the Successor Corporation's post-Change in Control corporate structure will not be deemed to invalidate an otherwise valid Award assumption. In the case of an Award providing for the payment of deferred compensation subject to Section 409A of the Code, any payment of such deferred compensation by reason of a Change in Control shall be made only if the Change in Control is one described in subsection (a)(2)(A)(v) of Section 409A and the guidance thereunder and shall be paid consistent with the requirements of Section 409A. If any deferred compensation that would otherwise be payable by reason of a Change in Control cannot be paid by reason of the immediately preceding sentence, it shall be paid as soon as practicable thereafter consistent with the requirements of Section 409A, as determined by the Administrator.

#### 16. Tax Withholding.

(a) **Withholding Requirements.** Prior to the delivery of any Shares or cash pursuant to an Award (or exercise thereof), the Company will have the power and the right to deduct or withhold, or require a Participant to remit to the Company, an amount sufficient to satisfy federal, state, local, foreign or other taxes (including the Participant's FICA obligation) required to be withheld with respect to such Award (or exercise thereof).

(b) **Withholding Arrangements.** The Administrator, in its sole discretion and pursuant to such procedures as it may specify from time to time, may permit a Participant to satisfy such tax withholding obligation, in whole or in part by (without limitation) (i) paying cash, (ii) electing to have the Company withhold otherwise deliverable cash or Shares having a Fair Market Value equal to the minimum amount required to be withheld, (iii) delivering to the Company already-owned Shares having a Fair Market Value equal to the amount required to be withheld,



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or (iv) selling a sufficient number of Shares otherwise deliverable to the Participant through such means as the Administrator may determine in its sole discretion (whether through a broker or otherwise) equal to the amount required to be withheld. The amount of the withholding requirement will be deemed to include any amount which the Administrator agrees may be withheld at the time the election is made, not to exceed the amount determined by using the maximum federal, state or local marginal income tax rates applicable to the Participant with respect to the Award on the date that the amount of tax to be withheld is to be determined. The Fair Market Value of the Shares to be withheld or delivered will be determined as of the date that the taxes are required to be withheld.

17. No Effect on Employment or Service. Neither the Plan nor any Award will confer upon a Participant any right with respect to continuing the Participant's relationship as a Service Provider with the Company, nor will they interfere in any way with the Participant's right or the Company's right to terminate such relationship at any time, with or without cause, to the extent permitted by Applicable Laws.

18. Date of Grant. The date of grant of an Award will be, for all purposes, the date on which the Administrator makes the determination granting such Award, or such other later date as is determined by the Administrator. Notice of the determination will be provided to each Participant within a reasonable time after the date of such grant.

19. Term of Plan. Subject to Section 23 hereof, the Plan, as amended and restated, will become effective upon its adoption by the Company's stockholders at the 2018 Annual Meeting of Stockholders. It will continue in effect for a term of ten (10) years unless terminated earlier under Section 20 hereof.

20. Amendment and Termination of the Plan.

(a) Amendment and Termination. The Administrator may at any time amend, alter, suspend or terminate the Plan.

(b) Stockholder Approval. The Company will obtain stockholder approval of any Plan amendment to the extent necessary and desirable to comply with Applicable Laws.

(c) Effect of Amendment or Termination. No amendment, alteration, suspension, or termination of the Plan will impair the rights of any Participant, unless mutually agreed otherwise between the Participant and the Administrator, which agreement must be in writing and signed by the Participant and the Company. Termination of the Plan will not affect the Administrator's ability to exercise the powers granted to it hereunder with respect to Awards granted under the Plan prior to the date of such termination.

21. Conditions Upon Issuance of Shares.

(a) Legal Compliance. Shares will not be issued pursuant to the exercise of an Award unless the exercise of such Award and the issuance and delivery of such Shares will comply with Applicable Laws and will be further subject to the approval of counsel for the Company with respect to such compliance.

(b) Investment Representations. As a condition to the exercise of an Award, the Company may require the person exercising such Award to represent and warrant at the time of any such exercise that the Shares are being purchased only for investment and without any present intention to sell or distribute such Shares if, in the opinion of counsel for the Company, such a representation is required.

(c) Restrictive Legends. All Award Agreements and all securities of the Company issued pursuant thereto shall bear such legends regarding restrictions on transfer and such other legends as the appropriate officer of the Corporation shall determine to be necessary or advisable to comply with applicable securities and other laws.



22. Inability to Obtain Authority. The inability of the Company to obtain authority from any regulatory body having jurisdiction, which authority is deemed by the Company's counsel to be necessary to the lawful issuance and sale of any Shares hereunder, will relieve the Company of any liability in respect of the failure to issue or sell such Shares as to which such requisite authority will not have been obtained.

23. Stockholder Approval. The Plan will be subject to approval by the stockholders of the Company within twelve (12) months after the date the Plan is adopted by the Board. Such stockholder approval will be obtained in the manner and to the degree required under Applicable Laws. In the event that stockholder approval is not obtained within twelve (12) months after the date the Plan is adopted by the Board, the Plan and all Awards granted hereunder shall be void ab initio and of no effect. Notwithstanding any other provisions of the Plan, no Awards shall be exercisable until the date of such stockholder approval.

24. Notification of Election Under Section 83(b) of the Code. If any Service Provider shall, in connection with the acquisition of Shares under the Plan, make the election permitted under Section 83(b) of the Code, such Service Provider shall notify the Company of such election within ten (10) days of filing notice of the election with the Internal Revenue Service and provide the Company with a copy thereof, in addition to any filing and a notification required pursuant to regulations issued under the authority of Section 83(b) of the Code. A Service Provider shall not be permitted to make a Section 83(b) election with respect to an Award of a Restricted Stock Unit.

25. Notification Upon Disqualifying Disposition Under Section 421(b) of the Code. Each Service Provider shall notify the Company of any disposition of Shares issued pursuant to the exercise of an Incentive Stock Option under the circumstances described in Section 421(b) of the Code (relating to certain disqualifying dispositions), within ten (10) days of such disposition.

26. Choice of Law. The Plan and all rules and determinations made and taken pursuant hereto will be governed by the laws of the State of Delaware, to the extent not preempted by federal law, and construed accordingly.

27. Clawback or Recoupment. Unless otherwise specified in the Award Agreement or determined in the Administrator's sole discretion, all Awards, and all Shares and cash payable under each Award, are subject to any clawback or recoupment policy adopted by the Company (including any policy required under the Dodd-Frank Wall Street Reform and Consumer Protection Act or other Applicable Laws), regardless of whether the policy is adopted after the date on which the Award is granted, vests or becomes exercisable, or is exercised or settled by issuance of Shares, payment of cash, or a combination of both.