

Section 1: DEF 14A (DEF 14A)

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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549  
SCHEDULE 14A  
(Rule 14a-101)  
Information Required in Proxy Statement  
Schedule 14A Information  
Proxy Statement Pursuant to Section 14(a) of the  
Securities Exchange Act of 1934

- Filed by the Registrant ☒
- Filed by a Party other than the Registrant ☐
- Check the appropriate box:
- ☐ Preliminary Proxy Statement

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

REPLIGEN CORPORATION  
(Name of Registrant as Specified in its Charter)

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

Payment of Filing Fee (Check the appropriate box):

☒ No fee required.

☐ Fee computed on table below per Exchange Act Rules 14a-6(i) (4) and 0-11.

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

(2) Aggregate number of securities to which transaction applies:

(3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):

(4) Proposed maximum aggregate value of transaction:

(5) Total fee paid:

☐ Fee paid previously with preliminary materials.

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

(1) Amount Previously Paid:

(2) Form, Schedule or Registration Statement No.:

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(3) Filing Party:

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(4) Date Filed:

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**REPLIGEN CORPORATION**  
**Notice of Annual Meeting of Stockholders**  
**May 16, 2018**

To the Stockholders:

The Annual Meeting of our Stockholders will be held on Wednesday, May 16, 2018 at 8:00 a.m. EDT at Repligen Corporation's headquarters located at 41 Seyon Street, Building 1, Suite 100, Waltham, Massachusetts 02453 (see directions attached as Appendix A to the proxy statement) for the following purposes:

1. To elect seven directors, nominated by the Board of Directors, as more fully described in the accompanying proxy statement;
2. To ratify the selection of Ernst & Young LLP as independent registered public accountants for the fiscal year ending December 31, 2018;
3. To consider and act upon an advisory vote to approve the compensation of our named executive officers;
4. To consider and vote upon a proposal to approve the Repligen Corporation 2018 Stock Option and Incentive Plan; and
5. To consider and act upon any other business which may properly come before the meeting.

The Board of Directors has fixed the close of business on March 23, 2018 as the record date for the meeting. All stockholders of record on that date are entitled to notice of and to vote at the meeting.

Whether or not you plan to attend the meeting, please complete and return the enclosed proxy in the envelope provided *or* vote by telephone *or* the Internet pursuant to instructions provided with the proxy. Stockholders of record as of March 23, 2018 are encouraged and cordially invited to attend the 2018 Annual Meeting of Stockholders (see directions attached as Appendix A to the proxy statement).

By Order of the Board of Directors

A handwritten signature in dark ink, appearing to read 'Jon K. Snodgres', is written over a light gray circular background.

Jon K. Snodgres  
Secretary

Waltham, Massachusetts  
April 20, 2018

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### REPLIGEN CORPORATION PROXY STATEMENT

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### GENERAL INFORMATION

This proxy statement is furnished in connection with the solicitation of proxies by the Board of Directors (the “Board of Directors”, or the “Board”) of Repligen Corporation (“Repligen”, or the “Company”), for use at the Annual Meeting of Stockholders, to be held on Wednesday, May 16, 2018 (the “Annual Meeting”) at the time and place set forth in the Notice of Annual Meeting, and at any adjournment or postponement thereof.

Repligen’s Annual Report to Stockholders, containing financial statements for the fiscal year ended December 31, 2017 (the “Annual Report”), is being provided together with this proxy statement to all stockholders entitled to vote at the Annual Meeting. It is anticipated that this proxy statement and the accompanying proxy will be first sent or given to stockholders on or about April 20, 2018.

### **Voting**

Stockholders may vote in person or by proxy by completing, signing, dating and returning the accompanying proxy card or by voting by telephone or via the Internet in accordance with the instructions listed on the proxy card. Execution of a proxy card will not in any way affect a stockholder’s right to attend the Annual Meeting and vote in person.

Any proxy given pursuant to this solicitation may be revoked by the person giving it any time before the taking of the vote at the Annual Meeting. Proxies may be revoked by: (1) giving written notice of revocation to the Secretary of Repligen at any time before the taking of the vote at the Annual Meeting; (2) duly executing a later-dated proxy card relating to the same shares and delivering it to the Secretary of Repligen or by telephone or the Internet, in accordance with the instructions listed on the proxy card; or (3) attending the Annual Meeting and voting in person (although attendance at the Annual Meeting will not in and of itself constitute a revocation of a proxy). For those stockholders who submit a proxy by telephone or the Internet, the date on which the proxy is submitted in accordance with the instructions listed on the proxy card is deemed to be the date of the proxy. Any written notice of revocation or subsequent proxy should be sent so as to be delivered to Repligen Corporation, Attention: Secretary, 41 Seyon Street, Building #1, Suite 100, Waltham, Massachusetts 02453, at or before the taking of the vote at the Annual Meeting.

Each of the persons named as attorneys-in-fact on the proxy cards is a director, officer and/or employee of Repligen. All properly executed proxy cards returned in time to be counted at the Annual Meeting will be voted as stated below under the heading “Voting Procedures.” Any stockholder submitting a proxy has the right to withhold authority to vote for any individual nominee to the Board of Directors by writing that nominee’s number on the space provided on the proxy card, checking the box next to the name of such individual if voting by proxy via the Internet or, if using the telephone to vote by proxy, by following the verbal instructions for entering the two digit number appearing on the proxy card immediately before the name of such individual. Where a choice has been specified on the proxy with respect to a matter, the shares represented by the proxy will be voted in accordance with such specifications. If a validly executed proxy card is returned without indicating how the shares should be voted on a matter, such proxies will be voted FOR election of the director nominees; FOR ratification of the appointment of the independent registered public accountants; FOR the approval, on an advisory basis, of the compensation of our named executive officers; and FOR approval of the Repligen Corporation 2018 Stock Option and Incentive Plan (the “2018 Stock Option Plan”).

Other than (i) the election of directors, (ii) the ratification of Ernst & Young LLP, (iii) the advisory vote to approve the compensation of our named executive officers, and (iv) the approval of the 2018 Stock Option Plan, the Board knows of no other matters to be presented at the Annual Meeting. If any other matter should be properly presented at the Annual Meeting upon which a vote may be taken, shares represented by all proxies received by the Board will be voted with respect thereto in accordance with the judgment of the persons named as attorneys-in-fact in the proxies.

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### **Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting to be Held on May 16, 2018**

**The Company's Annual Report and this proxy statement will be available at [www.proxyvote.com](http://www.proxyvote.com).**

### **Voting Procedures**

The representation, in person or by proxy, of at least a majority of the outstanding shares of Repligen Common Stock entitled to vote at the Annual Meeting is necessary to constitute a quorum for the transaction of business. Shares represented by proxies pursuant to which votes have been withheld from any nominee for director, or which contain one or more abstentions or broker "non-votes," are counted as present or represented for purposes of determining the presence or absence of a quorum for the Annual Meeting. A broker "non-vote" occurs when a broker or other nominee holding shares for a beneficial owner votes on one proposal, but does not vote on another proposal because, with respect to such other proposal, the broker does not have discretionary voting power and has not received instructions from the beneficial owner. Broker "non-votes" are not considered voted for the particular matter. If a stockholder holds shares in "street-name" through a broker or other nominee, absent voting instructions from the stockholder, such shares will not be counted as voting and will have no effect on those proposals, other than proposal 2, requiring approval by a majority of the votes cast. Proposal 2 to ratify the appointment of the Company's independent registered public accounting firm is a "routine" matter for which a broker does not need voting instruction in order to vote a stockholder's shares.

*Election of Directors.* In accordance with our by-laws, directors are elected by a majority of the votes cast, in person or by proxy, at the Annual Meeting. Abstentions and broker non-votes will not be counted as voting with respect to the election of directors, and, therefore, will not have an effect on the election of director nominees.

*Ratification of Independent Accountants.* For the ratification of the appointment of Ernst & Young LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2018, an affirmative vote of a majority of the shares present, in person or represented by proxy, and voting on such matter is required for approval. Abstentions shall be included in determining the number of shares present and entitled to vote on the proposal, thus having the effect of a vote against the proposal. Broker "non-votes", if any, are not counted in determining the number of shares present and entitled to vote and will therefore have no effect on the outcome.

*Advisory Vote to Approve the Compensation of our Named Executive Officers.* For the advisory vote to approve the compensation of our named executive officers, the affirmative vote of the majority of shares present, in person or represented by proxy, and voting on that matter is required for approval. Abstentions and broker "non-votes" are included in the number of shares present or represented and voting but are not considered votes cast on the matter, and therefore will have no effect on the outcome of this proposal.

*Approval of the Repligen Corporation 2018 Stock Option and Incentive Plan.* For the vote to approve the 2018 Stock Option Plan, the affirmative vote of the majority of shares present, in person or represented by proxy, and voting on that matter is required for approval. Abstentions and broker "non-votes" are included in the number of shares present or represented and voting but are not considered votes cast on the matter, and therefore will have no effect on the outcome of this proposal.

*Other Matters.* The Board knows of no other matters to be presented at the Annual Meeting. If any other matter should be properly presented at the Annual Meeting upon which a vote may be taken, the persons named on the enclosed proxy card will have discretionary authority to vote the shares represented by such proxies in accordance with their best judgment.

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### **Solicitation of Proxies**

The cost of solicitation will be borne by Repligen and, in addition to directly soliciting stockholders by mail, Repligen may request banks and brokers to solicit their customers who have stock of Repligen registered in the name of the nominee and, if so, will reimburse such banks and brokers for their reasonable out-of-pocket costs. Solicitation by officers and employees of Repligen may also be made of some stockholders in person or by mail or telephone following the original solicitation.

### **Record Date and Voting Securities**

Only stockholders of record as of March 23, 2018 (the “Record Date”), are entitled to notice of and to vote at the Annual Meeting and any adjournments or postponements thereof. As of the Record Date, the Company had 43,692,303 shares of common stock with a par value of \$0.01 (the “Common Stock”) outstanding and entitled to vote. Each outstanding share of Common Stock entitles the record holder to one vote.

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### SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS, DIRECTORS AND MANAGEMENT

The following table sets forth certain information regarding beneficial ownership of shares of Repligen's Common Stock as of March 23, 2018 (i) by each person who is known by the Company to beneficially own more than 5% of the outstanding shares of Common Stock; (ii) by each director or nominee of the Company; (iii) by each named executive officer of the Company and (iv) by all directors and executive officers of Repligen as a group. The business address of each director and executive officer is Repligen Corporation, 41 Seyon Street, Building #1, Suite 100, Waltham, Massachusetts 02453.

| <b><u>Beneficial Owner</u></b>                                              | <b><u>Amount and Nature of<br/>Beneficial Ownership (1)</u></b> | <b><u>Percent of<br/>Class (2)</u></b> |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------|
| BlackRock, Inc. (3)                                                         | 5,360,343                                                       | 12.3%                                  |
| Roy T. Eddleman (4)                                                         | 4,782,344                                                       | 10.9%                                  |
| The Vanguard Group (5)                                                      | 2,826,995                                                       | 6.5%                                   |
| TimesSquare Capital Management, LLC (6)                                     | 2,511,120                                                       | 5.7%                                   |
| Tony J. Hunt (7)                                                            | 179,465                                                         | *                                      |
| Howard Benjamin                                                             | 5,416                                                           | *                                      |
| Jon K. Snodgres (8)                                                         | 43,508                                                          | *                                      |
| Karen A. Dawes (9)                                                          | 176,520                                                         | *                                      |
| Nicolas M. Barthelemy (10)                                                  | 35,780                                                          | *                                      |
| Glenn L. Cooper (11)                                                        | 108,788                                                         | *                                      |
| John G. Cox (12)                                                            | 38,259                                                          | *                                      |
| Glenn P. Muir (13)                                                          | 24,769                                                          | *                                      |
| Thomas F. Ryan, Jr. (14)                                                    | 16,492                                                          | *                                      |
| All directors, nominees and executive officers as a group (10 persons) (15) | 631,858                                                         | 1.4%                                   |

\* Less than one percent

- (1) Beneficial ownership, as such term is used herein, is determined in accordance with Rule 13d-3 promulgated under the Securities Exchange Act of 1934, or the Exchange Act, and includes voting and/or investment power with respect to shares of Common Stock of Repligen. Unless otherwise indicated, the named person possesses sole voting and investment power with respect to the shares. The shares shown include shares that such person has the right to acquire within 60 days of March 23, 2018.
- (2) Percentages of ownership are based upon 43,692,303 shares of Common Stock issued and outstanding as of March 23, 2018. Shares of Common Stock that may be acquired pursuant to options that are exercisable or restricted stock units that will vest within 60 days of March 23, 2018 are deemed outstanding for computing the percentage ownership of the person holding such options, but are not deemed outstanding for the percentage ownership of any other person.
- (3) Based solely on a Schedule 13G/A filed on January 19, 2018 for the December 31, 2017 filing event. BlackRock, Inc.'s business address is 55 East 52<sup>nd</sup> Street, New York, NY 10055. BlackRock, Inc. has sole voting power with respect to 5,290,834 shares and sole dispositive power with respect to 5,360,343 shares.
- (4) Based solely on a Schedule 13G/A filed on February 12, 2018 for the December 31, 2017 filing event. Mr. Eddleman's business address is c/o TroyGould PC, 1801 Century Park East, 16<sup>th</sup> Floor, Los Angeles, CA 90067. Mr. Eddleman has sole voting power and sole dispositive power with respect to 4,781,344 shares.
- (5) Based solely on a Schedule 13G/A filed on February 9, 2018 for the December 31, 2017 filing event. The Vanguard Group's business address is 100 Vanguard Blvd., Malvern, PA 19355. The Vanguard Group has sole voting power with respect to 73,939 shares and sole dispositive power with respect to 2,751,256 shares.
- (6) Based solely on a Schedule 13G filed on February 14, 2018 for the December 31, 2017 filing event. TimesSquare Capital Management LLC's business address is 7 Times Square, 42<sup>nd</sup> Floor, New York, NY 10036. TimesSquare Capital Management LLC has sole voting power with respect to 2,208,720 shares and sole dispositive power with respect to 2,511,120 shares.

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- (7) Includes 142,523 shares issuable pursuant to stock options which are exercisable within 60 days of March 23, 2018 and 5,000 restricted stock units which will vest within 60 days of March 23, 2018.
- (8) Includes 29,753 shares issuable pursuant to stock options which are exercisable within 60 days of March 23, 2018.
- (9) Includes 93,563 shares issuable pursuant to stock options which are exercisable within 60 days of March 23, 2018 and 5,714 restricted stock units which will vest within 60 days of March 23, 2018.
- (10) Includes 31,792 shares issuable pursuant to stock options which are exercisable within 60 days of March 23, 2018 and 1,206 restricted stock units which will vest within 60 days of March 23, 2018.
- (11) Includes 70,488 shares issuable pursuant to stock options which are exercisable within 60 days of March 23, 2018 and 1,206 restricted stock units which will vest within 60 days of March 23, 2018.
- (12) Includes 33,432 shares issuable pursuant to stock options which are exercisable within 60 days of March 23, 2018 and 1,206 restricted stock units which will vest within 60 days of March 23, 2018.
- (13) Includes 21,800 shares issuable pursuant to stock options which are exercisable within 60 days of March 23, 2018 and 1,206 restricted stock units which will vest within 60 days of March 23, 2018.
- (14) Includes 7,792 shares issuable pursuant to stock options which are exercisable within 60 days of March 23, 2018 and 1,206 restricted stock units which will vest within 60 days of March 23, 2018.
- (15) See footnotes 7 through 14 above. Includes 433,143 shares issuable pursuant to stock options which are exercisable within 60 days of March 23, 2018 and 16,744 restricted stock units which will vest within 60 days of March 23, 2018. Also includes shares of our common stock beneficially owned by our Senior Vice President of Research and Development, Ralf Kuriyel.

**SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE**

Section 16(a) of the Exchange Act requires Repligen's directors, officers, and holders of more than ten percent of Repligen's Common Stock, (collectively, the "Reporting Persons"), to file with the United States Securities and Exchange Commission, or the SEC, initial reports of ownership and reports of changes in ownership of Common Stock of Repligen. Such Reporting Persons are required by SEC regulations to furnish Repligen with copies of all Section 16(a) reports they file. Based on its review of the copies of such filings received by it with respect to the fiscal year ended December 31, 2017, the Company believes that all required persons complied with all Section 16(a) filing requirements, except that Messrs. Hunt, Snodgres and Benjamin each did not timely file a Form 4 with respect to one transaction.

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### ITEM 1 ELECTION OF DIRECTORS

There are seven nominees for director, all of whom are current directors of Repligen that have been nominated by the Nominating and Corporate Governance Committee and the Board for re-election. The authorized number of directors is currently fixed at seven. If elected, each of the director nominees will hold office until the 2019 Annual Meeting of Stockholders and until his or her successor has been duly elected and qualified, or until his or her earlier death, resignation or removal.

| <u>Nominee's Name</u> | <u>Year First<br/>Elected Director</u> | <u>Position(s) with the Company</u>             |
|-----------------------|----------------------------------------|-------------------------------------------------|
| Tony J. Hunt          | 2015                                   | President, Chief Executive Officer and Director |
| Karen A. Dawes        | 2005                                   | Director, Chairperson of the Board              |
| Nicolas M. Barthelemy | 2014                                   | Director                                        |
| Glenn L. Cooper       | 2009                                   | Director                                        |
| John G. Cox           | 2013                                   | Director                                        |
| Glenn P. Muir         | 2015                                   | Director                                        |
| Thomas F. Ryan, Jr.   | 2003                                   | Director                                        |

Shares represented by all proxies received by the Board and not marked or voted so as to withhold authority to vote for any individual director or for any group of directors will be voted (unless one or more nominees are unable or unwilling to serve) for the election of the nominees named above. Proxies may not be voted for a greater number of persons than the number of nominees named. The Board knows of no reason why any nominee should be unable or unwilling to serve, but if any nominee should be unable or unwilling to serve, proxies will be voted or withheld in accordance with the judgment of the persons named as attorneys-in-fact on the proxy cards with respect to the directorship for which that nominee was unable or unwilling to serve.

Proposal 1 relates solely to the election of seven directors nominated by the Company and does not include any other matters relating to the election of directors, including without limitation, the election of directors nominated by any stockholders of the Company.

**The Board of Directors unanimously recommends a vote FOR each of the nominees for election as directors of the Company. If authorized proxies are submitted without specifying an affirmative or negative vote on any proposal, the shares represented by such proxies will be voted in favor of the Board of Directors' recommendations.**

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**OCCUPATIONS OF DIRECTORS AND EXECUTIVE OFFICERS**

Repligen's executive officers are appointed by, and serve at the discretion of, the Board of Directors. Each executive officer is a full-time employee of Repligen. The directors, including director nominees, and executive officers of Repligen as of March 23, 2018, are as follows:

| <u>Name</u>                  | <u>Age</u> | <u>Positions</u>                                |
|------------------------------|------------|-------------------------------------------------|
| Tony J. Hunt                 | 54         | President, Chief Executive Officer and Director |
| Jon K. Snodgres              | 52         | Chief Financial Officer                         |
| Ralf Kuriyel                 | 59         | Senior Vice President, Research and Development |
| Nicolas M. Barthelemy (1)(3) | 52         | Director                                        |
| Glenn L. Cooper (1)          | 65         | Director                                        |
| John G. Cox (2)              | 55         | Director                                        |
| Karen A. Dawes (3)           | 66         | Director, Chairperson of the Board              |
| Glenn P. Muir (1)(2)         | 59         | Director                                        |
| Thomas F. Ryan, Jr. (2)(3)   | 76         | Director                                        |

- 
- (1) Member of the Compensation Committee.  
(2) Member of the Audit Committee.  
(3) Member of the Nominating and Corporate Governance Committee.

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### **BIOGRAPHICAL INFORMATION**

The following paragraphs provide information about our directors and executive officers. The information presented includes information about each of our director's specific experience, qualifications, attributes and skills that led our board of directors to the conclusion that he or she should serve as a director.

#### **Executive Officers**

*Tony J. Hunt* was named our President and Chief Executive Officer and has served on our Board since May 2015. He joined Repligen in May 2014 as Chief Operating Officer, overseeing commercial and manufacturing operations. Before coming to Repligen, Mr. Hunt was President of Bioproduction at Life Technologies, a global life sciences company which was acquired by Thermo Fisher Scientific in 2014. He joined Life Technologies in 2008, serving as General Manager of Bioproduction Chromatography and Pharma Analytics before being named President of Bioproduction in 2011. From 2000 to 2008, Mr. Hunt was with Applied Biosystems as Senior Director of Pharma Programs where he launched the Pharma Analytics business that in 2008 became a part of the Bioproduction platform at Life Technologies. Mr. Hunt received a B.S. in Microbiology and an M.S. in Biotechnology from University College in Galway, Ireland, and an M.B.A. from Boston University School of Management. Mr. Hunt brings to our Board of Directors his deep understanding of the bioprocessing market.

*Jon K. Snodgres* joined Repligen in July 2014 as our Chief Financial Officer, where he oversees financial operations for the Company. Mr. Snodgres was previously with Maquet Cardiovascular, a medical device company, where he served as CFO for five years. At Maquet, in addition to being responsible for the preparation and oversight of the company's financial statements, he was a key participant in growth planning and profit improvement strategies. Mr. Snodgres previously spent eight years with life sciences company Thermo Fisher Scientific in various roles, most recently as Vice President of Finance for the Laboratory Products Group. He began his career in finance at AlliedSignal/Honeywell International. Mr. Snodgres received a B.S. in Business Administration, Finance from Northern Arizona University.

*Ralf Kuriyel* joined Repligen in October 2016 as our Senior Vice President, Research and Development, where he oversees the Company's research and development efforts. Mr. Kuriyel was previously with Pall Life Sciences, where he served as Vice President of R&D, Field Applications and Process Development Services from November 2014 to October 2016. In addition, Mr. Kuriyel served as Vice President, Applications R&D at Pall from November 2011 to November 2014. Mr. Kuriyel received a B.S. in Chemical Engineering from Rensselaer Polytechnic Institute and an M.S. in Chemical Engineering from Rensselaer Polytechnic Institute.

#### **Directors**

*Nicolas M. Barthelemy* has served as Director of Repligen since June 2014. Mr. Barthelemy brings over 20 years of industry experience to the director role. Mr. Barthelemy served as President and CEO of bioTheranostics, a molecular diagnostics company, from September 2014 until February 2017. Prior to bioTheranostics, he served as President, Global Commercial Operations at Life Technologies, which was acquired by Thermo Fisher Scientific in February 2014. Prior to Life Technologies, Mr. Barthelemy was with Biogen for eight years, most recently as Vice President, Manufacturing and General Manager for the company's manufacturing organization at Research Triangle Park. He began his career with Merck & Co., Inc. as a Senior Project Engineer, Vaccine Technology. Mr. Barthelemy currently serves on the board of directors of Fluidigm. Mr. Barthelemy received an M.S. in Chemical Engineering from the University of California, Berkeley, and an engineering degree from Ecole Supérieure de Physique et Chimie Industrielles, Paris. Mr. Barthelemy's qualifications to sit on the Company's Board of Directors include his extensive experience in the bioprocessing field, including large scale biologics manufacturing and commercialization of consumables used in bioprocessing.

*Glenn L. Cooper, M.D.* has served as a director of Repligen since August 2009. Dr. Cooper served as Executive Chairman of Coronado BioSciences, Inc. from 2010 to 2012. Prior to that, Dr. Cooper served as the

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Chairman and Chief Executive Officer of Indevus Pharmaceuticals, Inc., a specialty pharmaceutical company focused on urology and endocrinology, from 2000 to 2009 and as Chief Executive Officer and Director from 1993 to 2000. Prior to joining Indevus in 1993, Dr. Cooper held numerous executive level positions including President and Chief Executive Officer of Progenitor, Inc., Executive Vice President and Chief Operating Officer of Sphinx Pharmaceuticals Corporation, and various clinical and regulatory positions with Eli Lilly and Company. Dr. Cooper has participated in the development, approval and commercialization of numerous drugs including Prozac®, Axid®, Lorabid®, Ceclor®, SANCTURA®, SANCTURA XR®, Supprelin-LA® and Vantas®. Dr. Cooper received an M.D. from Tufts University School of Medicine, performed his postdoctoral training in Internal Medicine and Infectious Diseases at the New England Deaconess Hospital and the Massachusetts General Hospital and received a B.A. from Harvard College. Dr. Cooper's qualifications to sit on the Board of Directors of the Company include his leadership roles at pharmaceutical companies.

*John G. Cox* has served as a director of Repligen since November 2013. Mr. Cox is currently the CEO of Bioverativ Inc., a company which spun out of Biogen, Inc. in 2017, was publicly traded and was then acquired by Sanofi. Previously, he was the Executive Vice President of Pharmaceutical Operations & Technology at Biogen Inc., a position he held since June 2010. Mr. Cox has also served as Senior Vice President of Technical Operations, Senior Vice President of Global Manufacturing, Vice President of Manufacturing & General Manager of Biogen's operations in Research Triangle Park, North Carolina, and Director of Manufacturing. Mr. Cox joined Biogen in 2003 as Director of Manufacturing Sciences. Before joining Biogen from 2000 to 2003, Mr. Cox held a number of senior operational roles at Diosynth where he worked in technology transfer, validation and purification. Prior to that, Mr. Cox focused on the same areas at Wyeth LLC from 1993 to 2000. Mr. Cox received a B.S. in cell biology from California State University and an M.A. in Business Administration in Finance degree from the University of Michigan. Mr. Cox's qualifications to sit on the Company's Board of Directors include his extensive experience of biopharmaceutical manufacturing.

*Karen A. Dawes*, Chairperson of the Board, has served as a director of Repligen since September 2005. She is currently President of Knowledgeable Decisions, LLC, a management consulting firm. Ms. Dawes served from 1999 to 2003 as Senior Vice President and U.S. Business Group Head for Bayer Corporation's U.S. Pharmaceuticals Group. Prior to joining Bayer, she was Senior Vice President, Global Strategic Marketing, at Wyeth, a pharmaceutical company (formerly known as American Home Products), where she held responsibility for worldwide strategic marketing. Ms. Dawes also served as Vice President, Commercial Operations for Genetics Institute, Inc., which was acquired by Wyeth in January 1997, designing and implementing that company's initial commercialization strategy to launch BeneFIX® and Neumega®. Ms. Dawes began her pharmaceuticals industry career at Pfizer, Inc. where, from 1984 to 1994, she held a number of marketing positions, serving most recently as Vice President, Marketing of the Pratt Division. At Pfizer, she directed launches of Glucotrol®/Glucotrol XL®, Zoloft®, and Cardura®. Ms. Dawes also serves as a member on the board of directors of Symbiomix Therapeutics, LLC and Depomed Inc. Ms. Dawes received a B.A. and M.A. in English from Simmons College and an M.B.A. from Harvard University Graduate School of Business. Ms. Dawes' qualifications to sit on the Company's Board of Directors include her extensive strategic experience in both a managerial and consulting capacity with pharmaceutical companies as well as her considerable commercial background.

*Glenn P. Muir* has served as a director of Repligen since October 2015. Mr. Muir brings over 30 years of experience to the director role, including 26 years with Hologic, Inc., a large multi-national medical device and diagnostics company where he most recently served as Chief Financial Officer and Executive Vice President, Finance and Administration. Mr. Muir retired in May 2014 from Hologic, where he helped steer the company's evolution from a venture-backed single product company to a publicly traded diversified organization with over 5,000 employees and \$2.5 billion in revenue. He joined Hologic in 1988 and served as Chief Financial Officer since 1992 and Executive Vice President since 2000. Prior to Hologic, Mr. Muir was with Metallon Engineered Materials Co., a private company where from 1986-1988 he held the role of Vice President, Finance. Previously, from 1981-1984, he was a Senior Auditor with Arthur Andersen & Co. Mr. Muir also serves on the boards of medical device company Neuronetics, Inc. Mr. Muir also serves on the board of directors of the following

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publicly-traded companies: G1 Therapeutics, Inc. and ReWalk Robotics Ltd. Mr. Muir is a Certified Public Accountant with a Bachelors of Business Administration from the University of Massachusetts, Amherst. He also earned an M.S from Bentley University and an M.B.A. from Harvard University. Mr. Muir's qualifications to sit on Repligen's Board of Directors include his extensive experience with integrating strategic acquisitions and leading the financial operations for a global manufacturing and commercial organization.

*Thomas F. Ryan Jr.* has served as a director of Repligen since September 2003. Mr. Ryan is currently an investor in various private companies. Mr. Ryan served as the President and Chief Operating Officer of the American Stock Exchange from October 1995 to April 1999. Prior to 1995, he held a variety of positions at the investment banking firm of Kidder, Peabody & Co., Inc., serving as the firm's Chairman in 1995. He holds a B.A. from Boston College and is a graduate of the Boston Latin School. Mr. Ryan is a director for the New York State Independent System Operator and a director for BNY Mellon Asset Management Mutual Funds Board. Mr. Ryan's qualifications to sit on the Company's Board of Directors include his years of experience in the areas of securities trading and investment banking.

**CERTAIN RELATIONSHIPS AND RELATED PERSONS TRANSACTIONS**

No family relationship exists among the officers and directors of Repligen. The Audit Committee conducts an appropriate review of all related party transactions for potential conflict of interest situations on an ongoing basis, and the approval of the Audit Committee is required for all such transactions. The term “related party transactions” shall refer to transactions required to be disclosed by the Company pursuant to Item 404 of Regulation S-K promulgated by the SEC.

## **CORPORATE GOVERNANCE AND BOARD MATTERS**

### **Independence of Members of the Board of Directors**

The Board of Directors has determined that each of the directors who has served during the fiscal year ended December 31, 2017 and each of the nominees for director at the Annual Meeting, with the exception of Mr. Hunt, has no material relationship with the Company and is independent within the meaning of the director independence standards of The Nasdaq Stock Market LLC (the “Nasdaq”). Furthermore, the Board of Directors has determined that each member of the Audit Committee, the Compensation Committee and the Nominating and Corporate Governance Committee of the Board of Directors is independent within the meaning of Nasdaq’s director independence standards and that each member of the Audit Committee meets the heightened director independence standards of the SEC for audit committee members.

### **Board Leadership Structure**

The Board is led by its Chairperson, Karen Dawes, who is an independent director. The Board of Directors believes that separating the roles of Chief Executive Officer and Chairperson of the Board is the most appropriate structure for the Company at this time. Having an independent Chairperson ensures that the Chief Executive Officer is accountable for managing the Company in the best interests of stockholders while, at the same time, acknowledging that managing the Board of Directors is a separate and time intensive responsibility. The Board of Directors also believes that having an independent Chairperson can serve to curb conflicts of interests, promote oversight of risk and manage the relationship between the Board of Directors and the Chief Executive Officer.

### **Executive Sessions**

The Board of Directors holds executive sessions of the independent directors at least two times per year preceding or following regularly scheduled in-person meetings of the Board of Directors. Executive sessions do not include any employee directors of the Company, and the Chairperson of the Board is responsible for chairing the executive sessions.

### **Policies Governing Director Nominations**

#### *Director Qualifications*

The Nominating and Corporate Governance Committee is responsible for reviewing, from time to time, the appropriate qualities, skills and characteristics desired of Board members in the context of the current make-up of the Board of Directors and selecting or recommending nominees for election as Directors to the Board. This assessment includes consideration of the following minimum qualifications that the Nominating and Corporate Governance Committee believes must be met by all directors:

- Directors must be of high ethical character, have no conflict of interest and share the values of the Company as reflected in the Company’s Code of Business Conduct and Ethics;
- Directors must have reputations, both personal and professional, consistent with the image and reputation of the Company;
- Directors must have the ability to exercise sound business judgment;
- Directors must have substantial business or professional experience and be able to offer advice and guidance to the Company’s management based on that experience; and
- A director must have (at a minimum) a bachelor’s degree or equivalent degree from an accredited college or university.

The Nominating and Corporate Governance Committee also considers numerous other qualities, skills and characteristics when evaluating director nominees, such as:

- An understanding of and experience in biotechnology and pharmaceutical industries;

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- An understanding of and experience in accounting oversight and governance, finance and marketing; and
- Leadership experience with public companies or other significant organizations.

These factors and others are considered useful by the Board and are reviewed in the context of an assessment of the perceived needs of the Board at a particular point in time.

Neither the Nominating and Corporate Governance Committee nor the Board of Directors has a specific policy with regard to the consideration of diversity in identifying director nominees although they may consider the diversity of background and experience of a director nominee in the context of the overall composition of the Board of Directors at that time. This consideration may focus on diversity of knowledge, skills, experience, geographic location, age, gender, and ethnicity. Generally, the Nominating and Corporate Governance Committee seeks director nominees with the talents and backgrounds that provide the Board of Directors with an appropriate mix of experience, knowledge and skills that will best serve the Company's needs and objectives.

### *Process for Identifying and Evaluating Director Nominees*

The Board of Directors is responsible for selecting and nominating nominees for election as directors but delegates the selection and nomination process to the Nominating and Corporate Governance Committee, with the expectation that other members of the Board of Directors or members of management will be requested to take part in the process as appropriate.

Generally, the Nominating and Corporate Governance Committee identifies candidates for director nominees in consultation with management, through the use of search firms or other advisers, through the recommendations submitted by stockholders or through such other methods as the Nominating and Corporate Governance Committee deems to be helpful in identifying candidates. Once candidates have been identified, the Nominating and Corporate Governance Committee confirms that the candidates meet all of the minimum qualifications for director nominees established by the Nominating and Corporate Governance Committee. The Nominating and Corporate Governance Committee may gather information about the candidates through interviews, questionnaires, background checks, or any other means that the Nominating and Corporate Governance Committee deems to be helpful in the evaluation process. The Nominating and Corporate Governance Committee meets as a group to discuss and evaluate the qualities and skills of each candidate, both on an individual basis and taking into account the overall composition and needs of the Board of Directors. Based on the results of the evaluation process, the Nominating and Corporate Governance Committee recommends candidates for the Board's approval as director nominees for election to the Board of Directors. The Nominating and Corporate Governance Committee also recommends candidates for the Board of Directors' appointment to the committees of the Board of Directors.

### *Procedures for Recommendation of Nominees by Stockholders*

The Nominating and Corporate Governance Committee will consider director candidates who are recommended by the stockholders of the Company. Stockholders must deliver any such recommendation not later than the close of business on the 60<sup>th</sup> day, nor earlier than the close of business on the 90<sup>th</sup> day, prior to the first anniversary of the preceding year's annual meeting. Stockholders, in submitting recommendations to the Nominating and Corporate Governance Committee for director candidates, shall follow the following procedures:

Such recommendation for nomination should be in writing and include the following:

- Name and address of the stockholder making the recommendation, as they appear on the Company's books and records, and of such record holder's beneficial owner;
- Number of shares of capital stock of the Company that are owned beneficially and held of record by such stockholder and such beneficial owner;

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- Number and description of all synthetic equity interests that are held by such stockholder, and whether such synthetic equity interests convey voting rights;
- Name and address of the individual recommended for consideration as a director nominee, or a director nominee;
- The principal occupation of the director nominee;
- The total number of shares of capital stock of the Company that will be voted for the director nominee by the stockholder making the recommendation;
- All other information relating to the director nominee that would be required to be disclosed in solicitations of proxies for the election of directors, or is otherwise required, in each case pursuant to Regulation 14A under the Exchange Act (including the recommended candidate's written consent to being named in the proxy statement as a nominee and to serving as a director if approved by the Board of Directors and elected);
- A written statement from the stockholder making the recommendation stating why such recommended candidate would be able to fulfill the duties of a director;
- Any proxy, agreement, arrangement, understanding or relationship pursuant to which the stockholder making the recommendation has or shares a right to, directly or indirectly, vote any shares of any class or series of capital stock of the Corporation;
- Any rights to dividends or other distributions on the shares of any class or series of capital stock of the Corporation, directly or indirectly, owned beneficially by such recommending stockholder that are separated or separable from the underlying shares of the Company; and
- Any performance-related fees that such recommending stockholder, directly or indirectly, is entitled to based on any increase or decrease in the value of shares of any class or series of capital stock of the Company or any synthetic equity interest.

Nominations must be sent to the attention of the Secretary of the Company by one of the two methods listed below:

- By U.S. Mail (including courier or expedited delivery service):

Repligen Corporation  
Attn: Secretary  
41 Seyon Street  
Building #1, Suite 100  
Waltham, MA 02453

- By facsimile at (781) 250-0115:  
Attn: Secretary

The Secretary of the Company will promptly forward any such nominations to the Nominating and Corporate Governance Committee. Once the Nominating and Corporate Governance Committee receives the nomination of a candidate, the candidate will be evaluated and a recommendation with respect to such candidate will be delivered to the Board of Directors. Nominations not made in accordance with the foregoing policy shall be disregarded by the Nominating and Corporate Governance Committee and votes cast for such nominees shall not be counted.

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### **Policy Governing Stockholder Communications with the Board of Directors**

The Board of Directors provides to every stockholder the ability to communicate with the Board of Directors, as a whole, and with individual directors on the Board through an established process for stockholder communication (as that term is defined by the rules of the SEC) as follows:

For communications directed to the Board of Directors as a whole, stockholders may send such communication to the attention of the Chairperson of the Board via one of the two methods listed below:

- By U.S. Mail (including courier or expedited delivery service):

Repligen Corporation  
Attn: Chairperson of the Board of Directors  
41 Seyon Street  
Building #1, Suite 100  
Waltham, MA 02453

- By facsimile at (781) 250-0115:  
Attn: Chairperson of the Board of Directors

For stockholder communications directed to an individual director in his or her capacity as a member of the Board of Directors, stockholders may send such communications to the attention of the individual director via one of the two methods listed below:

- By U.S. Mail (including courier or expedited delivery service):

Repligen Corporation  
Attn: [Name of Individual Director]  
41 Seyon Street  
Building #1, Suite 100  
Waltham, MA 02453

- By facsimile at (781) 250-0115:  
Attn: [Name of Individual Director]

The Company will forward any such stockholder communication to the Chairperson of the Board, as a representative of the Board of Directors, and/or to the director to whom the communication is addressed on a periodic basis. The Company will forward such communication by certified U.S. Mail to an address specified by each director of the Board of Directors for such purposes or by secure electronic transmission.

### **Policy Governing Director Attendance at Annual Meetings of Stockholders**

The Board's policy is that all directors and director nominees are encouraged to attend the Company's Annual Meeting in person if their schedule permits. All members of the Board of Directors attended the 2017 Annual Meeting.

### **Stock Ownership and Insider Trading Policies**

The Board of Directors has adopted a share ownership policy relating to ownership of the Company's securities by the Company's Chief Executive Officer and the directors. Subject to the terms of the policy, the Chief Executive Officer is required to acquire over a four-year period and hold shares of Common Stock of the Company equal to one times his or her base salary as of a specified measuring date, and each of the Company's non-employee directors is required to acquire over a four-year period and hold shares of Common Stock of the Company equal to three times the Company's annual cash retainer paid to each such non-employee director. Restricted stock and restricted stock units are included once the vesting conditions have been satisfied, but stock options (regardless of whether they are vested or unvested) are not included in the total number of shares owned by the Chief Executive Officer or the directors for purposes of the share ownership policy.

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Under the Company's insider trading policy, our employees, including our executive officers and directors are not permitted to engage in the following transactions with respect to our stock: selling any of the Company's securities that are not owned by such insider at the time of sale ("short selling") and holding our stock in an account that is, or is linked to, a margin account. In addition the following transactions are not permitted without preapproval of the Company's Audit Committee: buying or selling puts, calls or other derivatives of our securities or any derivative securities that provide the economic equivalent of ownership of any of the Company's securities; engaging in any hedging transaction with respect to the Company's securities; or pledging Company securities as collateral for a loan. Gifts (transfer of our stock without consideration) are subject the same restrictions as all other trades, and are prohibited during a period when the insider is not permitted to trade.

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

Repligen has adopted a Code of Business Conduct and Ethics as its "code of ethics" as defined by regulations promulgated under the Securities Act of 1933, as amended, or the Securities Act, and the Exchange Act (and in accordance with the Nasdaq requirements for a "code of conduct"), which applies to all of the Company's directors, officers and employees, including its principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. A current copy of the Code of Business Conduct and Ethics is available at the "Investors" — "Corporate Governance" — "Policies and Charters" section of the Company's website at <http://www.repligen.com>. A copy of the Code of Business Conduct and Ethics may also be obtained free of charge from the Company upon a request directed to Repligen Corporation, Attention: Investor Relations, 41 Seyon Street, Building #1, Suite 100, Waltham, MA 02453. The Company will promptly disclose any substantive changes in or waivers, along with reasons for the waivers, of the Code of Business Conduct and Ethics granted to its executive officers, including its principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, and its directors by posting such information on its website at <http://www.repligen.com> under "Investors" — "Corporate Governance."

### **Risk Oversight**

The Company's management is responsible for assessing and managing risk and the Board of Directors oversees and reviews certain aspects of the Company's risk management efforts. The Board of Directors is involved in risk oversight through direct decision-making authority with respect to significant matters and the oversight of management by the Board of Directors and its committees. The Board of Directors is responsible for overseeing risks related to the Company's overall strategy, including, among others, product development, potential asset acquisitions, financial reporting, business continuity (including succession planning) and reputational risks faced by the Company.

The committees of the Board of Directors execute their oversight responsibility for risk management as follows:

- The Audit Committee is responsible for overseeing the Company's internal financial and accounting controls, work performed by the Company's independent registered public accounting firm and the Company's independent reviewer of internal controls. As part of its oversight function, the Audit Committee regularly discusses with management and the Company's independent registered public accounting firm the Company's major financial and controls-related risk exposures and steps that management has taken to monitor and control such exposures.
- The Compensation Committee is responsible for overseeing risks related to the Company's cash and equity-based compensation programs and practices. As part of its oversight function, the Compensation Committee periodically discusses with the President and Chief Executive Officer as well as the Board of Directors, as necessary, the compensation plan for both executive officers and the non-employee directors, performance goals and objectives for the period and related achievement, peer group and other relevant compensation benchmarks and practices and other matters to ensure the Company's compensation practices are in the best interest of the Company and its stockholders.

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- The Nominating and Corporate Governance Committee is responsible for overseeing risks related to the composition and structure of the Board of Directors and its committees and the Company's corporate governance. In this regard, the Nominating and Corporate Governance Committee assesses the qualifications and independence of members of the Board of Directors and makes annual recommendations regarding Board of Directors and committee membership.

## BOARD MEETINGS AND COMMITTEES

The Board of Directors of the Company met six times during the fiscal year ended December 31, 2017. During the fiscal year ended December 31, 2017, no director attended fewer than 75% of the aggregate of each of: (i) the total number of meetings of the Board of Directors; and (ii) the total number of meetings held by all committees of the Board of Directors on which such director served. The Board of Directors has a standing Audit Committee, Compensation Committee, and Nominating and Corporate Governance Committee and formed an *ad hoc* Integration Committee in 2017. Each standing committee has a charter that has been approved by the Board of Directors. Each standing committee reviews the appropriateness of its charter periodically, as conditions dictate, but at least annually.

### Audit Committee

The Audit Committee was established in accordance with section 3(a)(58)(A) of the Exchange Act and currently consists of Messrs. Muir, Cox and Ryan. The Audit Committee is responsible for overseeing the accounting and financial reporting processes of the Company and the audits of the financial statements of the Company and exercising the responsibilities and duties set forth below, including but not limited to: (a) appointing, compensating and retaining the Company's independent registered public accounting firm, (b) overseeing the work performed by any independent registered public accounting firm, including conduct of the annual audit and engagement for any other services, (c) assisting the Board of Directors in fulfilling its responsibilities by reviewing: (i) the financial reports provided by the Company to the SEC, the Company's stockholders or to the general public, and (ii) the Company's internal financial and accounting controls, (d) recommending, establishing and monitoring procedures designed to improve the quality and reliability of the disclosure of the Company's financial condition and results of operations, (e) establishing procedures designed to facilitate (i) the receipt, retention and treatment of complaints relating to accounting, internal accounting controls or auditing matters and (ii) the receipt of confidential, anonymous submissions by employees of concerns regarding questionable accounting or auditing matters, (f) engaging advisors as necessary, and (g) serving as the Qualified Legal Compliance Committee in accordance with Section 307 of the Sarbanes-Oxley Act of 2002 and the rules and regulations promulgated by the SEC thereunder. The Audit Committee met five times during the fiscal year ended December 31, 2017. Mr. Muir currently serves as Chairperson of the Audit Committee. The Board has determined that Mr. Muir qualifies as an "audit committee financial expert" under the rules of the SEC. The Board has determined that each member of the Audit Committee is independent within the meaning of the Nasdaq's director independence standards and the SEC's heightened director independence standards for audit committee members as determined under the Exchange Act.

The Audit Committee operates under a written charter adopted by the Board, a current copy of which is available on the Company's website at <http://www.repligen.com> under "Investors" — "Corporate Governance" — "Policies and Charters."

### Audit Committee Report

This report is furnished by the Company's Audit Committee with respect to the Company's financial statements for fiscal year 2017. The Company's management is responsible for the preparation and presentation of complete and accurate financial statements. The independent registered public accounting firm Ernst & Young LLP is responsible for performing an independent audit of the Company's financial statements in accordance with the standards of the Public Company Accounting Oversight Board (United States) and for issuing a report on its audit. The Audit Committee oversees and monitors the Company's management and its independent registered public accounting firm throughout the financial reporting process.

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

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The Audit Committee currently consists of Mr. Muir, Chairperson, Mr. Cox and Mr. Ryan. The Audit Committee has the responsibility and authority described in the Repligen Audit Committee Charter, which has been approved by the Board. The Board of Directors has determined that the members of the Audit Committee meet the independence requirements set forth in Rule 10A-3(b)(1) under the Securities Exchange Act of 1934, as amended, and the applicable rules of the National Association of Securities Dealers, Inc. and that Mr. Muir qualifies as an “audit committee financial expert” under the rules of the SEC. The Audit Committee oversees the accounting and financial reporting processes of the Company and the audits of the financial statements of the Company. Management has the primary responsibility for the financial statements and the reporting process, including the systems of internal controls.

In fulfilling its oversight responsibilities, the Audit Committee reviewed and discussed with management of the Company and Ernst & Young LLP the audited financial statements included in the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2017, including a discussion of the quality, not just the acceptability, of the accounting principles, the reasonableness of significant judgments and the clarity of disclosures in the financial statements. The Audit Committee also reviewed the Company’s quarterly financial statements for the first three fiscal quarters during the fiscal year ended December 31, 2017 and discussed them with both the management of the Company and Ernst & Young LLP prior to including such interim financial statements in the Company’s quarterly reports on Form 10-Q. In connection with the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2017 and the quarterly reports on Form 10-Q for its first, second and third fiscal quarters of the fiscal year ended December 31, 2017, the Audit Committee discussed the results of the Company’s certification process relating to the statements in the Company’s quarterly reports on Form 10-Q. In connection with the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2017 and the quarterly reports on Form 10-Q for its first, second and third fiscal quarters of the fiscal year ended December 31, 2017, the Audit Committee discussed the results of the Company’s certification process relating to the certification of financial statements under Sections 302 and 906 of the Sarbanes-Oxley Act. In addition, the Audit Committee has received from Ernst & Young LLP the written disclosures and the letter required by applicable requirements of the Public Company Accounting Oversight Board regarding Ernst & Young LLP’s communications with the Audit Committee concerning independence, has discussed with Ernst & Young LLP their independence from management and the Company, and has considered the compatibility with Ernst & Young LLP’s independence as auditors of the non-audit services performed for the Company by Ernst & Young LLP.

The Audit Committee also reviewed management’s report on its assessment of the effectiveness of the Company’s internal control over financial reporting and Ernst & Young LLP’s report on the effectiveness of the Company’s internal control over financial reporting.

The Audit Committee discussed with Ernst & Young LLP the overall scope and plans for their audit. The Audit Committee met with Ernst & Young LLP to discuss the results of their examinations, their evaluations of the Company’s internal controls, including internal control over financial reporting, and the overall quality of the Company’s financial reporting.

The Audit Committee has also evaluated the performance of Ernst & Young LLP, including, among other things, the amount of fees paid to Ernst & Young LLP for audit and non-audit services. Based on its evaluation, the Audit Committee has selected Ernst & Young LLP (subject to stockholder ratification) to serve as the Company’s auditors for the fiscal year ending December 31, 2018.

The Audit Committee met five times during the fiscal year ended December 31, 2017. In reliance on the reviews and discussions referred to above, the Audit Committee recommended to the Board of Directors that the Company’s audited financial statements and management’s assessment of the effectiveness of the Company’s internal control over financial reporting be included in the Report on Form 10-K for the fiscal year ended December 31, 2017 filed with the SEC, and the Board of Directors approved such inclusion.

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Respectfully submitted by the Audit Committee,

Glenn P. Muir, Chairperson  
John G. Cox  
Thomas F. Ryan, Jr.

### **Compensation Committee**

The Compensation Committee, of which Dr. Cooper, Mr. Barthelemy and Mr. Muir are currently members, is responsible (among other duties and responsibilities) for (a) discharging the Board of Directors' responsibilities relating to the compensation of the Company's executive officers, (b) administering the Company's cash incentive compensation and equity incentive plans, (c) reviewing and discussing with management the Compensation Discussion and Analysis for inclusion in the Company's proxy statement in accordance with applicable rules and regulations (d) reviewing and making recommendations to management on company-wide compensation programs and practices, (e) taking final action with respect to the individual salary, bonus and equity arrangements of the Company's Chief Executive Officer and other executive officers, and (g) recommending, subject to approval by the full Board of Directors, new equity-based plans and any material amendments thereto (including increases in the number of shares of Common Stock available for issuance thereunder) for which stockholder approval is required or desirable. The Compensation Committee met seven times during the fiscal year ended December 31, 2017. Dr. Cooper serves as the Chairperson of the Compensation Committee. The Board has determined that each member of the Compensation Committee is independent within the meaning of the SEC and Nasdaq's director independence standards.

The Compensation Committee operates under a written charter adopted by the Board of Directors, which is available on the Company's website at <http://www.repligen.com> under "Investors" — "Corporate Governance" — "Policies and Charters."

### **Compensation Committee Report**

The Compensation Committee of the Board of Directors, which is comprised solely of independent directors within the meaning of applicable rules of Nasdaq, outside directors within the meaning of Section 162(m) of the Internal Revenue Code of 1986, or the Code, and non-employee directors within the meaning of Rule 16b-3 under the Securities Exchange Act of 1934, is responsible for developing executive compensation policies and advising the Board of Directors with respect to such policies and administering the Company's cash and equity incentive plans. The Compensation Committee sets performance goals and objectives for the Chief Executive Officer and the other executive officers, evaluates their performance with respect to those goals and sets their compensation based upon the evaluation of their performance. In evaluating executive officer pay, the Compensation Committee may retain the services of a compensation consultant and consider recommendations from the Chief Executive Officer with respect to goals and compensation of the other executive officers. The Compensation Committee assesses the information it receives in accordance with its business judgment. The Compensation Committee also periodically reviews non-employee director compensation. All decisions with respect to executive compensation are approved by the Compensation Committee and all decisions with respect to director compensation are recommended by the Compensation Committee to the full Board of Directors for approval.

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

Respectfully submitted by the Compensation Committee:

Glenn L. Cooper, Chairperson  
Nicolas M. Barthelemy  
Glenn P. Muir

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### **Nominating and Corporate Governance Committee**

The Nominating and Corporate Governance Committee of the Board of Directors consists of Ms. Dawes, Chairperson, Mr. Barthelemy and Mr. Ryan. The Nominating and Corporate Governance Committee met once during the fiscal year ended December 31, 2017.

The Nominating and Corporate Governance Committee is responsible for: (a) identifying individuals qualified to become members of the Board of Directors, and selecting or recommending that the Board of Directors select the director nominees for election, (b) reviewing the Code of Business Conduct and Ethics and (c) monitoring compliance with and periodically reviewing the Code of Business Conduct and Ethics. The Nominating and Corporate Governance Committee may consider nominees for election as directors recommended by stockholders as described above.

Ms. Dawes serves as the Chairperson of the Nominating and Corporate Governance Committee. The Board of Directors has determined that each member of the Nominating and Corporate Governance Committee is independent within the meaning of the SEC's and Nasdaq's director independence standards.

The Nominating and Corporate Governance Committee operates under a written charter adopted by the Board, which is available on the Company's website at <http://www.repligen.com> under "Investors" — "Corporate Governance" — "Policies and Charters."

### **Integration Committee**

The Board formed an *ad hoc* Integration Committee. The responsibilities of the Integration Committee included providing strategic advice to the Company regarding the integration of Spectrum, Inc.'s operations and commercial organization into the operations of the Company. The Integration Committee consisted of Mr. Barthelemy, Chairperson, Ms. Dawes, Mr. Hunt and Mr. Muir. The Integration Committee was terminated by the Board effective as of December 31, 2017.

## COMPENSATION DISCUSSION AND ANALYSIS

### Year in Review

We achieved strong results in the fiscal year ended December 31, 2017, both in terms of our financial performance and in the achievement of certain of our key strategic objectives. Among our accomplishments in the fiscal year ended December 31, 2017 were the following:

- Our revenue increased to \$141.2 million, a gain of 35% over the prior year. Sales growth was driven by strength in demand for our Filtration and Chromatography products, particularly from increased market adoption of our XCell™ ATF filtration systems and our OPUS® line of pre-packed chromatography columns; a full year of revenue generated from Atoll and TangenX in 2017; and revenues of approximately \$19.4 million generated from our acquisition of Spectrum, Inc. in August 2017.
- We raised \$129.3 million, net of issuance costs, from the issuance of Common Stock in July 2017, to support our acquisition of Spectrum, Inc. and internal investments.
- We completed our acquisition of Spectrum, Inc. in August 2017. This acquisition strengthens our filtration business by adding a leading portfolio of hollow-fiber filters and modules, single-use flow path connectors and tangential flow filtration systems used in the filtration, isolation, purification and concentration of biologics and diagnostic products.
- We had two commercial product launches during 2017, introducing a single-use version of our XCell™ ATF 10 System to align with single-use and continuous workflows, as well as OPUS® R pre-packed chromatography columns that enable the recovery of high-value chromatography resins.

### Compensation Philosophy

The Company's compensation philosophy is based on a desire to motivate its executive officers to enhance stockholder value, to provide a fair reward for this effort and to stimulate its executive officers' professional and personal growth. The Company believes that the compensation of its executive officers should align the executive officers' interests with those of the stockholders and focus executive officer behavior on the achievement of near-term corporate goals, as well as long-term business objectives and strategies.

It is the responsibility of the Compensation Committee of the Board to administer the Company's compensation programs to ensure that they are competitive with other bioprocessing, healthcare supply and biotechnology companies and to include incentives that are designed to appropriately drive the Company's continued development. The Compensation Committee reviews and approves all components of the Company's executive officer compensation, including base salaries, annual cash incentive compensation and equity incentive compensation. The Compensation Committee recommends to the full Board for approval new equity-based plans and any material amendments thereto (including increases in the number of shares of Common Stock available for issuance thereunder) for which stockholder approval is required or desirable.

### Objectives of the Compensation Programs

The Company's compensation programs for its executive officers are designed to provide the following:

- annual cash and incentive compensation that motivates the executive officers to manage the business to meet the Company's short- and long-term objectives;
- equity incentive compensation to ensure that its executive officers are motivated over the long-term to respond to the Company's business challenges and opportunities as owners and not just as employees, thereby aligning the executive officers' interests with those of stockholders; and
- compensation that is competitive with other bioprocessing, healthcare supply and biotechnology companies with which the Company competes for talent, determined by comparing the Company's pay practices with these companies.

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### **Compensation Evaluation Processes**

The Company's executive officer compensation consists of three primary components: base salary, annual cash incentive compensation and equity incentive compensation. Each of these components is intended to complement the other, and taken together, to satisfy the Company's compensation objectives. The Compensation Committee considers a number of factors in setting compensation for its executive officers, including Company performance, as well as the executive's performance, experience, responsibilities and the compensation of executive officers in similar positions in our peer group of companies.

In evaluating our executive compensation programs for the fiscal year ended December 31, 2017, the Compensation Committee considered the stockholder advisory vote on our executive compensation, or the say-on-pay vote, for the fiscal year ended December 31, 2016, which was approved by over 95% of the votes cast. The Compensation Committee believes that the stockholders, through this advisory vote, endorsed the compensation philosophies of our Company and, thus, the Compensation Committee maintained the basic structure and design of our executive compensation programs for fiscal year 2017 with an increased emphasis on awards of equity incentives to further align the executive officers' financial interest with long-term stockholder value. The Compensation Committee intends to continue focus on aligning executive compensation programs with the interests of our stockholders and current market practice, including a continued emphasis on pay for performance. We currently hold a say-on-pay vote on an annual basis, and our Board of Directors intends to continue to hold such votes annually until at least our next stockholder advisory vote on the frequency of future advisory votes to approve our executive compensation, which will occur no later than our 2023 annual meeting of stockholders.

In establishing compensation levels for each executive officer, the Compensation Committee has the authority to engage the services of outside experts to assist it. In the fiscal year ended December 31, 2017, the Compensation Committee retained Meridian Compensation Partners, LLC, ("Meridian"), an independent compensation consulting firm, to assist us in assessing the competitiveness and effectiveness of the Company's executive compensation programs. In addition, our finance and human resources departments support the Compensation Committee in its work and act in accordance with the direction given to them to administer our compensation programs.

The Compensation Committee has assessed any potential conflicts of interest raised by the work of Meridian, our compensation consultant, pursuant to SEC rules and has determined that no such conflict of interest exists.

During the fiscal year ended December 31, 2017 and in January 2018, the Compensation Committee held meetings with management and representatives of Meridian to:

- review our compensation objectives;
- review the actual compensation of our executive officers for consistency with our objectives;
- analyze trends in executive compensation;
- assess our variable cash compensation structure, as well as incentive plan components and mechanics, to ensure an appropriate correlation between pay and performance with resulting compensation opportunities that balance returns to the Company and its stockholders;
- assess our equity-based awards programs against our objectives of executive incentive, retention and alignment with stockholder interests;
- review our peer group and consider appropriate changes related to the realignment of our business;
- benchmark our executive cash compensation and equity-based awards programs, and assess our pay versus performance against our peer group; and

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- review recommendations for fiscal year 2018 compensation for appropriateness relative to our compensation objectives.

In February 2017, Meridian provided the Compensation Committee with a final analysis of base salary, target bonus, target total cash, long-term incentives value and design and target total compensation for employees, and cash and equity compensation for non-employee directors, of comparable companies in the biotechnology and health care supplies industries. In performing this analysis, Meridian used a peer group of 17 biotechnology and health care supply companies, which was reviewed and approved by our Compensation Committee. Each year, Meridian, in conjunction with our Compensation Committee, reevaluates our peer group in light of developments in the market and our industry. As a result of this review, eight companies were added to the peer group and four companies were removed from the peer group compared to the prior year. The companies included in the peer group had revenues with a median of \$135.0 million, as compared to the Company's total revenue of \$104.5 million in fiscal year 2016. The peer group used in the report presented for consideration of compensation decisions and approved by the Compensation Committee consisted of the following companies:

|                            |                                 |                               |
|----------------------------|---------------------------------|-------------------------------|
| Abaxis, Inc.               | Fluidigm Corp.                  | Mesa Laboratories, Inc.       |
| AMAG Pharmaceuticals, Inc. | Halozyne Therapeutics, Inc.     | Neogen Corp.                  |
| Anika Therapeutics, Inc.   | Harvard Bioscience, Inc.        | Neogenomics, Inc.             |
| Bio-Techne Corp.           | Luminex Corp.                   | Pacific Biosciences of Calif. |
| Brooks Automation, Inc.    | Meridian Bioscience, Inc.       | Trinity Biotech PLC           |
| Cambrex Corp.              | Merrimack Pharmaceuticals, Inc. |                               |

As summarized below, Meridian's review of peer companies revealed that the Company's base salaries were near the 50<sup>th</sup> percentile of peer group companies, target bonus percentages were at or higher than the 50<sup>th</sup> percentile of peer group companies, and long term incentives were both above and below the 50<sup>th</sup> percentile of peer group companies, depending on the named executive officer's position, for the fiscal year ended December 31, 2017.

### *Base Salary as Compared to 50<sup>th</sup> Percentile of Peer Group*

| <b>Name</b>     | <b>Base Salary for the<br/>Fiscal Year ended<br/>December 31, 2017</b> | <b>50<sup>th</sup> Percentile Base Salary for<br/>Position in Peer Group</b> | <b>Percent Actual Salary is<br/>Above (Below) 50<sup>th</sup> Percentile<br/>in<br/>Peer Group</b> |
|-----------------|------------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| Tony J. Hunt    | \$ 550,000                                                             | \$ 581,242                                                                   | (5%)                                                                                               |
| Jon K. Snodgres | \$ 350,097                                                             | \$ 335,210                                                                   | 4%                                                                                                 |
| Howard Benjamin | \$ 293,117                                                             | \$ 300,656                                                                   | (3%)                                                                                               |

### *Target Bonus Percentage as Compared to 50<sup>th</sup> Percentile of Peer Group*

| <b>Name</b>     | <b>Target Bonus Percentage<br/>for the Fiscal Year ended<br/>December 31, 2017</b> | <b>50<sup>th</sup> Percentile Target<br/>Bonus for Position<br/>in Peer Group</b> |
|-----------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Tony J. Hunt    | 75%                                                                                | 70%                                                                               |
| Jon K. Snodgres | 50%                                                                                | 41%                                                                               |
| Howard Benjamin | 40%                                                                                | 40%                                                                               |

### *Long-Term Incentives as Compared to Peer Group*

Since 2013, the Compensation Committee has made annual grants of stock options and/or restricted stock units subject to time-based vesting to align the executive officers' financial interest with those of stockholders. Based on Meridian's review of our peer group, the majority of companies in the peer group made long term incentive awards to executive officers on an annual basis. The Compensation Committee believes that equity

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incentives, in the form of stock options, restricted stock units and restricted stock awards, subject to vesting over time or upon achievement of performance objectives, can be an effective vehicle for the long-term element of compensation, as these awards align individual and team performance with the achievement of the Company's strategic and financial goals over time, and with stockholders' interests. Stock options, which have exercise prices equal to at least the fair market value of the Company's stock on the date of grant, reward executive officers only if the stock price increases from the date of grant. Restricted stock units and restricted stock awards are impacted by all stock price changes, so the value to the executive officers is affected by both increases and decreases in stock price from the market price at the date of grant. In February 2017, the Compensation Committee, based on Meridian's review of peer group data, granted stock options and restricted stock units subject to time-based vesting over three years to its named executive officers. The size of these grants were based on long-term incentive levels for each of the executive officers that are a function of total cash compensation (base salary plus annual cash incentive compensation), as described in further detail under the section "Objectives for the Fiscal Year Ending December 31, 2017". The Compensation Committee expects to annually grant additional long term incentive awards, potentially including a mix of restricted stock units, restricted stock awards, and stock option awards, in future years.

The Compensation Committee uses the peer group compensation data as one of several factors in determining appropriate compensation parameters for base salary, variable cash compensation and equity-based, long-term incentives. The Compensation Committee's executive compensation decisions are made on a case-by-case basis, and specific benchmark results do not, in and of themselves, determine individual target compensation decisions.

The Compensation Committee anticipates that it will continue to conduct similar annual reviews of our executive compensation practices and use independent outside consultants for similar services in the future.

### **Executive Compensation**

Each executive officer (except the Chief Executive Officer, whose performance is reviewed directly by the Compensation Committee) has an annual performance review with the Chief Executive Officer, who makes recommendations on salary increases, promotions and equity and non-equity incentive awards to the Compensation Committee. The Compensation Committee believes its executive compensation programs for the fiscal year ended December 31, 2017, which rewarded the Company's accomplishments during the year, including the strong growth in product revenue, improvement in gross margins, improvement of production efficiencies, development of new product offerings, the continued integration of prior acquisitions, the acquisition of Spectrum, Inc. encouraged sustained achievement of longer-term goals and initiatives and maintained a motivated and engaged leadership team.

### **Base Salary**

Base salary represents the fixed portion of an executive officer's compensation and is intended to provide compensation for day-to-day performance. The Compensation Committee believes that a competitive base salary is a necessary element of any compensation program that is designed to attract and retain talented and experienced executives. Each executive officer's base salary is initially determined upon hire or promotion based on the executive officer's responsibilities, prior experience, individual compensation history and salary levels of other executives within the Company and similarly situated executives at our peer group. Base salary is typically reviewed annually. The Company believes that the base salaries paid to the executive officers during the fiscal year ended December 31, 2017 achieved its compensation objectives.

For the fiscal year ended December 31, 2017, the Compensation Committee increased Mr. Hunt's base salary by 10%, from \$500,000 to \$550,000, Mr. Snodgres' base salary by 3.0% from \$339,900 to \$350,097 and Dr. Benjamin's base salary by 2.0% from \$287,370 to \$293,117. The compensation report prepared by Meridian showed that the 2017 base salaries of these executive officers were competitive with the 50th percentile among

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the Company's peer group for 2017 as disclosed above. These base salary increases were based on each executive officer's performance, qualifications, experience, responsibilities and Meridian's survey of the publicly disclosed compensation for similar positions at companies in the peer group.

For the fiscal year ending December 31, 2018, the Compensation Committee increased Mr. Hunt's base salary by 9.1%, from \$550,000 to \$600,000 and Mr. Snodgres' base salary by 3.0% from \$350,097 to \$360,500. Dr. Benjamin retired as our Vice President of Business Development as of December 31, 2017. The compensation report prepared by Meridian showed that the 2018 base salaries of these executive officers were competitive with the 50th percentile among the Company's 2017 peer group as disclosed above. These base salary increases were based on each executive officer's performance, qualifications, experience, responsibilities and Meridian's survey of the publicly disclosed compensation for similar positions at companies in the peer group.

### **Annual Cash Incentive Compensation Plan**

The Company's executive officers other than the Chief Executive Officer are eligible to receive annual cash incentive compensation based on both corporate results as measured against the goals set forth below (the "Company Objectives"), and their own individual performance, pursuant to the Annual Cash Incentive Compensation Plan (the "Plan"). Mr. Hunt is eligible to receive annual cash compensation based solely on corporate results as measured against the Company Objectives pursuant to the Plan. The annual cash incentive compensation earned by each executive officer is determined by the Compensation Committee after the end of each fiscal year and calculated as a percentage of an executive officer's base salary.

The Company establishes the target amount of its annual cash incentive compensation at a level that represents a meaningful portion of the executive officers' current paid out cash compensation, and sets a threshold performance level for each executive. In establishing these levels, in addition to considering the incentives that the Company wants to provide to the executive officers, it also considers the annual cash incentive compensation levels for comparable positions within our peer group and our own historical practices.

The overall Company Objectives for the fiscal year ended December 31, 2017, (the "Performance Period"), related to product revenue, financial performance, product development, manufacturing and quality, sales and marketing and business and corporate development. See below for further detail regarding the Plan and the Company Objectives.

### ***Plan Protocol***

The Compensation Committee administers the Plan:

1. At the beginning of the fiscal year, the Chief Executive Officer, with assistance from senior management, proposes annual corporate goals, measurement criteria and weightings, subject to review and approval by the Compensation Committee.
2. At the beginning of the following fiscal year, the Chief Executive Officer evaluates performance levels and the achievement of these annual corporate goals for all executive officers except for himself, which are subject to review and approval by the Compensation Committee. Specific bonus award recommendations for all participants (except the Chief Executive Officer) are submitted by the Chief Executive Officer to the Compensation Committee for review and approval. The Compensation Committee evaluates and approves performance levels and achievement of the annual corporate goals and approves the specific bonus award for all participants, including the Chief Executive Officer.
3. The Compensation Committee determines the size of the overall bonus pool and the bonus awards for individual participants based on the target bonus figures, the Company's performance against the company goals and, in the case of executive officers other than the Chief Executive Officer, individual performance.

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### **Plan Payout**

The Compensation Committee is responsible for evaluating actual performance against the performance goals and determining the actual bonus award earned. The Chief Executive Officer submits a documented evaluation of the performance of each of the other participants to the Compensation Committee for its consideration to assist the Compensation Committee in its review and proposed bonus awards. The Compensation Committee makes all final determinations regarding performance evaluations of participants and actual bonus awards. See the section titled “*Performance Criteria*” below for a discussion on the performance criteria and determinations for the fiscal year ended December 31, 2017.

Generally, the Company must attain a minimum of 60% overall achievement of its corporate goals for any payment to be made pursuant to the Plan, and the Compensation Committee may, at its discretion, elect to adjust bonuses downwards or not to pay bonuses at all. However, should the Company attain less than 60% overall achievement of its goals, the Compensation Committee may elect to pay discretionary cash bonuses. A target bonus (as a percentage of base salary) and the weight assigned to corporate and individual results is determined for participants based upon their position. The final incentive payout is determined for each participant based on the achievement of corporate and individual goals (other than for the Chief Executive Officer, whose annual cash incentive award is determined based solely on corporate goals) defined for each organizational level and position and the target incentive percentage.

For the fiscal year ended December 31, 2017, the Company established a target annual cash incentive award for each of the executive officers, depending on their role, experience and objectives to be achieved as follows:

#### *Individual Annual Cash Incentive Targets*

|                 | <b>Bonus Target as % of Salary<br/>for the Fiscal Year ended<br/>December 31, 2017</b> | <b>Portion Tied to<br/>Corporate Results</b> | <b>Portion Tied to<br/>Individual Results</b> |
|-----------------|----------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------|
| Tony J. Hunt    | 75%                                                                                    | 100%                                         | 0%                                            |
| Jon K. Snodgres | 50%                                                                                    | 60%                                          | 40%                                           |
| Howard Benjamin | 40%                                                                                    | 60%                                          | 40%                                           |

Dr. Benjamin was not employed on the date that cash incentive payments were made under the Plan. However, Dr. Benjamin received a cash incentive bonus approved by the Compensation Committee based on the achievement of Company objectives, as described below in the section titled “*Transitional Services and Separation Agreement With Dr. Benjamin.*”

### **Performance Criteria**

The incentive compensation of executive officers is based on the achievement of certain goals by the Company, as a whole, and, for executive officers other than the Chief Executive Officer, on the achievement of individual performance goals. Criteria and specific goals within each category are as follows:

#### ***Company Performance***

- The extent to which key financial, product development, product manufacturing and quality, sales and marketing, business collaboration and corporate development objectives of the Company have been met during the fiscal year.

#### ***Executive Performance***

- An executive officer’s involvement in and responsibility for the attainment of key financial, product development, product manufacturing and quality, sales and marketing, business collaboration and corporate development and other strategic objectives of the Company;

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- The involvement of an executive officer in personnel recruitment, retention and morale; and
- The responsibility of the executive officer in working within budgets, controlling costs and other aspects of expense management.

### ***Achievement of Company Objectives and Cash Incentive Determination***

The portion of cash incentive tied to corporate results is determined based on evaluation of the percentage achievement of the established Company Objectives and other corporate goals, which were determined at the beginning of the 2017 fiscal year. In 2016, the Compensation Committee moved to Revenue and adjusted Earnings Per Share ("EPS") as the Company Objectives. The calculation of adjusted EPS and EPS can be found in the Management Discussion and Analysis of Financial Condition and Results of Operations section of our Annual Report on Form 10-K for the year ended December 31, 2017. Other corporate objectives were also considered by the Compensation Committee in determining the cash incentive for the executive officers other than Mr. Hunt. These objectives include product revenue, financial performance, product development, manufacturing and quality, sales and marketing and business and corporate developments. The Company Objectives and other corporate objectives are designed to be difficult to achieve at 100%, and the Compensation Committee assesses the attainment of these objectives. The Chief Executive Officer evaluated the actual performance of the other executive officers against the performance goals and submitted such evaluation to the Compensation Committee. The ultimate determination of achievement of the Company Objectives and other corporate objectives is at the sole discretion of the Compensation Committee following discussions with management and is based both on quantitative, objective calculations such as the achievement of certain financial milestones, as well as a qualitative assessment, which takes into consideration the level of effort, end results, and other contributing internal and external factors that could reasonably be expected to impact performance. The Compensation Committee determined that the overall achievement of the corporate portion of the cash incentive plan for all officers was 110%. As in 2017, the Company Objectives for 2018 are tied to the achievement of revenue and adjusted EPS targets, with other corporate performance measures considered by the Compensation Committee in evaluating individual performance of the executive team. The Compensation Committee is currently evaluating multipliers that could increase or decrease the actual bonuses paid in a non-linear manner based upon the degree to which the Company achieves or fails to achieve its revenue and adjusted EPS targets.

The following is a summary of the Company Objectives for the fiscal year ended December 31, 2017 and the detailed calculation supporting the achievement of each such objective.

| <b>Company Objectives for the Fiscal Year ended December 31, 2017</b> | <b>Weight</b> | <b>Percent Score<br/>(achievement as<br/>determined by<br/>Compensation<br/>Committee)</b> | <b>Weighted<br/>Score</b> |
|-----------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------|---------------------------|
| <b>Revenue</b>                                                        |               |                                                                                            |                           |
| Achieve \$125 million in sales revenue (excluding acquisitions)       | 50%           | 97.5%                                                                                      | 48.75%                    |
| <b>Earnings per Share</b>                                             |               |                                                                                            |                           |
| Achieve \$0.59 of adjusted EPS (fully diluted)                        | 50%           | 112.0%                                                                                     | 56.00%                    |
| <b>TOTAL CORPORATE PERFORMANCE</b>                                    | <u>100.0%</u> |                                                                                            | <u>104.75%</u>            |

The Compensation Committee, using its discretion, reviewed this evaluation and determined that the aggregate percentage achievement of the Company Objectives was increased from 104.75% to 110% in recognition of the completion of the common stock financing in July 2017, the acquisition of Spectrum, Inc. in August 2017, and for exceeding revenue targets for the Spectrum business that were not originally contemplated when setting the Company's 2017 Company Objectives.

In addition to the above, the following is a summary of other corporate objectives considered by the Compensation Committee in evaluating the individual performance of members of the executive management

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team for the fiscal year ended December 31, 2017 and the detailed calculation supporting the achievement of each such objective.

| Other Corporate Objectives Considered by Compensation Committee for the Fiscal Year ended December 31, 2017                                                                                    | Weight        | Percent Score (achievement as determined by Compensation Committee) | Weighted Score |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------|----------------|
| <b>Financial Performance</b>                                                                                                                                                                   |               |                                                                     |                |
| Achieve direct product revenue targets for OPUS, OPUS PD, ATF and TangenX and achieve adjusted gross margin target of 55-56%                                                                   | 10%           | 97%                                                                 | 9.7%           |
| <b>Product Development</b>                                                                                                                                                                     |               |                                                                     |                |
| Complete development of single use ATF 10 and launch OPUS 45R and 60R                                                                                                                          | 20%           | 92.5%                                                               | 18.5%          |
| <b>Manufacturing and Quality</b>                                                                                                                                                               |               |                                                                     |                |
| Improve OPUS lead-times; manufacture 400+ large scale OPUS columns. Improve overall capacity for ligands                                                                                       | 25%           | 101.6%                                                              | 25.4%          |
| <b>Sales and Marketing</b>                                                                                                                                                                     |               |                                                                     |                |
| Drive adoption of single use ATF. Achieve first full year revenue targets for TangenX and Atoll. On time product launches, and continue to expand field applications and field service support | 20%           | 101.0%                                                              | 20.2%          |
| <b>Business and Corporate Development</b>                                                                                                                                                      |               |                                                                     |                |
| Complete integrations of Atoll and TangenX. Complete M&A acquisition and continue to establish partnerships to support future product development                                              | 25%           | 130.8%                                                              | 32.7%          |
| <b>TOTAL OTHER CORPORATE OBJECTIVES</b>                                                                                                                                                        | <u>100.0%</u> |                                                                     | <u>106.5%</u>  |

As the Company's current President and Chief Executive Officer, Mr. Hunt is responsible for overseeing all of our corporate functions, product development and partnering and marketing activities. Because of his role and responsibilities, Mr. Hunt's annual cash incentive is calculated based solely on Company Objectives to closely align his compensation with the Company's performance. For the year ended December 31, 2017, the Compensation Committee determined that Mr. Hunt would be awarded 110% of his target cash incentive compensation.

### *Achievement of Individual Objectives*

In addition to the Company Objectives and other corporate objectives outlined above, executive officers, with the exception of Mr. Hunt, also have an individual objective component to their annual cash incentive compensation. The performance assessment for the individual objectives of the executive officers is not calculated on a line item basis, but rather represents an overall assessment as to how the executive officer contributed to the success of the Company within his or her area of responsibility. The individual objectives are designed to be difficult to achieve at 100%. The Compensation Committee has assessed the attainment of these individual objectives by Mr. Snodgres and Dr. Benjamin for 2017.

As the Company's Chief Financial Officer, Mr. Snodgres is responsible for the Company's internal systems and financial controls. Specifically, Mr. Snodgres' individual objectives for 2017 included expanding the Company's internal information systems to support business analysis and revenue growth, coordinate and execute on financing activities to support and enable future growth and M&A, continued integration of Atoll and TangenX, complete and integrate Spectrum, and continue to expand both management and external reporting capabilities to enhance business decision making and improve transparency of financial performance. The overall evaluation of achievement of these factors involves both quantitative and qualitative analysis. The Chief

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Executive Officer evaluated Mr. Snodgres' actual performance against his individual objectives and submitted such evaluation to the Compensation Committee, which determined that the aggregate achievement of the individual objectives for Mr. Snodgres was 115%.

Dr. Benjamin was ultimately responsible for the Company's business development activities. Specifically, his objectives included identifying and closing new bioprocessing acquisitions including Spectrum, Inc. and other new business opportunities. The overall evaluation of achievement of these factors involves both quantitative and qualitative analysis. The Chief Executive Officer evaluated Dr. Benjamin's actual performance against his individual objectives and submitted such evaluation to the Compensation Committee, which determined that the aggregate achievement of the individual objectives for Dr. Benjamin was 100%.

### ***Cash Incentive Payments under the Plan***

For the fiscal year ended December 31, 2017:

- Mr. Hunt's cash incentive of \$453,750 was calculated based on an overall achievement of the corporate goals of 110% as discussed above.
- Mr. Snodgres' cash incentive of \$230,333 was calculated based on individual results achievement of 115% and corporate results achievement of 110% for an overall achievement of 112%.
- Dr. Benjamin's cash incentive of \$154,282 was calculated based on an individual results achievement of 100% and corporate results achievement of 110% for an overall achievement of 106%.

### ***Special Spectrum Integration Cash Incentive Payments***

Given the strategic importance and scope of the Company's integration of Spectrum, Inc. (now known as Spectrum LifeSciences LLC) into the Company's business, the Compensation Committee approved the grant of special cash incentive awards to certain employees of the Company, including, pursuant to the Plan, the Company's executive officers, other than its Chief Executive Officer. In March 2018, the Compensation Committee awarded a special cash incentive of \$34,333 to Mr. Snodgres and a special cash incentive of \$30,000 to Dr. Benjamin, based upon the achievement of their respective individual integration performance goals and corporate integration performance goals as of December 31, 2017. Additional cash incentives may be awarded to certain employees of the Company and Mr. Snodgres based upon the achievement of individual and corporate integration performance goals as of August 1, 2018, the one-year anniversary of the Spectrum, Inc. acquisition. No additional cash incentives will be awarded to Dr. Benjamin due to his departure from the Company.

### ***Objectives for the Fiscal Year Ending December 31, 2018***

Our executive compensation programs for the fiscal year ending December 31, 2018 are generally consistent with our programs for the fiscal year ended December 31, 2017, which received strong support from our stockholders in the "say on pay" advisory vote conducted at our 2017 Annual Meeting of Stockholders. Accordingly, the Company will continue to solely rely upon Revenue and EPS metrics to determine 100% of Mr. Hunt's 2018 annual bonus. The other corporate performance objectives considered by the Compensation Committee in determining the cash incentive for executive officers other than Mr. Hunt for 2018 are as follows

- *Product Revenue and Financial Performance* — achieve sales targets, meet gross margin, profit and EPS targets.
- *Manufacturing and Quality* — expand global production capacity, reduce lead times for bioprocessing products, continued focus on quality and business continuity for customers, build out Marlboro site and complete technical transfer of TangenX business
- *Product Development* — complete launch of large-scale OPUS column, expand single use ATF portfolio, expand TFF system capabilities and continue to develop next generation filtration and chromatography consumables and systems.

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- *Sales and Marketing* — complete integration of commercial organization, expand field applications and field service presence in North America, Europe and Asia, support launch of new products.
- *Business and Corporate Development* — expand partnerships in bioprocessing and seek new product and acquisition targets.

### **Equity Incentive Compensation**

The Compensation Committee believes that equity incentives in the form of stock options and restricted stock units subject to vesting over time are an effective vehicle for long-term compensation. Equity incentives align individual and team performance with the achievement of the Company's strategic and financial goals and stockholders' interests. In March 2018, the Compensation Committee granted annual long term incentive awards consistent with past practices. In addition, the Compensation Committee granted to certain employees of the Company, including to the Company's executive officers, other than its Chief Executive Officer, restricted stock units that vest upon the achievement of certain performance-based metrics in connection with the Spectrum, Inc. integration. Stock options reward executive officers only if the stock price increases from the date of grant over time. Restricted stock units are impacted by all stock price changes, so the value to the executive officers is affected by both increases and decreases in stock price from the market price at the date of grant.

In the fiscal year ended December 31, 2017, the Compensation Committee considered a number of factors in determining what, if any, equity incentive compensation to grant to the executive officers, including:

- the performance of the Company during the fiscal year;
- the number of shares subject to, and exercise price of, outstanding options, both vested and unvested, held by the executive officers;
- the number of restricted stock units held by the executive officers;
- the vesting schedule of the unvested equity awards held by the executive officers;
- the financial statement impact of any equity award;
- the amount and percentage of the total equity on a diluted basis held by the executive officers; and
- the available shares under the Company's equity incentive plan.

In February 2017, the Compensation Committee approved the following equity awards to our named executive officers, each of which vests over three years from the grant date. For additional information regarding equity awards made to our named executive officers in 2017, see the "Grants of Plan-Based Awards for the Fiscal Year ended December 31, 2017" table below.

| <b>Name</b>     | <b>Number of Shares</b>         | <b>Restricted Stock Units (#)</b> |
|-----------------|---------------------------------|-----------------------------------|
|                 | <b>Underlying Stock Options</b> |                                   |
|                 | <b>(#)</b>                      |                                   |
| Tony J. Hunt    | 64,975                          | 32,488                            |
| Jon K. Snodgres | 18,165                          | 9,875                             |
| Howard Benjamin | 8,289                           | 4,506                             |

### *2018 Long-term Equity Incentive Compensation*

In February 2018, the Compensation Committee granted long term incentive compensation awards to each of the named executive officers serving as executive officers of the Company. These awards are split equally (based upon dollar value) between stock options and restricted stock units, and are subject to vesting over three years. Additionally, in February 2018, to create a longer term retention incentive, the Compensation Committee granted long term incentive compensation awards to Mr. Hunt consisting of both stock options and restricted stock units, both of which are subject to time-based vesting over nine years. Additionally, in February 2018, Mr. Snodgres was granted restricted stock units that vest upon the performance of certain operational and financial metrics related to the acquisition of Spectrum.

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### **Other Compensation**

All full-time employees, including the executive officers, are eligible participate in the health and welfare benefit programs, including medical, dental and vision care coverage, disability and life insurance and the Company's 401(k) plan.

#### *Transitional Services and Separation Agreement with Dr. Benjamin*

Dr. Benjamin entered into a Transitional Services and Separation Agreement (the "Separation Agreement") with the Company on November 20, 2017, pursuant to which Dr. Benjamin retired from his role as the Company's Vice President of Business Development and ceased to be an executive officer of the Company, effective December 31, 2017 (the "Transition Start Date"), and thereafter provided services to the Company on a part-time, as needed basis through February 28, 2018 (the "Separation Date") at the direction of our Chief Executive Officer. Under the terms of the Separation Agreement, Dr. Benjamin continued to receive his base salary and benefits through the Transition Start Date. Dr. Benjamin continued to vest in his outstanding time-based equity awards through the Separation Date. Any equity rights that were not vested as of the Separation Date terminated as of such date. Additional material terms of the Separation Agreement are described below under "Potential Payments upon Termination or Change in Control — Employment Arrangements".

### **Tax and Accounting Considerations**

We have not provided or agreed to provide any of our executive officers or directors with a gross-up or other reimbursement for tax amounts they might pay pursuant to Section 4999 or Section 409A of the Code. Sections 280G and 4999 of the Code provide that executive officers, directors who hold significant stockholder interests and certain other service providers could be subject to significant additional taxes if they receive payments or benefits in connection with a change in control of our Company that exceed certain limits, and that we or our successor could lose a deduction on the amounts subject to the additional tax. Section 409A also imposes additional significant taxes on the individual in the event that an employee, director or service provider receives "deferred compensation" that is not exempt from or does not meet the requirements of Section 409A.

For our financial statements, cash compensation, such as salary and bonus, is expensed and for our income tax returns, cash compensation is generally deductible except as set forth below. For equity-based compensation, we expense the fair value of such grants over the requisite service period.

Generally, Section 162(m) of the Code disallows a federal income tax deduction for public corporations of remuneration in excess of \$1 million paid for any fiscal year to "covered employees" of the Company. With respect to taxable years before January 1, 2018, remuneration in excess of \$1 million was exempt from this deduction limit if it qualified as "performance-based compensation" within the meaning of Section 162(m) and was payable pursuant to a binding written agreement in effect on November 2, 2017. In 2017, the Compensation Committee endeavored to structure compensation to maintain deductibility under Section 162(m) of the Code to the extent practicable while maintaining the ability to provide a competitive compensation program for our named executive officers.

Recently-enacted tax legislation, effective for taxable years beginning after December 31, 2017, (1) expands the scope of Section 162(m) such that all named executive officers are "covered employees" and anyone who was a named executive officer in any year after 2016 will remain a covered employees for as long as he or she (or his or her beneficiaries) receive compensation from the Company and (2) eliminates the exception to the deduction limit for commission-based compensation and performance-based compensation except with respect to certain grandfathered arrangements in effect as of November 2, 2017 that are not subsequently materially modified. Accordingly, compensation paid to our named executive officers in excess of \$1 million will not be deductible unless it qualifies for the transition relief applicable to certain arrangements in place as of November 2, 2017, as described above.

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The Compensation Committee believes that stockholder interests are best served if the Committee retains maximum flexibility to design executive compensation programs that meet stated business objectives. For these reasons, the Compensation Committee, while considering tax deductibility as a factor in determining executive compensation, may not limit such compensation to those levels that will be deductible, particularly in light of the elimination of the expansion of the covered employee group and the elimination of the exception for performance-based compensation.

### **Compensation Risk Assessment**

The Compensation Committee considers and evaluates risks related to our cash and equity-based compensation programs and practices as well as evaluates whether our compensation plans encourage participants to take excessive risks that are reasonably likely to have a material adverse effect on the Company. Consistent with SEC disclosure requirements, the Compensation Committee has worked with management to assess compensation policies and practices for Company employees and has concluded that such policies and practices do not create risks that are reasonably likely to have a material adverse effect on the Company.

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### DIRECTOR AND EXECUTIVE OFFICER COMPENSATION

#### Compensation Earned

The following table summarizes the compensation earned during the fiscal years ended December 31, 2017, 2016 and 2015 by the Company's principal executive officer, principal financial officer, other most highly compensated executive officers who were serving as executive officers as of December 31, 2017 and whose total compensation exceeded \$100,000 and one additional individual for whom disclosure would have been provided but for the fact that the individual was not serving as an executive officer as of such date. These individuals are referred to as named executive officers.

#### Summary Compensation Table for the Fiscal Years ended December 31, 2017, 2016 and 2015

| <u>Name and Principal Position</u> | <u>Year</u> | <u>Salary (\$)</u> | <u>Stock Awards (\$ (1))</u> | <u>Option Awards (\$ (1))</u> | <u>Non-Equity Incentive Plan Compensation (\$ (2))</u> | <u>All Other Compensation (\$ (3))</u> | <u>Total (\$)</u> |
|------------------------------------|-------------|--------------------|------------------------------|-------------------------------|--------------------------------------------------------|----------------------------------------|-------------------|
| Tony J. Hunt                       | 2017        | 550,000            | 1,052,611                    | 983,424                       | 453,750                                                | 5,000                                  | 3,044,785         |
| President and                      | 2016        | 500,000            | 874,993                      | 881,363                       | 401,250                                                | 2,000                                  | 2,659,606         |
| Chief Executive Officer            | 2015        | 403,846            | 531,231                      | 554,193                       | 297,000                                                | 2,000                                  | 1,788,270         |
| Jon K. Snodgres                    | 2017        | 350,097            | 319,950                      | 298,922                       | 230,333(5)                                             | 5,000                                  | 1,204,302         |
| Chief Financial Officer            | 2016        | 339,500            | 205,925                      | 207,424                       | 181,847                                                | 2,000                                  | 936,696           |
|                                    | 2015        | 330,000            | 155,759                      | 162,480                       | 174,900                                                | 2,000                                  | 825,139           |
| Howard Benjamin                    | 2017        | 293,117            | 145,994                      | 136,403                       | 154,282(5)                                             | 5,000                                  | 734,796           |
| Former Vice President,             | 2016        | 287,000            | 163,151                      | 164,348                       | 122,994                                                | 2,000                                  | 739,493           |
| Business Development (4)           | 2015        | 279,000            | 122,904                      | 128,209                       | 120,528                                                | 2,000                                  | 652,641           |

- (1) Represents the aggregate grant date fair value for awards granted in the respective fiscal years calculated in accordance with the Financial Accounting Standards Board (the "FASB"), Accounting Standard Codification (the "ASC"), Topic 718 *Compensation — Stock Compensation*. The assumptions the Company used for calculating the grant date fair values are set forth in note 2 to the Company's consolidated financial statements included in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2017.
- (2) Amounts listed represent payments made with respect to the year indicated under the Company's Annual Cash Incentive Compensation Plan, as described above.
- (3) Represents the match paid by the Company on behalf of such individual into the Repligen Corporation 401(k) Savings Plan on 50% of the first 6% of eligible compensation contributed by such individual subject to a maximum of \$5,000 per year for the year ended December 31, 2017, and on the first 5% of eligible compensation contributed by such individual subject to a maximum of \$2,000 per year for the years ended December 31, 2016 and 2015.
- (4) Dr. Benjamin retired as our Vice President, Business Development effective as of December 31, 2017.
- (5) Includes the March 2018 grant of special cash incentives based upon achievement of individual and corporate performance goals related to the integration of Spectrum, Inc. as of December 31, 2017.

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**Grants of Plan-Based Awards for the Fiscal Year ended December 31, 2017**

The table below sets forth grants of plan-based awards that were made in the fiscal year ended December 31, 2017 to our named executive officers.

| <b>Name</b>     | <b>Grant Date</b> | <b>Estimated Future Payouts Under Non-Equity Incentive Plan Awards: Threshold (\$ (1))</b> | <b>Estimated Future Payouts Under Non-Equity Incentive Plan Awards: Target(\$ (2))</b> | <b>All other Stock Awards: Number of Shares of Stock or Units (#)</b> | <b>All other Option Awards: Number of Securities Underlying Options (#)</b> | <b>Exercise or Base Price of Option Awards (\$/Share)</b> | <b>Grant Date Fair Value of Stock and Option Awards (\$)</b> |
|-----------------|-------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------|
| Tony J. Hunt    | —                 | 247,500                                                                                    | 412,500                                                                                | —                                                                     | —                                                                           | —                                                         | —                                                            |
|                 | 02/23/2017        | —                                                                                          | —                                                                                      | —                                                                     | 64,975                                                                      | 32.40                                                     | 1,069,226                                                    |
|                 | 02/23/2017        | —                                                                                          | —                                                                                      | 32,488                                                                | —                                                                           | —                                                         | 1,052,611                                                    |
| Jon K. Snodgres | —                 | 133,037                                                                                    | 175,049(3)                                                                             | —                                                                     | —                                                                           | —                                                         | —                                                            |
|                 | 02/23/2017        | —                                                                                          | —                                                                                      | —                                                                     | 18,165                                                                      | 32.40                                                     | 298,922                                                      |
|                 | 02/23/2017        | —                                                                                          | —                                                                                      | 9,875                                                                 | —                                                                           | —                                                         | 319,950                                                      |
| Howard Benjamin | —                 | 89,018                                                                                     | 117,247                                                                                | —                                                                     | —                                                                           | —                                                         | —                                                            |
|                 | 02/23/2017        | —                                                                                          | —                                                                                      | —                                                                     | 8,289                                                                       | 32.40                                                     | 136,403                                                      |
|                 | 02/23/2017        | —                                                                                          | —                                                                                      | 4,506                                                                 | —                                                                           | —                                                         | 145,994                                                      |

- (1) The amounts represent the threshold bonus, assuming achievement of 60% of the Company Objectives for Mr. Hunt and 60% of the Company Objectives and other corporate goals and 100% achievement of the individual goals for Mr. Snodgres and Dr. Benjamin.
- (2) The amounts represent the target bonus, assuming achievement of 100% of the Company Objectives for Mr. Hunt and 100% of the Company Objectives and other corporate goals and 100% achievement of the individual goals for Mr. Snodgres and Dr. Benjamin. The actual bonus awarded by the Compensation Committee can be higher or lower than the target depending on achievement of corporate and individual goals. The actual amounts awarded for 2017 performance are listed in the Non-Equity Incentive Plan Compensation column of the Summary Compensation Table.
- (3) The amounts do not include the potential second payouts of special cash incentives upon achievement of individual and corporate performance goals related to the integration of Spectrum, Inc. as of August 1, 2018, the one-year anniversary of the Spectrum acquisition. The potential second payouts of these special cash incentives will be determined by the Compensation Committee at a later date.

**Discussion of Summary Compensation Table and Grants of Plan-Based Awards Table**

The Company's executive compensation policies and practices, pursuant to which the compensation set forth in the Summary Compensation Table and the Grants of Plan-Based Awards Table was paid or awarded, are described above under "Compensation Discussion and Analysis." The material terms of employment agreements and arrangements with our named executive officers are described below under the heading "Potential Payments upon Termination or Change in Control — *Employment Arrangements*."

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### Outstanding Equity Awards at December 31, 2017

This following table sets forth certain information regarding the outstanding stock option grants and stock awards held by the named executive officers at December 31, 2017. Awards were made under the Amended and Restated 2012 Repligen Corporation Stock Option and Incentive Plan (the “2012 Stock Option Plan”), as amended, or the Second Amended and Restated 2001 Repligen Corporation Stock Plan (the “2001 Stock Plan”).

| Name            | Grant Date | Option Awards                                                       |                                                                       |                       |                        | Stock Awards                                                |                                                                        |
|-----------------|------------|---------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------|------------------------|-------------------------------------------------------------|------------------------------------------------------------------------|
|                 |            | Number of Securities Underlying Unexercised Options (#) Exercisable | Number of Securities Underlying Unexercised Options (#) Unexercisable | Option Exercise Price | Option Expiration Date | Number of Shares or Units of Stock That Have Not Vested (#) | Market Value of Shares or Units of Stock That Have Not Vested (\$) (1) |
| Tony J. Hunt    | 5/5/2014   | 30,000                                                              | 20,000(2)                                                             | \$ 16.55              | 5/5/2024               | —                                                           | —                                                                      |
|                 | 5/5/2014   | —                                                                   | —                                                                     | —                     | —                      | 10,000(3)                                                   | 362,800                                                                |
|                 | 2/26/2015  | 26,025                                                              | 13,012(4)                                                             | \$ 26.20              | 2/26/2025              | —                                                           | —                                                                      |
|                 | 2/26/2015  | —                                                                   | —                                                                     | —                     | —                      | 6,759(5)                                                    | 245,217                                                                |
|                 | 2/26/2016  | 21,784                                                              | 43,567(6)                                                             | \$ 26.05              | 2/26/2026              | —                                                           | —                                                                      |
|                 | 2/26/2016  | —                                                                   | —                                                                     | —                     | —                      | 22,392(7)                                                   | 812,382                                                                |
|                 | 2/23/2017  | —                                                                   | 59,761(8)                                                             | \$ 32.40              | 2/23/2027              | —                                                           | —                                                                      |
|                 | 2/23/2017  | —                                                                   | —                                                                     | —                     | —                      | 32,488(9)                                                   | 1,178,665                                                              |
| Jon K. Snodgres | 7/14/2014  | 2,000                                                               | 4,000(10)                                                             | \$ 24.50              | 7/14/2024              | —                                                           | —                                                                      |
|                 | 7/14/2014  | —                                                                   | —                                                                     | —                     | —                      | 2,000(11)                                                   | 72,560                                                                 |
|                 | 2/26/2015  | 7,630                                                               | 3,815(12)                                                             | \$ 26.20              | 2/26/2025              | —                                                           | —                                                                      |
|                 | 2/26/2015  | —                                                                   | —                                                                     | —                     | —                      | 1,982(13)                                                   | 71,907                                                                 |
|                 | 2/26/2016  | 5,127                                                               | 10,253(14)                                                            | \$ 26.05              | 2/26/2026              | —                                                           | —                                                                      |
|                 | 2/26/2016  | —                                                                   | —                                                                     | —                     | —                      | 5,270(15)                                                   | 191,196                                                                |
|                 | 2/23/2017  | —                                                                   | 18,165(16)                                                            | \$ 32.40              | 2/23/2027              | —                                                           | —                                                                      |
|                 | 2/23/2017  | —                                                                   | —                                                                     | —                     | —                      | 9,875(17)                                                   | 358,265                                                                |
| Howard Benjamin | 2/26/2015  | —                                                                   | 3,010(18)                                                             | \$ 26.20              | 2/26/2025              | —                                                           | —                                                                      |
|                 | 2/26/2015  | —                                                                   | —                                                                     | —                     | —                      | 1,564(19)                                                   | 56,742                                                                 |
|                 | 2/26/2016  | —                                                                   | 8,124(20)                                                             | \$ 26.05              | 2/26/2026              | —                                                           | —                                                                      |
|                 | 2/26/2016  | —                                                                   | —                                                                     | —                     | —                      | 4,175(21)                                                   | 151,469                                                                |
|                 | 2/23/2017  | —                                                                   | 8,289(22)                                                             | \$ 32.40              | 2/23/2027              | —                                                           | —                                                                      |
|                 | 2/23/2017  | —                                                                   | —                                                                     | —                     | —                      | 4,506(23)                                                   | 163,478                                                                |

- (1) The value of equity awards is based on the closing price of our stock on the NASDAQ Global Market on December 29, 2017, the last trading day of 2017, which was \$36.28.
- (2) 10,000 shares vest on each of the following dates: May 5, 2018 and May 5, 2019.
- (3) 5,000 shares vest on each of the following dates: May 5, 2018 and May 5, 2019.
- (4) 13,012 shares vested on February 26, 2018.
- (5) 6,759 shares vested on February 26, 2018.
- (6) 21,783 shares vested on February 26, 2018; 21,784 shares vest on February 26, 2019.
- (7) 11,196 shares vested on February 26, 2018; 11,196 shares vest on February 26, 2019.
- (8) 19,920 shares vested on February 23, 2018; 19,920 shares vest on February 23, 2019 and 19,921 shares vest on February 23, 2020.
- (9) 10,829 shares vested on February 23, 2018; 10,829 shares vest on February 23, 2019 and 10,830 shares vest on February 23, 2020.
- (10) 2,000 shares vest on each of the following dates: July 14, 2018 and July 14, 2019.
- (11) 1,000 shares vest on each of the following dates: July 14, 2018 and July 14, 2019.
- (12) 3,815 shares vested on February 26, 2018.
- (13) 1,982 shares vested on February 26, 2018.
- (14) 5,126 shares vested on February 26, 2018; 5,127 shares vest on February 26, 2019.

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- (15) 2,635 shares vested on February 26, 2018; 2,635 shares vest on February 26, 2019.
- (16) 6,055 shares vested on February 23, 2018; 6,055 shares vest on each of the following dates: February 23, 2019 and February 23, 2020.
- (17) 3,291 shares vested on February 23, 2018; 3,292 shares vest on each of the following dates: February 23, 2019 and February 23, 2020.
- (18) 3,010 shares vested on February 26, 2018.
- (19) 1,564 shares vested on February 26, 2018.
- (20) 4,062 shares vested on February 26, 2018; 4,062 shares vest on February 26, 2019.
- (21) 2,087 shares vested on February 26, 2018; 2,088 shares vest on February 26, 2019.
- (22) 2,763 shares vested on February 23, 2018; 2,763 shares vest on each of the following dates: February 23, 2019 and February 23, 2020.
- (23) 1,502 shares vested on February 23, 2018; 1,502 shares vest on each of the following dates: February 23, 2019 and February 23, 2020.

### **Option Exercises and Stock Vested for the Fiscal Year ended December 31, 2017**

The following table sets forth certain information regarding the number of stock options exercised, restricted stock units that vested and amounts realized by the named executive officers in the year ended December 31, 2017.

| Name            | Option Awards                                   |                                        | Stock Awards                                   |                                       |
|-----------------|-------------------------------------------------|----------------------------------------|------------------------------------------------|---------------------------------------|
|                 | Number of Shares<br>Acquired on<br>Exercise (#) | Value Realized<br>on Exercise (\$) (1) | Number of Shares<br>Acquired on<br>Vesting (#) | Value Realized<br>on Vesting (\$) (2) |
| Tony J. Hunt    | —                                               | —                                      | 22,955                                         | 770,631                               |
| Jon K. Snodgres | 4,000                                           | 37,000                                 | 5,616                                          | 191,997                               |
| Howard Benjamin | 27,697                                          | 524,075                                | 5,638                                          | 182,840                               |

- (1) The value realized on exercise of an option award is based on the difference between the fair market value of our Common Stock on the date of exercise and the exercise price of the option.
- (2) The value realized on vesting of restricted stock units is based on the closing price of our Common Stock on the trading date immediately preceding the date of vesting.

### *Pension Benefits*

The Company has no defined benefit plans or other supplemental retirement plans for the named executive officers.

### *Nonqualified Deferred Compensation*

The Company has no nonqualified defined contribution plans or other nonqualified deferred compensation plans for the named executive officers.

### **Potential Payments upon Termination or Change in Control**

#### *Employment Arrangements*

On February 26, 2015, the Company entered into an Amended and Restated Employment Agreement (the “Employment Agreement”) with Mr. Hunt. Pursuant to the terms of the Employment Agreement, in the event that Mr. Hunt’s employment is terminated by the Company without cause or he resigns for good reason, each as defined in the Employment Agreement, Mr. Hunt will be entitled to receive severance pay equal to 12 months of his base salary at the rate then in effect, and 50% of his unvested stock options and other unvested stock-based awards will vest immediately. Mr. Hunt will also receive a cash payment equal to the Company’s monthly

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contribution to group health insurance coverage through COBRA for 12 months following the termination date. If Mr. Hunt's employment is terminated within 12 months following a change in control of the Company, Mr. Hunt will be entitled to receive a lump sum payment equal to two times his base salary at the rate then in effect (or at the rate in effect immediately prior to the change in control, if higher), and 100% of his unvested stock options and other unvested stock-based awards will vest immediately. In addition, Mr. Hunt will receive a cash payment equal to the Company's monthly contribution to group health insurance coverage through COBRA for eighteen months following the termination date.

The Company entered into an offer letter for employment "at will" with Mr. Snodgres on June 10, 2014. The offer letter for Mr. Snodgres provides for the following payments and benefits upon termination of his employment without cause, as defined in the offer letter: including the continuation of his base salary at the rate then in effect for a period of six months following the date of termination, health insurance coverage through COBRA for a period of six months with the cost of such benefits as in effect on the date of termination to be shared in the same relative proportion by the Company and Mr. Snodgres, and immediate vesting of 50% percent of all of Mr. Snodgres' then unvested stock options and restricted stock unit awards.

The Company entered into an offer letter for employment "at will" with Dr. Benjamin on December 2, 2008. The offer letter with Dr. Benjamin does not provide for benefits upon termination, with or without cause, or upon a change in control.

Dr. Benjamin entered into the Separation Agreement with the Company on November 20, 2017, pursuant to which Dr. Benjamin retired from his role as the Company's Vice President of Business Development and ceased to be an executive officer of the Company as of the Transition Start Date, and thereafter provided services to the Company on a part-time, as needed basis through the Separation Date at the direction of our Chief Executive Officer. Under the terms of the Separation Agreement, Dr. Benjamin continued to receive his base salary and benefits through the Transition Start Date. Dr. Benjamin continued to vest in his outstanding time-based equity awards through the Separation Date. Any equity rights that were not vested as of the Separation Date terminated as of the Separation Date.

### **Equity Awards**

The 2012 Stock Option Plan provides that upon the effectiveness of a "sale event," as defined in the 2012 Stock Option Plan, except as otherwise provided by the Compensation Committee in the award agreement, all outstanding awards will automatically terminate, unless the parties to the sale event agree that such awards will be assumed or continued by the successor entity. In addition, in the case of a sale event in which the Company's stockholders will receive cash consideration, the Company may make or provide for a cash payment to participants holding options equal to the difference between the per share cash consideration and the exercise price of the options.

Stock options granted under the 2001 Stock Plan do not automatically accelerate upon termination of such named executive officer's employment or upon a change in control pursuant to the terms of the 2001 Stock Plan.

Assuming a qualifying termination were to have taken place on December 31, 2017, each of the named executive officers would have been entitled to the payments and benefits shown in the table below.

|                 | <b>Payments and Benefits</b>         |                                                                    |                                                   | <b>Total (\$)</b> |
|-----------------|--------------------------------------|--------------------------------------------------------------------|---------------------------------------------------|-------------------|
|                 | <b>Base Salary Continuation (\$)</b> | <b>Value of Accelerated Vesting of Stock-Based Awards (\$ (1))</b> | <b>Value of Health Insurance Under COBRA (\$)</b> |                   |
| Tony J. Hunt    | 550,000                              | 1,968,871                                                          | 21,026                                            | 2,528,374         |
| Jon K. Snodgres | 175,049                              | 492,383                                                            | 10,513                                            | 677,945           |
| Howard Benjamin | —                                    | —                                                                  | —                                                 | —                 |

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- (1) Based on the intrinsic value of the stock options on December 31, 2017, based upon market closing price of \$36.28 of the Common Stock on December 29, 2017, the last trading day of 2017.

Assuming a change in control and qualifying termination were to have taken place on December 31, 2017, each of the named executive officers would have been entitled to the payments and benefits shown in the table below.

|                 | Payments and Benefits    |                                         |                                            | Total (\$) |
|-----------------|--------------------------|-----------------------------------------|--------------------------------------------|------------|
|                 | Salary Continuation (\$) | Value of Stock Options Vesting (\$) (1) | Value of Health Insurance Under COBRA (\$) |            |
| Tony J. Hunt    | 1,100,000                | 3,937,742                               | 31,539                                     | 5,046,235  |
| Jon K. Snodgres | 175,049                  | 492,383                                 | 10,513                                     | 677,945    |
| Howard Benjamin | —                        | —                                       | —                                          | —          |

- (1) Based on the intrinsic value of the stock options on December 31, 2017 based upon market closing price of \$36.28 on of the Common Stock on December 29, 2017, the last trading day of 2017.

## CEO Pay Ratio

Pursuant to a mandate of the Dodd-Frank Act, the SEC adopted a rule requiring annual disclosure of the ratio of the median employee's total annual compensation to the total annual compensation of the principal executive officer ("PEO"). The PEO of our Company is Tony J. Hunt.

Our compensation and benefits philosophy and the overall structure of our compensation and benefit programs are broadly similar across the organization and aim to encourage and reward all employees who contribute to our success. We strive to ensure the pay of every employee of the Company reflects the level of their job impact and responsibilities and is competitive within our peer group. Compensation rates are benchmarked and are generally set to be market-competitive in the country in which the jobs are performed. Our ongoing commitment to pay equity is critical to our success in supporting a diverse workforce with opportunities for all employees to grow, develop, and contribute.

We identified the median employee using total compensation as reported on Form W-2, subtracting bonuses earned in 2016 but paid in 2017, adding bonuses earned in 2017 but not paid until March 2018, and adding the fair value of equity awards granted to the employee during 2017. All individuals who were employed by us on December 31, 2017, the last day of our fiscal year, were included in the determination of this calculation (including all employees, whether employed on a full-time, part-time, seasonal or temporary basis).

As illustrated in the table below, our 2017 PEO to median employee pay ratio was approximately 48:1.

|                                              |              |
|----------------------------------------------|--------------|
| Tony J. Hunt (PEO) 2017 Compensation         | \$ 3,044,785 |
| Median Employee 2017 Compensation            | \$ 64,014    |
| Ratio of PEO to Median Employee Compensation | 48:1         |

To determine the median employee, we included all individuals employed as of December 31, 2017. Compensation for the median employee was determined in the same manner as the total compensation reported for Mr. Hunt in the "Total" column of the Summary Compensation Table. The pay ratio reported above is a reasonable estimate calculated in a manner consistent with SEC rules, based on our internal records and the methodology described above. The SEC rules for identifying the median compensated employee allow companies to adopt a variety of methodologies, to apply certain exclusions and to make reasonable estimates and assumptions that reflect their employee populations and compensation practices. Accordingly, the pay ratio reported by other peer companies may not be comparable to the pay ratio reported above, as other companies have different employee populations and compensation practices and may use different methodologies, exclusions, estimates and assumptions in calculating their own pay ratios.

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### **Director Compensation**

For the fiscal year ended December 31, 2017, non-employee directors received an annual cash retainer for service on the Board of Directors and committees as set forth in the table below.

|                                                      | <u>Annual Retainer</u> |
|------------------------------------------------------|------------------------|
| <b>Board of Directors</b>                            |                        |
| Each Non-Employee Member of the Board                | \$ 45,000              |
| Additional Retainer for the Chairperson              | \$ 80,000              |
| <b>Audit Committee</b>                               |                        |
| Committee Chairperson                                | \$ 30,000              |
| Other Committee Members                              | \$ 10,000              |
| <b>Compensation Committee</b>                        |                        |
| Committee Chairperson                                | \$ 16,000              |
| Other Committee Members                              | \$ 5,000               |
| <b>Nominating and Corporate Governance Committee</b> |                        |
| Committee Chairperson                                | \$ 16,000              |
| Other Committee Members                              | \$ 5,000               |

Under the Company's Amended and Restated Director Compensation Policy, as amended in February 2016, each newly-elected, non-employee director who joins the Board receives an option to purchase 24,000 shares of Common Stock on the date he or she joins the Board. These initial option grants vest in equal annual installments over a three-year period from the date of grant, provided such person is still a director on such vesting date. In addition, at each annual meeting, each non-employee director reelected to the Board by the stockholders is awarded annual equity compensation. In 2017, all non-employee directors, other than the Chairperson, were entitled to annual equity compensation with a grant date fair value of \$95,000, and the Chairperson was entitled to annual equity compensation with a grant date fair value of \$135,000. The annual equity compensation award is 50% in the form of restricted stock units, and 50% in the form of stock options. Annual equity awards vest in full on the earlier of the first anniversary of the date of the grant or the next annual meeting of the stockholders, provided such person is still a director on such vesting date.

In March 2018, the Board, based upon the recommendation of the Compensation Committee, further amended its Amended and Restated Director Compensation policy to increase the annual retainer and annual equity compensation for Board members, excluding the Chairperson, to \$50,000 and \$125,000, respectively. Additionally, the annual retainer and annual equity compensation for the Chairperson of the Board were increased effective as of March 1, 2018 to \$90,000 and \$175,000, respectively. The Board also increased the annual retainer for the members and Chairperson of the Compensation Committee to \$10,000 and \$20,000, respectively, effective as of March 1, 2018.

### *Integration Committee*

In connection with the integration of Spectrum, Inc. (now known as Spectrum LifeSciences LLC) into the Company's business, the Board formed an *ad hoc* Integration Committee, consisting of Ms. Dawes, Mr. Hunt, Mr. Muir, and Mr. Barthelemy as Chairperson. The responsibilities of the Integration Committee included providing strategic advice to the Company regarding the integration of Spectrum's operations and commercial organization into the operations of the Company. For his additional time commitment and service as the Chairman of the Integration Committee, Mr. Barthelemy received an additional retainer of \$31,700, payable monthly in arrears. The Nominating and Corporate Governance Committee considered all available facts and circumstances and determined that Mr. Barthelemy's service as Chairman of the Integration Committee and the payments for this service were appropriate in light of the director independence requirements of the Company, the Securities and Exchange Commission and Nasdaq. The *ad hoc* Integration Committee was terminated by the Board effective as of December 31, 2017.

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### Director Compensation Table for the Fiscal Year Ended December 31, 2017

The following table sets forth a summary of the compensation the Company paid to its non-employee directors in the year ended December 31, 2017.

| <u>Name</u>           | <u>Fees Earned or<br/>Paid in Cash<br/>(\$)</u> | <u>Stock<br/>Awards<br/>(\$)<br/>(1)(2)(3)</u> | <u>Option<br/>Awards<br/>(\$)<br/>(1)(2)(3)</u> | <u>Total<br/>(\$)</u> |
|-----------------------|-------------------------------------------------|------------------------------------------------|-------------------------------------------------|-----------------------|
| Nicolas M. Barthelemy | 245,000(4)                                      | 46,745                                         | 47,751                                          | 339,496               |
| Glenn L. Cooper       | 61,000                                          | 46,745                                         | 47,751                                          | 155,496               |
| John G. Cox           | 55,000                                          | 46,745                                         | 47,751                                          | 149,496               |
| Karen A. Dawes        | 141,000                                         | 66,435                                         | 67,859                                          | 275,294               |
| Glenn P. Muir         | 80,000                                          | 46,745                                         | 47,751                                          | 174,496               |
| Thomas F. Ryan, Jr.   | 60,000                                          | 46,745                                         | 47,751                                          | 154,496               |

- (1) Represents the aggregate grant date fair value for awards granted in the respective fiscal years calculated in accordance with the FASB ASC Topic *Compensation — Stock Compensation*. The assumptions the Company used for calculating the grant date fair values are set forth in Note 2 to the Company's consolidated financial statements included in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2017.
- (2) The non-employee directors of the Board who held such position on December 31, 2017 held the following aggregate number of unexercised stock options and unvested restricted stock units as of such date:

| <u>Name</u>            | <u>Number of Securities<br/>Underlying<br/>Unexercised Options</u> | <u>Number of Unvested<br/>Restricted Stock Units</u> |
|------------------------|--------------------------------------------------------------------|------------------------------------------------------|
| Nicolas M. Barthelemy. | 31,792                                                             | 1,206                                                |
| Glenn L. Cooper        | 70,488                                                             | 1,206                                                |
| John G. Cox            | 33,432                                                             | 1,206                                                |
| Karen A. Dawes         | 93,563                                                             | 17,714                                               |
| Glenn P. Muir          | 29,800                                                             | 1,206                                                |
| Thomas F. Ryan, Jr.    | 12,488                                                             | 1,206                                                |

- (3) The following table presents the grant date fair value of each grant of shares of restricted stock units or stock options in the fiscal year ended December 31, 2017 to non-employee directors, computed in accordance with the FASB ASC Topic 718 *Compensation — Stock Compensation*:

| <u>Name</u>           | <u>Grant Date</u> | <u>Number of Restricted<br/>Stock Units</u> | <u>Number of Securities<br/>Underlying Options</u> | <u>Exercise or<br/>Base Price of<br/>Option Awards</u> | <u>Grant Date<br/>Fair Value of<br/>Stock and Option<br/>Awards (\$)</u> |
|-----------------------|-------------------|---------------------------------------------|----------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------------|
| Nicolas M. Barthelemy | 05/18/2017        | —                                           | 2,434                                              | \$ 38.76                                               | 47,751                                                                   |
|                       | 05/18/2017        | 1,206                                       | —                                                  | —                                                      | 46,745                                                                   |
| Glenn L. Cooper       | 05/18/2017        | —                                           | 2,434                                              | \$ 38.76                                               | 47,751                                                                   |
|                       | 05/18/2017        | 1,206                                       | —                                                  | —                                                      | 46,745                                                                   |
| John G. Cox           | 05/18/2017        | —                                           | 2,434                                              | \$ 38.76                                               | 47,751                                                                   |
|                       | 05/18/2017        | 1,206                                       | —                                                  | —                                                      | 46,745                                                                   |
| Karen A. Dawes        | 05/18/2017        | —                                           | 3,459                                              | \$ 38.76                                               | 67,859                                                                   |
|                       | 05/18/2017        | 1,714                                       | —                                                  | —                                                      | 66,435                                                                   |
| Glenn P. Muir         | 05/18/2017        | —                                           | 2,434                                              | \$ 38.76                                               | 47,751                                                                   |
|                       | 05/18/2017        | 1,206                                       | —                                                  | —                                                      | 46,745                                                                   |
| Thomas F. Ryan, Jr.   | 05/18/2017        | —                                           | 2,434                                              | \$ 38.76                                               | 47,751                                                                   |
|                       | 05/18/2017        | 1,206                                       | —                                                  | —                                                      | 46,745                                                                   |

- (4) The Board of Directors engaged Mr. Barthelemy to serve as the Chairman of the Integration Committee. In this role, Mr. Barthelemy worked directly with our executive team on general integration strategy and

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focused on the integration of Spectrum's operations and commercial organization into the Company's. Mr. Barthelemy received fees totaling \$190,000 related to his services as the chairperson of the Integration Committee for the year ended December 31, 2017.

### **Compensation Committee Interlocks and Insider Participation**

Dr. Cooper and Messrs. Barthelemy and Muir were the members of the Compensation Committee during the year ended December 31, 2017. No member of the Compensation Committee is a current or former employee of the Company, or had any relationship with us requiring disclosure herein. No interlocking relationship exists between any member of our Board or our Compensation Committee and any member of the board or compensation committee of any other company and no such interlocking relationship has existed in the past.

**ITEM 2****RATIFICATION OF THE SELECTION OF INDEPENDENT REGISTERED  
PUBLIC ACCOUNTING FIRM**

The Audit Committee of the Board has appointed Ernst & Young LLP, an independent registered public accounting firm, to serve as independent auditors for the fiscal year ending December 31, 2018. Ernst & Young LLP has served as the Company's independent registered public accounting firm since 2002. In accordance with standing policy, Ernst & Young LLP periodically changes the personnel who work on the audits of the Company.

**Fees**

The following sets forth the aggregate fees billed by Ernst & Young LLP to the Company during the fiscal years ended December 31, 2017 and 2016:

|                    | <b>FY 2017</b>      | <b>FY 2016</b>      |
|--------------------|---------------------|---------------------|
| Audit Fees         | \$ 2,465,000        | \$ 1,690,000        |
| Audit Related Fees | 349,000             | —                   |
| Tax Fees           | 138,000             | 17,000              |
| Other Fees         | 2,000               | 2,000               |
| Total              | <u>\$ 2,954,000</u> | <u>\$ 1,709,000</u> |

*Audit Fees*

Fees for audit services were approximately \$2,465,000 and \$1,690,000 for the fiscal years ended December 31, 2017 and 2016 respectively. These amounts included fees associated with the annual audit of the consolidated financial statements, reviews of the Company's quarterly reports on Form 10-Q and fees associated with the statutory filings and filings with the SEC.

*Audit Related Fees*

For the fiscal year ended December 31, 2017, we incurred fees of approximately \$349,000 for due diligence activities related to our acquisition of Spectrum, Inc. For the fiscal year ended December 31, 2016, we incurred fees of approximately \$17,000 for assurance and related services related to the performance of the audit or review of the financial statements and are not otherwise reported above. We did not incur any fees for assurance and related services or for due diligence activities related to our acquisitions of Atoll GmbH and TangenX Technology Corporation during the fiscal year ended December 31, 2016.

*Tax Fees*

Fees billed for tax services were approximately \$138,000 and \$17,000 for the fiscal years ended December 31, 2017 and 2016 respectively. These amounts included fees associated with tax compliance, consulting and related services. The increase in fees billed for tax services in 2017 is related to fees associated with tax compliance services related to our acquisition of Spectrum, Inc.

*All Other Fees*

Ernst & Young LLP billed \$2,000 in additional fees in each of the fiscal years ended December 31, 2017 and 2016 relating to a subscription to Ernst & Young LLP's online accounting research service.

The Audit Committee of the Board has implemented procedures under the Company's Audit Committee Pre-Approval Policy for Audit and Non-Audit Services (the "Pre-Approval Policy"), to ensure that all audit and

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permitted non-audit services provided to the Company are approved by the Audit Committee. Specifically, the Audit Committee pre-approves the use of Ernst & Young LLP for specific audit and non-audit services, within approved monetary limits. If a proposed service has not been pre-approved pursuant to the Pre-Approval Policy, then it must be specifically pre-approved by the Audit Committee before Ernst & Young LLP may provide the services. Any pre-approved services exceeding the limits pre-approved by the Audit Committee must again be pre-approved by the Audit Committee. All of the audit-related, tax and all other services provided by Ernst & Young LLP to the Company for the fiscal year ended December 31, 2017 were pre-approved by the Audit Committee. All non-audit services provided in the fiscal year ended December 31, 2017 were reviewed with the Audit Committee, which concluded that the provisions of such services by Ernst & Young LLP was compatible with the maintenance of that firm's independence in the conduct of its auditing functions.

In connection with the audit for the fiscal year ended December 31, 2017, there were no disagreements with Ernst & Young LLP on any matter of accounting principles or practices, financial statement disclosure or auditing scope or procedure, which, if not resolved to the satisfaction of Ernst & Young LLP, would have caused them to refer to such disagreement in connection with their report.

A member of Ernst & Young LLP is expected to be present at the Annual Meeting with the opportunity to make a statement if so desired and will be available to respond to appropriate questions.

**Accordingly, the Board believes ratification of the appointment of Ernst & Young LLP as the Company's independent registered public accounting firm for the current year is in the best interests of the Company and its stockholders and recommends a vote FOR the ratification of Ernst & Young as the Company's independent registered public accounting firm.**

ITEM 3

ADVISORY VOTE ON EXECUTIVE COMPENSATION

The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, or the Dodd-Frank Act, enables our stockholders to vote to approve, on an advisory basis, the compensation of our named executive officers as disclosed in this proxy statement in accordance with the SEC's rules.

As described in the sections entitled "Compensation Discussion and Analysis" and "Director and Executive Officer Compensation", our executive compensation programs are designed to motivate our executive officers to enhance stockholder value, to provide a fair reward for this effort and to stimulate our executive officers' professional and personal growth. The Company seeks to provide near-term and long-term financial incentives that align the executive officers' interest with those of the stockholders and focus executive officer behavior on the achievement of both near-term corporate goals, as well as long-term business objectives and strategies. We believe that this alignment between executive compensation and stockholder interests has driven corporate performance over time.

Our stockholders voted on May 18, 2017, to have advisory votes every year to approve the compensation paid to the Company's named executive officers, and we have adopted that approach. The Board of Directors and Compensation Committee make executive compensation decisions every year, and our directors will look to the annual advisory vote for information to be taken into account when they make decisions with respect to our compensation philosophy, policies and practices. The Compensation Committee and the Board of Directors note our stockholders' endorsement for the Company's executive compensation program for the fiscal year ended December 31, 2017, which was approved by over 95% of the votes cast. Consequently, the Compensation Committee has generally maintained the structure of its executive compensation programs for the fiscal years ended December 31, 2017. **Accordingly, we are asking our stockholders to vote FOR the following non-binding, advisory resolution on the approval of the compensation of the Company's named executive officers as disclosed in this proxy statement:**

"RESOLVED, that the stockholders of the Company approve, on an advisory basis, the compensation of the Company's named executive officers, as disclosed in this proxy statement, including the Compensation Discussion and Analysis, compensation tables and narrative discussion."

We urge you to read the Compensation Discussion and Analysis and Director and Executive Officer Compensation sections of this proxy statement for additional details on the Company's executive compensation, including our governance, framework, components, and the compensation decisions for the named executive officers for the fiscal year ended December 31, 2017.

As an advisory vote, the results of this vote will not be binding on the Board of Directors or the Company. However, the Board of Directors and the Compensation Committee value the opinions of our stockholders, and will consider the outcome of the vote when making future decisions on the compensation of our named executive officers and the Company's executive compensation principles, policies and procedures.

**The Board of Directors recommends that stockholders vote FOR approval, on an advisory basis, of the compensation of the Company's named executive officers, as disclosed in this proxy statement, including the Compensation Discussion and Analysis, compensation tables and narrative discussion.**

**ITEM 4**  
**APPROVAL OF THE REPLIGEN CORPORATION 2018 STOCK**  
**OPTION AND INCENTIVE PLAN**

The Board believes that stock-based incentive awards can play an important role in the success of the Company by encouraging and enabling the employees, officers, non-employee directors and consultants of the Company and its subsidiaries upon whose judgment, initiative and efforts the Company largely depends for the successful conduct of its business to acquire a proprietary interest in the Company. The Board believes that providing such persons with a direct stake in the Company assures a closer identification of the interests of such individuals with those of the Company and its stockholders, thereby stimulating their efforts on the Company's behalf and strengthening their desire to remain with the Company.

On April 3, 2018, the Compensation Committee recommended and the Board adopted, subject to stockholder approval, the Repligen Corporation 2018 Stock Option and Incentive Plan (the "Plan"). The Plan is designed to enhance the flexibility to grant equity awards to our officers, employees, non-employee directors and consultants and to ensure that we can continue to grant equity awards to eligible recipients at levels determined to be appropriate by the Board and/or the Compensation Committee. A copy of the Plan is attached as Appendix B to this proxy statement and is incorporated herein by reference.

As of March 31, 2018, there were stock options to acquire 1,109,353 shares of Common Stock outstanding under our equity compensation plans, with a weighted average exercise price of \$25.34 and a weighted average remaining term of 7.51 years. In addition, as of March 31, 2018, there were 655,076 unvested full value awards with time-based vesting and 48,000 unvested full value awards with performance vesting outstanding under our equity compensation plans. Other than the foregoing, no awards under our equity compensation plans were outstanding as of March 31, 2018.

**Summary of Material Features of the Plan**

The material features of the Plan are:

- the maximum number of shares of Common Stock to be issued under the Plan is 2,778,000 plus the number of shares of stock available for issuance under the Company's Amended and Restated 2012 Stock Option and Incentive Plan, as of the effective date of the Plan;
- the award of stock options (both incentive and non-qualified options), stock appreciation rights, restricted stock, restricted stock units, unrestricted stock, cash-based awards, and dividend equivalent rights and is permitted;
- shares tendered or held back for taxes will not be added back to the reserved pool under the Plan. Upon the exercise of a stock appreciation right that is settled in shares of Common Stock, the full number of shares underlying the award will be charged to the reserved pool. Additionally, shares we reacquire on the open market will not be added to the reserved pool under the Plan;
- stock options and stock appreciation rights will not be repriced in any manner without stockholder approval;
- subject to certain limited exceptions, all awards granted under the Plan have a minimum one-year vesting period;
- the value of all awards awarded under the Plan and all other cash compensation paid by the us to any non-employee director in any calendar year may not exceed \$500,000;
- any material amendment to the Plan is subject to approval by our stockholders; and
- the term of the Plan will expire on May 16, 2028.

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Based solely on the closing price of our Common Stock as reported by Nasdaq on March 31, 2018 and the maximum number of shares that would have been available for awards as of such date under the Plan, the maximum aggregate market value of the Common Stock that could potentially be issued under the Plan is \$109,730,575. The shares of Common Stock underlying any awards that are forfeited, canceled or otherwise terminated, other than by exercise, under the Plan will be added back to the shares of Common Stock available for issuance under the Plan. Shares tendered or held back upon exercise of a stock option or settlement of an award under the Plan to cover the exercise price or tax withholding and shares subject to a stock appreciation right that are not issued in connection with the stock settlement of the stock appreciation right upon exercise thereof, will not be added back to the shares of Common Stock available for issuance under the Plan. In addition shares of Common Stock repurchased on the open market will not be added back to the shares of Common Stock available for issuance under the Plan.

### **Rationale for Share Increase**

The Plan is critical to our ongoing effort to build stockholder value. Equity incentive awards are an important component of our executive and non-executive employees' compensation. Our Compensation Committee and Board believe that we must continue to offer a competitive equity compensation program in order to attract, retain and motivate the talented and qualified employees necessary for our continued growth and success.

We manage our long-term stockholder dilution by limiting the number of annual equity incentive awards. The Compensation Committee carefully monitors our annual net burn rate, total dilution and equity expense in order to maximize stockholder value by granting only the number of equity incentive awards that it believes are necessary and appropriate to attract, reward and retain our employees. Our compensation philosophy reflects broad-based eligibility for equity incentive awards for high performing employees. By doing so, we link the interests of those employees with those of our stockholders and motivate our employees to act as owners of the business.

### *Burn rate*

The following table sets forth information regarding historical awards granted and earned for the 2015 through 2017 period, and the corresponding burn rate, which is defined as the number of shares subject to equity-based awards granted in a year divided by the weighted average number of shares of Common Stock outstanding for that year, for each of the last three fiscal years:

| <b>Share Element</b>                                              | <b>2015</b>    | <b>2016</b>    | <b>2017</b>    |
|-------------------------------------------------------------------|----------------|----------------|----------------|
| Stock Options Granted                                             | 310,857        | 183,619        | 101,844        |
| Time-Based Full-Value Awards Granted                              | 51,786         | 251,384        | 293,004        |
| Adjusted Full-Value Awards Granted <sup>(1)</sup>                 | 103,572        | 502,768        | 586,008        |
| <b>Total Awards Granted <sup>(2)</sup></b>                        | <b>414,429</b> | <b>686,387</b> | <b>687,852</b> |
| Weighted average common shares outstanding during the fiscal year | 32,882,000     | 33,573,000     | 38,234,000     |
| <b>Annual Burn Rate</b>                                           | <b>1.26%</b>   | <b>2.04%</b>   | <b>1.80%</b>   |
| <b>Three-Year Average Burn Rate</b>                               |                | <b>1.70%</b>   |                |

- (1) In accordance with corporate governance policy updates published by Institutional Shareholder Services ("ISS"), Adjusted Full-Value Awards Granted represents the total Time-Based Full-Value Awards Granted, subject to a multiplier based on our recent historic stock price volatility. Based on our recent historical stock price volatility and ISS metrics we have utilized a full-value award multiplier of 2.0 for purposes of calculating the 2015-2017 three-year average burn rate.
- (2) Total Awards Granted represents the sum of Stock Options Granted and Adjusted Full-Value Awards Granted.

Our Compensation Committee and Board determined the size of reserved pool under the Plan based on projected equity awards to anticipated new hires, projected annual equity awards to existing employees and an

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assessment of the magnitude of increase that our institutional investors and the firms that advise them would likely find acceptable. We anticipate that if our request to increase the share reserve is approved by our stockholders, it will be sufficient to provide equity incentives to attract, retain, and motivate employees for the next three years.

### **Summary of the Plan**

The following description of certain features of the Plan is intended to be a summary only. The summary is qualified in its entirety by the full text of the Plan, which is attached hereto as Appendix B.

*Administration.* The Plan will be administered by the Compensation Committee. The administrator has full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted, to make any combination of awards to participants, and to determine the specific terms and conditions of each award, subject to the provisions of the Plan. The administrator may delegate to a committee of one or more officers of the Company, including our Chief Executive Officer, the authority to grant awards to employees who are not subject to the reporting and other provisions of Section 16 of the Exchange Act and not members of the delegated committee, subject to certain limitations and guidelines.

*Eligibility; Plan Limits.* All full-time and part-time officers, employees, non-employee directors and consultants will be eligible to participate in the Plan, subject to the discretion of the administrator. As of March 31, 2018, approximately 481 individuals would have been eligible to participate in the Plan had it been effective on such date, which includes three executive officers, 472 employees who are not executive officers and six non-employee directors. There are certain limits on the number of awards that may be granted under the Plan. For example, no more than 4,000,000 shares of Common Stock may be granted in the form of incentive stock options.

*Director Compensation Limit.* The Plan provides that the value of all awards awarded under the Plan and all other cash compensation paid by the Company to any non-employee director in any calendar year shall not exceed \$500,000.

*Minimum Vesting Period.* The minimum vesting period for each equity award granted under the Plan must be at least one year, provided (1) that up to 5% of the shares authorized for issuance under the Plan may be utilized for unrestricted stock awards or other equity awards with a minimum vesting period of less than one year and (2) annual awards to non-employee directors that occur in connection with the Company's annual meeting of stockholders may vest on the date of the Company's next annual meeting of stockholders. In addition, the administrator may grant equity awards that vest within one year (i) if such awards are granted as substitute awards in replacement of other awards (or awards previously granted by an entity being acquired (or assets of which are being acquired)) that were scheduled to vest within one year or (ii) if such awards are being granted in connection with an elective deferral of cash compensation that, absent a deferral election, otherwise would have been paid to the grantee within the one year.

*Stock Options.* The Plan permits the granting of (1) options to purchase Common Stock intended to qualify as incentive stock options under Section 422 of the Code and (2) options that do not so qualify. Options granted under the Plan will be non-qualified options if they fail to qualify as incentive options or exceed the annual limit on incentive stock options. Incentive stock options may only be granted to employees of the Company and its subsidiaries. Non-qualified options may be granted to any persons eligible to receive incentive options and to non-employee directors and consultants. The option exercise price of each option will be determined by the administrator but may not be less than 100% of the fair market value of the Common Stock on the date of grant, except in situations pursuant to a transaction described in Section 424(a) of the Code. Fair market value for this purpose will be the closing price of the shares of Common Stock on Nasdaq on the date of grant. The exercise price of an option may not be reduced after the date of the option grant, other than to appropriately reflect changes in our capital structure.

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The term of each option will be fixed by the administrator and may not exceed ten years from the date of grant. The administrator will determine at what time or times each option may be exercised. Options may be made exercisable in installments and the exercisability of options may be accelerated by the administrator. In general, unless otherwise permitted by the administrator, no option granted under the Plan is transferable by the optionee other than by will or by the laws of descent and distribution or pursuant to a domestic relations order, and options may be exercised during the optionee's lifetime only by the optionee, or by the optionee's legal representative or guardian in the case of the optionee's incapacity.

Upon exercise of options, the option exercise price must be paid in full either in cash, by certified or bank check or other instrument acceptable to the administrator or by delivery (or attestation to the ownership) of shares of Common Stock that are not subject to restrictions under any Company plan. Subject to applicable law, the exercise price may also be delivered to the Company by a broker pursuant to irrevocable instructions to the broker from the optionee. In addition, the administrator may permit non-qualified options to be exercised using a net exercise feature which reduces the number of shares issued to the optionee by the number of shares with a fair market value that does not exceed the aggregate exercise price.

To qualify as incentive options, options must meet additional federal tax requirements, including a \$100,000 limit on the value of shares subject to incentive options that first become exercisable by a participant in any one calendar year.

*Stock Appreciation Rights.* The administrator may award stock appreciation rights subject to such conditions and restrictions as the administrator may determine. Stock appreciation rights entitle the recipient to shares of Common Stock (or cash, to the extent explicitly provided in the applicable award agreement) equal to the value of the appreciation in the stock price over the exercise price. The exercise price is the fair market value of the Common Stock on the date of grant. The term of a stock appreciation right may not exceed ten years.

*Restricted Stock.* The administrator may award shares of Common Stock to participants subject to such conditions and restrictions as the administrator may determine. These conditions and restrictions may include the achievement of certain performance goals and/or continued employment with us through a specified restricted period. However, except in the case of retirement, death, disability or a change of control, in the event these awards granted to employees have a performance-based goal, the restriction period will be at least one year, and in the event these awards granted to employees have a time-based restriction, the restriction period will be at least three years, but vesting can occur incrementally over the three-year period.

*Restricted Stock Units.* The administrator may award restricted stock units to participants. Restricted stock units are ultimately payable in the form of shares of Common Stock (or cash, to the extent explicitly provided in the applicable award agreement) subject to such conditions and restrictions as the administrator may determine. These conditions and restrictions may include the achievement of certain performance goals and/or continued employment with the Company through a specified vesting period. However, except in the case of retirement, death, disability or a change of control, in the event these awards granted to employees have a performance-based goal, the restriction period will be at least one year, and in the event these awards granted to employees have a time-based restriction, the restriction period will be at least three years, but vesting can occur incrementally over the three-year period. In the administrator's sole discretion, it may permit a participant to make an advance election to receive a portion of his or her future cash compensation otherwise due in the form of a restricted stock unit award, subject to the participant's compliance with the procedures established by the administrator and requirements of Section 409A of the Code. During the deferral period, the deferred stock awards may be credited with dividend equivalent rights.

*Unrestricted Stock Awards.* The administrator may also grant shares of Common Stock which are free from any restrictions under the Plan. Unrestricted stock may be granted to any participant in recognition of past services or other valid consideration and may be issued in lieu of cash compensation due to such participant.

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*Dividend Equivalent Rights.* The administrator may grant dividend equivalent rights to participants, which entitle the recipient to receive credits for dividends that would be paid if the recipient had held specified shares of Common Stock. Dividend equivalent rights may be granted as a component of restricted stock units or as a freestanding award. Dividend equivalent rights granted as a component of restricted stock units may be paid only if the related award becomes vested. Dividend equivalent rights may be settled in cash, shares of Common Stock or a combination thereof, in a single installment or installments, as specified in the award.

*Cash-Based Awards.* The administrator may grant cash bonuses under the Plan to participants. The cash bonuses may be subject to the achievement of certain performance goals.

*Change of Control Provisions.* The Plan provides that upon the effectiveness of a “sale event” as defined in the Plan, except as otherwise provided by the administrator in the award agreement, all outstanding awards will automatically terminate, unless the parties to the sale event agree that such awards will be assumed or continued by the successor entity. In the event of such termination, (i) the Company shall have the option, in its sole discretion, to make or provide for payment, in cash or in kind, to participants holding options and stock appreciation rights, in exchange for the cancellation thereof, an amount equal to the difference between the per share cash consideration received by holders of Common Stock in the sale event and the exercise price of the options or stock appreciation rights and (ii) participants shall be permitted, within a specified period of time prior to the sale event, to exercise outstanding stock options and stock appreciation rights (to the extent then exercisable). The Company shall also have the option, in its sole discretion, to make or provide for a payment, in cash or in kind, to the grantees holding other awards equal to the per share consideration multiplied by the number of vested shares of stock under each award.

*Adjustments for Stock Dividends, Stock Splits, Etc.* The Plan requires the administrator to make appropriate adjustments to the number of shares of Common Stock that are subject to the Plan, to certain limits in the Plan, and to any outstanding awards to reflect stock dividends, stock splits, extraordinary cash dividends and similar events.

*Tax Withholding.* Participants in the Plan are responsible for the payment of any federal, state or local taxes that the Company is required by law to withhold upon the exercise of options or stock appreciation rights or vesting of other awards. Subject to approval by the administrator, participants may elect to have their tax withholding obligations satisfied by authorizing the Company to withhold shares of Common Stock to be issued pursuant to exercise or vesting or by an arrangement whereby a certain number of shares of stock issued pursuant to an award are immediately sold and proceeds from such sale are remitted to the Company in an amount that would satisfy the withholding amount due. The administrator may also require awards to be subject to mandatory share withholding up to the required withholding amount. Any shares held back to satisfy such tax withholding will not be available for future issuance under the Plan.

*Amendments and Termination.* The Board may at any time amend or discontinue the Plan and the administrator may at any time amend or cancel any outstanding award for the purpose of satisfying changes in the law or for any other lawful purpose. However, no such action may adversely affect any rights under any outstanding award without the holder’s consent. To the extent required under the rules of Nasdaq, any amendments that materially change the terms of the Plan will be subject to approval by our stockholders. Amendments shall also be subject to approval by our stockholders if and to the extent determined by the administrator to be required by the Code to preserve the qualified status of incentive options.

*Effective Date of Plan.* The Plan was approved by our Board of Directors on April 3, 2018. Awards of incentive options may be granted under the Plan until the tenth anniversary of April 3, 2018. No other awards may be granted under the Plan after the date that is ten years from the date of stockholder approval.

## **New Plan Benefits**

Because the grant of awards under the Plan is within the discretion of the Compensation Committee, the Company cannot determine the dollar value or number of shares of Common Stock that will in the future be

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received by or allocated to any participant in the Plan. Accordingly, in lieu of providing information regarding benefits that will be received under the Plan, the following table provides information concerning the benefits that were received by the following persons and groups during 2017: each named executive officer; all current executive officers, as a group; all current directors who are not executive officers, as a group; and all current employees who are not executive officers, as a group.

| <u>Name and Position</u>                                         | <u>Options</u>                     |                         | <u>Stock Awards</u>      |                         |
|------------------------------------------------------------------|------------------------------------|-------------------------|--------------------------|-------------------------|
|                                                                  | <u>Average Exercise Price (\$)</u> | <u>Number of Awards</u> | <u>Dollar Value (\$)</u> | <u>Number of Awards</u> |
| Tony Hunt, President and Chief Executive Officer                 | 32.40                              | 64,975                  | 1,052,611                | 32,488                  |
| Jon Snodgres, Chief Financial Officer                            | 32.40                              | 18,165                  | 319,950                  | 9,875                   |
| Howard Benjamin, Vice President, Business Development            | 32.40                              | 8,289                   | 145,994                  | 4,506                   |
| All current executive officers, as a group                       | 32.40                              | 91,429                  | 1,557,437                | 48,385                  |
| All current directors who are not executive officers, as a group | 38.76                              | 15,629                  | 300,157                  | 7,744                   |
| All current employees who are not executive officers, as a group | N/A                                | N/A                     | 8,919,196                | 236,875                 |

- (1) The valuation of stock awards is based on the grant date fair value computed in accordance with FASB ASC Topic 718. For a discussion of the assumptions used in calculating these values, see Note 2 to our consolidated financial statements in our annual report on Form 10-K for the fiscal year ended December 31, 2017.
- (2) Represents the weighted-average exercise price for the group.
- (3) Represents the aggregate grant date fair value for the group.

## **Tax Aspects Under the Code**

The following is a summary of the principal federal income tax consequences of certain transactions under the Plan. It does not describe all federal tax consequences under the Plan, nor does it describe state or local tax consequences.

*Incentive Options.* No taxable income is generally realized by the optionee upon the grant or exercise of an incentive option. If shares of Common Stock issued to an optionee pursuant to the exercise of an incentive option are sold or transferred after two years from the date of grant and after one year from the date of exercise, then (i) upon sale of such shares, any amount realized in excess of the option price (the amount paid for the shares) will be taxed to the optionee as a long-term capital gain, and any loss sustained will be a long-term capital loss, and (ii) the Company will not be entitled to any deduction for federal income tax purposes. The exercise of an incentive option will give rise to an item of tax preference that may result in alternative minimum tax liability for the optionee.

If shares of Common Stock acquired upon the exercise of an incentive option are disposed of prior to the expiration of the two-year and one-year holding periods described above (a “disqualifying disposition”), generally (i) the optionee will realize ordinary income in the year of disposition in an amount equal to the excess (if any) of the fair market value of the shares of Common Stock at exercise (or, if less, the amount realized on a sale of such shares of Common Stock) over the option price thereof, and (ii) we will be entitled to deduct such amount. Special rules will apply where all or a portion of the exercise price of the incentive option is paid by tendering shares of Common Stock.

If an incentive option is exercised at a time when it no longer qualifies for the tax treatment described above, the option is treated as a non-qualified option. Generally, an incentive option will not be eligible for the tax treatment described above if it is exercised more than three months following termination of employment (or

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one year in the case of termination of employment by reason of disability). In the case of termination of employment by reason of death, the three-month rule does not apply.

*Non-Qualified Options.* No income is realized by the optionee at the time a non-qualified option is granted. Generally (i) at exercise, ordinary income is realized by the optionee in an amount equal to the difference between the option price and the fair market value of the shares of Common Stock on the date of exercise, and we receive a tax deduction for the same amount, and (ii) at disposition, appreciation or depreciation after the date of exercise is treated as either short-term or long-term capital gain or loss depending on how long the shares of Common Stock have been held. Special rules will apply where all or a portion of the exercise price of the non-qualified option is paid by tendering shares of Common Stock. Upon exercise, the optionee will also be subject to Social Security taxes on the excess of the fair market value over the exercise price of the option.

*Other Awards.* The Company generally will be entitled to a tax deduction in connection with other awards under the Plan in an amount equal to the ordinary income realized by the participant at the time the participant recognizes such income. Participants typically are subject to income tax and recognize such tax at the time that an award is exercised, vests or becomes non-forfeitable, unless the award provides for a further deferral.

*Parachute Payments.* The vesting of any portion of an award that is accelerated due to the occurrence of a change in control (such as a sale event) may cause a portion of the payments with respect to such accelerated awards to be treated as “parachute payments” as defined in the Code. Any such parachute payments may be non-deductible to the Company, in whole or in part, and may subject the recipient to a non-deductible 20% federal excise tax on all or a portion of such payment (in addition to other taxes ordinarily payable).

*Limitation on Deductions.* Under Section 162(m) of the Code, the Company’s deduction for awards under the Plan may be limited to the extent that any “covered employee” (as defined in Section 162(m) of the Code) receives compensation in excess of \$1 million a year.

### **Vote Required**

**The affirmative vote of a majority of shares of Common Stock present, in person or represented by proxy, and voting on the matter is required for the approval of the Plan.**

### **RECOMMENDATION**

**THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT YOU  
VOTE “FOR” THE APPROVAL OF THE REPLIGEN CORPORATION 2018 STOCK OPTION AND INCENTIVE PLAN**

## ADDITIONAL INFORMATION

### Stockholder Proposals

Repligen must receive any proposal by a stockholder of Repligen for inclusion in the proxy statement furnished to all stockholders entitled to vote at our 2019 Annual Meeting of Stockholders at our principal executive office not later than December 21, 2018 in accordance with Rule 14a-8 issued under the Exchange Act.

If a stockholder wishes to propose a nomination of persons for election to our board of directors or present a proposal at an annual meeting but does not wish to have the proposal considered for inclusion in our proxy statement and proxy card, our amended and restated by-laws establish an advance notice procedure for such nominations and proposals. Stockholders at an annual meeting may only consider proposals or nominations specified in the notice of meeting or brought before the meeting by or at the direction of the board of directors or by a stockholder of record on the record date for the meeting, who is entitled to vote at the meeting and who has delivered timely notice in proper form to our secretary of the stockholder's intention to bring such business before the meeting.

The required notice must be in writing and received by our corporate secretary at our principal executive offices not less than 90 days nor more than 60 days prior to the first anniversary of the preceding year's annual meeting. However, in the event that the date of the annual meeting is advanced by more than 30 days, or delayed by more than 60 days, from the first anniversary of the preceding year's annual meeting, a stockholder's notice must be so received no earlier than the 90th day prior to such annual meeting and not later than the close of business on the tenth day following the day on which notice of the date of such annual meeting was mailed or public disclosure of the date of such annual meeting was made, whichever first occurs. For stockholder proposals to be brought before the 2019 Annual Meeting, the required notice must be received by our corporate secretary at our principal executive offices no earlier than February 15, 2019 and no later than March 17, 2019. Stockholder proposals and the required notice should be delivered to Repligen Corporation, Attention: Secretary, 41 Seyon Street, Building #1, Suite 100, Waltham, Massachusetts 02453.

Subject to the SEC's proxy rules, if a stockholder who wishes to present a proposal at the 2019 Annual Meeting (which is not otherwise submitted for inclusion in the proxy statement in accordance with the preceding paragraph) fails to notify the Company by March 17, 2019 and such proposal is brought before the 2019 Annual Meeting, then under the SEC's proxy rules, if the proxy statement or form of proxy for the 2019 Annual Meeting so provides, the proxies solicited by Repligen with respect to the 2019 Annual Meeting will confer discretionary voting authority with respect to the stockholder's proposal on the persons selected by Repligen to vote the proxies solicited by Repligen. If a stockholder makes a timely notification, the proxies may still exercise discretionary voting authority under circumstances consistent with the SEC's proxy rules.

Any proposal intended to be presented at the 2019 Annual Meeting must also comply with the other requirements of the proxy solicitation rules of the SEC. In order to curtail any controversy as to the date on which a proposal was received by Repligen, it is suggested that proponents submit their proposal by Certified Mail, Return Receipt Requested or other means, including electronic means that permit them to prove date of delivery.

### Other Business

Management does not know of any other matters to be brought before the Annual Meeting except those set forth in the notice thereof. If other business is properly presented for consideration at the Annual Meeting, the persons named on the enclosed proxy will have discretionary authority to vote the shares represented by such proxies in accordance with their best judgment.

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### **Voting Proxies**

The Board of Directors recommends an affirmative vote on all proposals specified. Proxies will be voted as specified. If authorized proxies are submitted without specifying an affirmative or negative vote on any proposal, the shares represented by such proxies will be voted in favor of the Board of Directors' recommendations.

### **Householding**

Our Annual Report, including audited financial statements for the fiscal year ended December 31, 2017, is being mailed to you along with this proxy statement. In order to reduce printing and postage costs, Broadridge Financial Solutions, Inc., ("Broadridge"), has undertaken an effort to deliver only one Annual Report and one proxy statement to multiple stockholders sharing an address. This delivery method, called "householding," is not being used if Broadridge has received contrary instructions from one or more of the stockholders sharing an address. If your household has received only one Annual Report and one proxy statement, Repligen Corporation will deliver promptly a separate copy of the Annual Report and the proxy statement to any stockholder who sends a written request to Repligen Corporation, Attention: Secretary, 41 Seyon Street, Building #1, Suite 100, Waltham, MA 02453. If your household is receiving multiple copies of Repligen's Annual Reports or proxy statements and you wish to request delivery of only a single copy, you may send a written request to Repligen Corporation, Attention: Secretary, 41 Seyon Street, Building #1, Suite 100, Waltham, MA 02453.

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### **Appendix A**

#### **DIRECTIONS TO ANNUAL MEETING**

##### **Repligen Corporation Headquarters**

41 Seyon Street  
Building 1, Suite 100  
Waltham, MA 02453  
(781) 250-0111

##### **Driving Directions from Logan International Airport (BOS)**

- Take the Massachusetts Turnpike West (I-90 WEST).
- Take exit 17, toward Watertown. Bear right and stay straight on Galen Street/Route 16. Distance from exit 17 to Repligen is approximately 2.7 miles.
- Go straight through 4-way intersection, cross over small bridge and turn left onto Route 20/Main Street. Follow this for about 1.5 miles.
- Turn left onto Gore Street.
- Stay on Gore Street, go straight at 4-way stop. You are now on Seyon Street. Turn right into parking lot.

##### **Driving Directions from the North traveling South on Route 128/I-95 South**

- Follow Route 128/I-95 South and take exit 26/Route 20. Follow the signs that direct you to Waltham (Weston Street). Distance from exit 26 to Repligen is 4.0 miles.
- Route 20 will become Main Street in Waltham. Follow Route 20 for about 3.5 miles.
- Take a right onto Gore Street.
- Stay on Gore Street, go straight at 4-way stop. You are now on Seyon Street. Turn right into parking lot.

##### **Driving Directions from the South traveling North on Route 128/I-95 North**

- Follow Route 128/I-95 North and take exit 26/ Route 20. Follow the signs that direct you to Waltham (Weston Street). Distance from exit 26 to Repligen is 4.0 miles.
- Route 20 will become Main Street in Waltham. Follow Route 20 for about 3.5 miles.
- Take a right onto Gore Street.
- Stay on Gore Street, go straight at 4-way stop. You are now on Seyon Street. Turn right into parking lot.

##### **Driving Directions from the North traveling on Route 2**

- Follow Route 2 and take exit 60 for Lake Street toward East Arlington.
- Continue on Lake Street (signs for Belmont) for 0.4 miles. Turn left onto Pleasant Street.
- Stay on Pleasant Street for 1.9 miles. Take a sharp left onto Trapelo Road.
- In 450 feet, take a slight right onto Lexington Street, and continue for 0.2 miles.
- Turn right onto Sycamore Street and continue for 0.4 miles.
- Turn right onto Belmont Street and continue 375 feet.
- Continue onto Warren Street for 0.8 miles, then turn right onto Main Street.
- Take a left onto Gore Street, go straight at 4-way stop. You are now on Seyon Street. Turn right into parking lot.

##### **Public Transportation Directions**

Please visit the Google Maps website for the best public transportation options from your location.

##### **Parking**

There is ample free public parking at Repligen's headquarters.

**Appendix B**  
**REPLIGEN CORPORATION**  
**2018 STOCK OPTION AND INCENTIVE PLAN**

SECTION 1. GENERAL PURPOSE OF THE PLAN; DEFINITIONS

The name of the plan is the Repligen Corporation 2018 Stock Option and Incentive Plan (the “Plan”). The purpose of the Plan is to encourage and enable the officers, employees, Non-Employee Directors and Consultants of Repligen Corporation (the “Company”) and its Subsidiaries upon whose judgment, initiative and efforts the Company largely depends for the successful conduct of its business to acquire a proprietary interest in the Company. It is anticipated that providing such persons with a direct stake in the Company’s welfare will assure a closer identification of their interests with those of the Company and its stockholders, thereby stimulating their efforts on the Company’s behalf and strengthening their desire to remain with the Company.

The following terms shall be defined as set forth below:

“Act” means the Securities Act of 1933, as amended, and the rules and regulations thereunder.

“Administrator” means either the Board or the compensation committee of the Board or a similar committee performing the functions of the compensation committee and which is comprised of not less than two Non-Employee Directors who are independent.

“Award” or “Awards,” except where referring to a particular category of grant under the Plan, shall include Incentive Stock Options, Non-Qualified Stock Options, Stock Appreciation Rights, Restricted Stock Units, Restricted Stock Awards, Unrestricted Stock Awards, Cash-Based Awards, and Dividend Equivalent Rights.

“Award Certificate” means a written or electronic document setting forth the terms and provisions applicable to an Award granted under the Plan. Each Award Certificate is subject to the terms and conditions of the Plan.

“Board” means the Board of Directors of the Company.

“Cash-Based Award” means an Award entitling the recipient to receive a cash-denominated payment.

“Code” means the Internal Revenue Code of 1986, as amended, and any successor Code, and related rules, regulations and interpretations.

“Consultant” means any natural person that provides bona fide services to the Company, within the meaning of Form S-8 promulgated under the Securities Act, and provided, further, that a Consultant will include only those persons to whom the issuance of Shares may be registered under Form S-8 promulgated under the Securities Act.

“Dividend Equivalent Right” means an Award entitling the grantee to receive credits based on cash dividends that would have been paid on the shares of Stock specified in the Dividend Equivalent Right (or other award to which it relates) if such shares had been issued to and held by the grantee.

“Effective Date” means the date on which the Plan becomes effective as set forth in Section 19.

“Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder.

“Fair Market Value” of the Stock on any given date means the fair market value of the Stock determined in good faith by the Administrator; provided, however, that if the Stock is admitted to quotation on the National

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Association of Securities Dealers Automated Quotation System (“NASDAQ”), NASDAQ Global Market, the New York Stock Exchange or another national securities exchange, the determination shall be made by reference to the closing price of the Stock on such exchange. If there is no closing price for such date, the determination shall be made by reference to the last date preceding such date for which there is a closing price.

“*Incentive Stock Option*” means any Stock Option designated and qualified as an “incentive stock option” as defined in Section 422 of the Code.

“*Minimum Vesting Period*” means the one-year period following the date of grant of an Award.

“*Non-Employee Director*” means a member of the Board who is not also an employee of the Company or any Subsidiary.

“*Non-Qualified Stock Option*” means any Stock Option that is not an Incentive Stock Option.

“*Option*” or “*Stock Option*” means any option to purchase shares of Stock granted pursuant to Section 5.

“*Restricted Shares*” means the shares of Stock underlying a Restricted Stock Award that remain subject to a risk of forfeiture or the Company’s right of repurchase.

“*Restricted Stock Award*” means an Award of Restricted Shares subject to such restrictions and conditions as the Administrator may determine at the time of grant.

“*Restricted Stock Units*” means an Award of stock units subject to such restrictions and conditions as the Administrator may determine at the time of grant.

“*Sale Event*” means (i) the sale of all or substantially all of the assets of the Company on a consolidated basis to an unrelated person or entity, (ii) a merger, reorganization or consolidation pursuant to which the holders of the Company’s outstanding voting power immediately prior to such transaction do not own a majority of the outstanding voting power of the resulting or successor entity (or its ultimate parent, if applicable) immediately upon completion of such transaction, (iii) the sale of all of the Stock of the Company to an unrelated person, entity or group thereof acting in concert, or (iv) any other transaction in which the owners of the Company’s outstanding voting power immediately prior to such transaction do not own at least a majority of the outstanding voting power of the Company or any successor entity immediately upon completion of the transaction other than as a result of the acquisition of securities directly from the Company.

“*Sale Price*” means the value as determined by the Administrator of the consideration payable, or otherwise to be received by stockholders, per share of Stock pursuant to a Sale Event.

“*Section 409A*” means Section 409A of the Code and the regulations and other guidance promulgated thereunder.

“*Service Relationship*” means any relationship as a full-time employee, part-time employee, director or Consultant of the Company or any Subsidiary or any successor entity (e.g., a Service Relationship shall be deemed to continue without interruption in the event an individual’s status changes from full-time employee to part-time employee or Consultant).

“*Stock*” means the Common Stock, par value \$0.01 per share, of the Company, subject to adjustments pursuant to Section 3.

“*Stock Appreciation Right*” means an Award entitling the recipient to receive shares of Stock (or cash, to the extent explicitly provided for in the applicable Award Certificate) having a value equal to the excess of the Fair Market Value of the Stock on the date of exercise over the exercise price of the Stock Appreciation Right multiplied by the number of shares of Stock with respect to which the Stock Appreciation Right shall have been exercised.

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“*Subsidiary*” means any corporation or other entity (other than the Company) in which the Company has at least a 50 percent interest, either directly or indirectly.

“*Ten Percent Owner*” means an employee who owns or is deemed to own (by reason of the attribution rules of Section 424(d) of the Code) more than 10 percent of the combined voting power of all classes of stock of the Company or any parent or subsidiary corporation.

“*Unrestricted Stock Award*” means an Award of shares of Stock free of any restrictions.

### SECTION 2. ADMINISTRATION OF PLAN; ADMINISTRATOR AUTHORITY TO SELECT GRANTEES AND DETERMINE AWARDS

(a) Administration of Plan. The Plan shall be administered by the Administrator.

(b) Powers of Administrator. The Administrator shall have the power and authority to grant Awards consistent with the terms of the Plan, including the power and authority:

(i) to select the individuals to whom Awards may from time to time be granted;

(ii) to determine the time or times of grant, and the extent, if any, of Incentive Stock Options, Non-Qualified Stock Options, Stock Appreciation Rights, Restricted Stock Awards, Restricted Stock Units, Unrestricted Stock Awards, Cash-Based Awards, and Dividend Equivalent Rights, or any combination of the foregoing, granted to any one or more grantees;

(iii) to determine the number of shares of Stock to be covered by any Award;

(iv) Subject to Section 2(d), to determine and modify from time to time the terms and conditions, including restrictions, not inconsistent with the terms of the Plan, of any Award, which terms and conditions may differ among individual Awards and grantees, and to approve the forms of Award Certificates;

(v) to accelerate at any time the exercisability or vesting of all or any portion of any Award in circumstances involving the grantee’s death or disability, retirement or termination of employment or a change in control (including a Sale Event);

(vi) subject to the provisions of Section 5(c), to extend at any time the period in which Stock Options may be exercised; and

(vii) at any time to adopt, alter and repeal such rules, guidelines and practices for administration of the Plan and for its own acts and proceedings as it shall deem advisable; to interpret the terms and provisions of the Plan and any Award (including related written instruments); to make all determinations it deems advisable for the administration of the Plan; to decide all disputes arising in connection with the Plan; and to otherwise supervise the administration of the Plan.

All decisions and interpretations of the Administrator shall be binding on all persons, including the Company and Plan grantees.

(c) Delegation of Authority to Grant Awards. Subject to applicable law, the Administrator, in its discretion, may delegate to a committee consisting of one or more officers of the Company, including the Chief Executive Officer of the Company, all or part of the Administrator’s authority and duties with respect to the granting of Awards to individuals who are (i) not subject to the reporting and other provisions of Section 16 of the Exchange Act and (ii) not members of the delegated committee. Any such delegation by the Administrator shall include a limitation as to the amount of Stock underlying Awards that may be granted during the period of the delegation and shall contain guidelines as to the determination of the exercise price and the vesting criteria. The Administrator may revoke or amend the terms of a delegation at any time but such action shall not invalidate any prior actions of the Administrator’s delegate or delegates that were consistent with the terms of the Plan.

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(d) Minimum Vesting Period. The vesting period for each Award granted under the Plan must be at least equal to the Minimum Vesting Period; provided, however, nothing in this Section 2(d) shall limit the Administrator's authority to accelerate the vesting of Awards as set forth in Section 2(b)(v) above; and, provided further, notwithstanding the foregoing, up to 5% of the shares of Stock authorized for issuance under the Plan may be utilized for Unrestricted Stock Awards or other Awards with a vesting period that is less than the Minimum Vesting Period (each such Award, an "Excepted Award"). Notwithstanding the foregoing, in addition to Excepted Awards, the Administrator may grant Awards that vest (or permit previously granted Awards to vest) within the Minimum Vesting Period (i) if such Awards are granted as substitute Awards in replacement of other Awards (or awards previously granted by an entity being acquired (or assets of which are being acquired)) that were scheduled to vest within the Minimum Vesting Period or (ii) if such Awards are being granted in connection with an elective deferral of cash compensation that, absent a deferral election, otherwise would have been paid to the grantee within the Minimum Vesting Period. In addition, notwithstanding the foregoing, annual Awards to Non-Employee Directors that occur in connection with the Company's annual meeting of stockholders may vest on the date of the Company's next annual meeting of stockholders.

(e) Award Certificate. Awards under the Plan shall be evidenced by Award Certificates that set forth the terms, conditions and limitations for each Award which may include, without limitation, the term of an Award and the provisions applicable in the event employment or Service Relationship terminates.

(f) Indemnification. Neither the Board nor the Administrator, nor any member of either or any delegate thereof, shall be liable for any act, omission, interpretation, construction or determination made in good faith in connection with the Plan, and the members of the Board and the Administrator (and any delegate thereof) shall be entitled in all cases to indemnification and reimbursement by the Company in respect of any claim, loss, damage or expense (including, without limitation, reasonable attorneys' fees) arising or resulting therefrom to the fullest extent permitted by law and/or under the Company's articles or bylaws or any directors' and officers' liability insurance coverage which may be in effect from time to time and/or any indemnification agreement between such individual and the Company.

(g) Foreign Award Recipients. Notwithstanding any provision of the Plan to the contrary, in order to comply with the laws in other countries in which the Company and its Subsidiaries operate or have employees or other individuals eligible for Awards, the Administrator, in its sole discretion, shall have the power and authority to: (i) determine which Subsidiaries shall be covered by the Plan; (ii) determine which individuals outside the United States are eligible to participate in the Plan; (iii) modify the terms and conditions of any Award granted to individuals outside the United States to comply with applicable foreign laws; (iv) establish subplans and modify exercise procedures and other terms and procedures, to the extent the Administrator determines such actions to be necessary or advisable (and such subplans and/or modifications shall be attached to this Plan as appendices); provided, however, that no such subplans and/or modifications shall increase the share limitations contained in Section 3(a) hereof; and (v) take any action, before or after an Award is made, that the Administrator determines to be necessary or advisable to obtain approval or comply with any local governmental regulatory exemptions or approvals. Notwithstanding the foregoing, the Administrator may not take any actions hereunder, and no Awards shall be granted, that would violate the Exchange Act or any other applicable United States securities law, the Code, or any other applicable United States governing statute or law.

## SECTION 3. STOCK ISSUABLE UNDER THE PLAN; MERGERS; SUBSTITUTION

(a) Stock Issuable. The maximum number of shares of Stock reserved and available for issuance under the Plan shall be 2,778,000 shares plus the number of shares of Stock available for issuance under the Company's Amended and Restated 2012 Stock Option and Incentive Plan (the "2012 Plan"), as of the Effective Date, subject to adjustment as provided in this Section 3. For purposes of this limitation, the shares of Stock underlying any awards under the Plan and the 2012 Plan that are forfeited, canceled or otherwise terminated (other than by exercise) shall be added back to the shares of Stock available for issuance under the Plan . Notwithstanding the

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foregoing, the following shares shall not be added to the shares authorized for grant under the Plan: (i) shares tendered or held back upon exercise of a Stock Option or settlement of an Award to cover the exercise price or tax withholding, and (ii) shares subject to a Stock Appreciation Right that are not issued in connection with the stock settlement of the Stock Appreciation Right upon exercise thereof. In the event the Company repurchases shares of Stock on the open market, such shares shall not be added to the shares of Stock available for issuance under the Plan. Subject to such overall limitations, shares of Stock may be issued up to such maximum number pursuant to any type or types of Award; provided, however, that no more than 4,000,000 shares of the Stock may be issued in the form of Incentive Stock Options. The shares available for issuance under the Plan may be authorized but unissued shares of Stock or shares of Stock reacquired by the Company.

(b) Maximum Awards to Non-Employee Directors. Notwithstanding anything to the contrary in this Plan, the value of all Awards awarded under this Plan and all other cash compensation paid by the Company to any Non-Employee Director in any calendar year shall not exceed \$500,000. For the purpose of this limitation, the value of any Award shall be its grant date fair value, as determined in accordance with ASC 718 or successor provision but excluding the impact of estimated forfeitures related to service-based vesting provisions.

(c) Changes in Stock. Subject to Section 3(d) hereof, if, as a result of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Company's capital stock, the outstanding shares of Stock are increased or decreased or are exchanged for a different number or kind of shares or other securities of the Company, or additional shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such shares of Stock or other securities, or, if, as a result of any merger or consolidation, sale of all or substantially all of the assets of the Company, the outstanding shares of Stock are converted into or exchanged for securities of the Company or any successor entity (or a parent or subsidiary thereof), the Administrator shall make an appropriate or proportionate adjustment in (i) the maximum number of shares reserved for issuance under the Plan, including the maximum number of shares that may be issued in the form of Incentive Stock Options, (ii) the number and kind of shares or other securities subject to any then outstanding Awards under the Plan, (iii) the repurchase price, if any, per share subject to each outstanding Restricted Stock Award, and (iv) the exercise price for each share subject to any then outstanding Stock Options and Stock Appreciation Rights under the Plan, without changing the aggregate exercise price (i.e., the exercise price multiplied by the number of Stock Options and Stock Appreciation Rights) as to which such Stock Options and Stock Appreciation Rights remain exercisable. The Administrator shall also make equitable or proportionate adjustments in the number of shares subject to outstanding Awards and the exercise price and the terms of outstanding Awards to take into consideration cash dividends paid other than in the ordinary course or any other extraordinary corporate event. The adjustment by the Administrator shall be final, binding and conclusive. No fractional shares of Stock shall be issued under the Plan resulting from any such adjustment, but the Administrator in its discretion may make a cash payment in lieu of fractional shares.

(d) Mergers and Other Transactions. In the case of and subject to the consummation of a Sale Event, the parties thereto may cause the assumption or continuation of Awards theretofore granted by the successor entity, or the substitution of such Awards with new Awards of the successor entity or parent thereof, with appropriate adjustment as to the number and kind of shares and, if appropriate, the per share exercise prices, as such parties shall agree (after taking into account any acceleration under any Award Certificate). Except as the Administrator may otherwise specify with respect to particular Awards in the relevant Award Certificate, to the extent the parties to such Sale Event do not provide for the assumption, continuation or substitution of Awards, upon the effective time of the Sale Event, the Plan and all outstanding Awards granted hereunder shall terminate. In the event of such termination, (i) the Company shall have the option (in its sole discretion) to make or provide for a payment, in cash or in kind, to the grantees holding Options and Stock Appreciation Rights, in exchange for the cancellation thereof, in an amount equal to the difference between (A) the Sale Price multiplied by the number of shares of Stock subject to outstanding Options and Stock Appreciation Rights (to the extent then exercisable at prices not in excess of the Sale Price) and (B) the aggregate exercise price of all such outstanding Options and Stock Appreciation Rights (provided that, in the case of an Option or Stock Appreciation Right with an exercise price equal to or less than the Sale Price, such Option or Stock Appreciation Right shall be cancelled for no

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consideration); or (ii) each grantee shall be permitted, within a specified period of time prior to the consummation of the Sale Event as determined by the Administrator, to exercise all outstanding Options and Stock Appreciation Rights (to the extent then exercisable) held by such grantee. The Company shall also have the option (in its sole discretion) to make or provide for a payment, in cash or in kind, to the grantees holding other Awards in an amount equal to the Sale Price multiplied by the number of vested shares of Stock under such Awards.

### SECTION 4. ELIGIBILITY

Grantees under the Plan will be such full or part-time officers and other employees, Non-Employee Directors and Consultants of the Company and its Subsidiaries as are selected from time to time by the Administrator in its sole discretion.

### SECTION 5. STOCK OPTIONS

(a) Award of Stock Options. The Administrator may grant Stock Options under the Plan. Any Stock Option granted under the Plan shall be in such form as the Administrator may from time to time approve.

Stock Options granted under the Plan may be either Incentive Stock Options or Non-Qualified Stock Options. Incentive Stock Options may be granted only to employees of the Company or any Subsidiary that is a “subsidiary corporation” within the meaning of Section 424(f) of the Code. To the extent that any Option does not qualify as an Incentive Stock Option, it shall be deemed a Non-Qualified Stock Option.

Stock Options granted pursuant to this Section 5 shall be subject to the following terms and conditions and shall contain such additional terms and conditions, not inconsistent with the terms of the Plan, as the Administrator shall deem desirable. If the Administrator so determines, Stock Options may be granted in lieu of cash compensation at the optionee’s election, subject to such terms and conditions as the Administrator may establish.

(b) Exercise Price. The exercise price per share for the Stock covered by a Stock Option granted pursuant to this Section 5 shall be determined by the Administrator at the time of grant but shall not be less than 100 percent of the Fair Market Value on the date of grant. In the case of an Incentive Stock Option that is granted to a Ten Percent Owner, the option price of such Incentive Stock Option shall be not less than 110 percent of the Fair Market Value on the grant date. Notwithstanding the foregoing, Stock Options may be granted with an exercise price per share that is less than 100 percent of the Fair Market Value on the date of grant pursuant to a transaction described in, and in a manner consistent with, Section 424(a) of the Code.

(c) Option Term. The term of each Stock Option shall be fixed by the Administrator, but no Stock Option shall be exercisable more than ten years after the date the Stock Option is granted. In the case of an Incentive Stock Option that is granted to a Ten Percent Owner, the term of such Stock Option shall be no more than five years from the date of grant.

(d) Exercisability; Rights of a Stockholder. Stock Options shall become exercisable at such time or times, whether or not in installments, as shall be determined by the Administrator at or after the grant date. Subject to Section 2(b)(v), the Administrator may at any time accelerate the exercisability of all or any portion of any Stock Option. An optionee shall have the rights of a stockholder only as to shares acquired upon the exercise of a Stock Option and not as to unexercised Stock Options.

(e) Method of Exercise. Stock Options may be exercised in whole or in part, by giving written or electronic notice of exercise to the Company, specifying the number of shares to be purchased. Payment of the purchase price may be made by one or more of the following methods except to the extent otherwise provided in the Option Award Certificate:

(i) In cash, by certified or bank check or other instrument acceptable to the Administrator;

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(ii) Through the delivery (or attestation to the ownership following such procedures as the Company may prescribe) of shares of Stock that are not then subject to restrictions under any Company plan. Such surrendered shares shall be valued at Fair Market Value on the exercise date;

(iii) By the optionee delivering to the Company a properly executed exercise notice together with irrevocable instructions to a broker to promptly deliver to the Company cash or a check payable and acceptable to the Company for the purchase price; provided that in the event the optionee chooses to pay the purchase price as so provided, the optionee and the broker shall comply with such procedures and enter into such agreements of indemnity and other agreements as the Company shall prescribe as a condition of such payment procedure; or

(iv) With respect to Stock Options that are not Incentive Stock Options, by a “net exercise” arrangement pursuant to which the Company will reduce the number of shares of Stock issuable upon exercise by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price.

Payment instruments will be received subject to collection. The transfer to the optionee on the records of the Company or of the transfer agent of the shares of Stock to be purchased pursuant to the exercise of a Stock Option will be contingent upon receipt from the optionee (or a purchaser acting in his stead in accordance with the provisions of the Stock Option) by the Company of the full purchase price for such shares and the fulfillment of any other requirements contained in the Option Award Certificate or applicable provisions of laws (including the satisfaction of any withholding taxes that the Company is obligated to withhold with respect to the optionee). In the event an optionee chooses to pay the purchase price by previously-owned shares of Stock through the attestation method, the number of shares of Stock transferred to the optionee upon the exercise of the Stock Option shall be net of the number of attested shares. In the event that the Company establishes, for itself or using the services of a third party, an automated system for the exercise of Stock Options, such as a system using an internet website or interactive voice response, then the paperless exercise of Stock Options may be permitted through the use of such an automated system.

(f) Annual Limit on Incentive Stock Options. To the extent required for “incentive stock option” treatment under Section 422 of the Code, the aggregate Fair Market Value (determined as of the time of grant) of the shares of Stock with respect to which Incentive Stock Options granted under this Plan and any other plan of the Company or its parent and subsidiary corporations become exercisable for the first time by an optionee during any calendar year shall not exceed \$100,000. To the extent that any Stock Option exceeds this limit, it shall constitute a Non-Qualified Stock Option.

## SECTION 6. STOCK APPRECIATION RIGHTS

(a) Award of Stock Appreciation Rights. The Administrator may grant Stock Appreciation Rights under the Plan. A Stock Appreciation Right is an Award entitling the recipient to receive shares of Stock (or cash, to the extent explicitly provided for in the applicable Award Certificate) having a value equal to the excess of the Fair Market Value of a share of Stock on the date of exercise over the exercise price of the Stock Appreciation Right multiplied by the number of shares of Stock with respect to which the Stock Appreciation Right shall have been exercised.

(b) Exercise Price of Stock Appreciation Rights. The exercise price of a Stock Appreciation Right shall not be less than 100 percent of the Fair Market Value of the Stock on the date of grant.

(c) Grant and Exercise of Stock Appreciation Rights. Stock Appreciation Rights may be granted by the Administrator independently of any Stock Option granted pursuant to Section 5 of the Plan.

(d) Terms and Conditions of Stock Appreciation Rights. Stock Appreciation Rights shall be subject to such terms and conditions as shall be determined from time to time by the Administrator. The term of a Stock

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Appreciation Right may not exceed ten years. The terms and conditions of each such Award shall be determined by the Administrator, and such terms and conditions may differ among individual Awards and grantees.

### SECTION 7. RESTRICTED STOCK AWARDS

(a) Nature of Restricted Stock Awards. The Administrator may grant Restricted Stock Awards under the Plan. A Restricted Stock Award is any Award of Restricted Shares subject to such restrictions and conditions as the Administrator may determine at the time of grant. Conditions may be based on continuing employment (or other Service Relationship) and/or achievement of pre-established performance goals and objectives. The terms and conditions of each such Award shall be determined by the Administrator, and such terms and conditions may differ among individual Awards and grantees.

(b) Rights as a Stockholder. Upon the grant of the Restricted Stock Award and payment of any applicable purchase price, a grantee shall have the rights of a stockholder with respect to the voting of the Restricted Shares. Dividends with shall accrue, but not be paid, on Restricted Stock Awards subject to either a time-based restriction or performance-based goals until the applicable vesting provisions lapse. Unless the Administrator shall otherwise determine, (i) uncertificated Restricted Shares shall be accompanied by a notation on the records of the Company or the transfer agent to the effect that they are subject to forfeiture until such Restricted Shares are vested as provided in Section 7(d) below, and (ii) certificated Restricted Shares shall remain in the possession of the Company until such Restricted Shares are vested as provided in Section 7(d) below, and the grantee shall be required, as a condition of the grant, to deliver to the Company such instruments of transfer as the Administrator may prescribe.

(c) Restrictions. Restricted Shares may not be sold, assigned, transferred, pledged or otherwise encumbered or disposed of except as specifically provided herein or in the Restricted Stock Award Certificate. Except as may otherwise be provided by the Administrator either in the Award Certificate or, subject to Section 18 below, in writing after the Award is issued, if a grantee's employment (or other Service Relationship) with the Company and its Subsidiaries terminates for any reason, any Restricted Shares that have not vested at the time of termination shall automatically and without any requirement of notice to such grantee from or other action by or on behalf of, the Company be deemed to have been reacquired by the Company at its original purchase price (if any) from such grantee or such grantee's legal representative simultaneously with such termination of employment (or other Service Relationship), and thereafter shall cease to represent any ownership of the Company by the grantee or rights of the grantee as a stockholder. Following such deemed reacquisition of Restricted Shares that are represented by physical certificates, a grantee shall surrender such certificates to the Company upon request without consideration.

(d) Vesting of Restricted Shares. The Administrator at the time of grant shall specify the date or dates and/or the attainment of pre-established performance goals, objectives and other conditions on which the non-transferability of the Restricted Shares and the Company's right of repurchase or forfeiture shall lapse. Notwithstanding the foregoing, in the event that any such Restricted Shares granted to employees shall have a performance-based goal, the restriction period with respect to such shares shall not be less than one year, and in the event any such Restricted Shares granted to employees shall have a time-based restriction, the total restriction period with respect to such shares shall not be less than three years; provided, however, that Restricted Shares with a time-based restriction may become vested incrementally over such three-year period. Subsequent to such date or dates and/or the attainment of such pre-established performance goals, objectives and other conditions, the shares on which all restrictions have lapsed shall no longer be Restricted Shares and shall be deemed "vested."

### SECTION 8. RESTRICTED STOCK UNITS

(a) Nature of Restricted Stock Units. The Administrator may grant Restricted Stock Units under the Plan. A Restricted Stock Unit is an Award of stock units that may be settled in shares of Stock (or cash, to the extent

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explicitly provided for in the Award Certificate) upon the satisfaction of such restrictions and conditions at the time of grant. Conditions may be based on continuing employment (or other Service Relationship) and/or achievement of pre-established performance goals and objectives. The terms and conditions of each such Award shall be determined by the Administrator, and such terms and conditions may differ among individual Awards and grantees. Notwithstanding the foregoing, in the event that any such Restricted Stock Units granted to employees shall have a performance-based goal, the restriction period with respect to such Award shall not be less than one year, and in the event any such Restricted Stock Units granted to employees shall have a time-based restriction, the total restriction period with respect to such Award shall not be less than three years; provided, however, that any Restricted Stock Units with a time-based restriction may become vested incrementally over such three-year period. Except in the case of Restricted Stock Units with a deferred settlement date that complies with Section 409A, at the end of the vesting period, the Restricted Stock Units, to the extent vested, shall be settled in the form of shares of Stock. Restricted Stock Units with deferred settlement dates are subject to Section 409A and shall contain such additional terms and conditions as the Administrator shall determine in its sole discretion in order to comply with the requirements of Section 409A.

(b) Election to Receive Restricted Stock Units in Lieu of Compensation. The Administrator may, in its sole discretion, permit a grantee to elect to receive a portion of future cash compensation otherwise due to such grantee in the form of an award of Restricted Stock Units. Any such election shall be made in writing and shall be delivered to the Company no later than the date specified by the Administrator and in accordance with Section 409A and such other rules and procedures established by the Administrator. Any such future cash compensation that the grantee elects to defer shall be converted to a fixed number of Restricted Stock Units based on the Fair Market Value of Stock on the date the compensation would otherwise have been paid to the grantee if such payment had not been deferred as provided herein. The Administrator shall have the sole right to determine whether and under what circumstances to permit such elections and to impose such limitations and other terms and conditions thereon as the Administrator deems appropriate. Any Restricted Stock Units that are elected to be received in lieu of cash compensation shall be fully vested, unless otherwise provided in the Award Certificate.

(c) Rights as a Stockholder. A grantee shall have the rights as a stockholder only as to shares of Stock acquired by the grantee upon settlement of Restricted Stock Units; provided, however, that the grantee may be credited with Dividend Equivalent Rights with respect to the stock units underlying his Restricted Stock Units, subject to the provisions of Section 11 and such terms and conditions as the Administrator may determine.

(d) Termination. Except as may otherwise be provided by the Administrator either in the Award Certificate or, subject to Section 18 below, in writing after the Award is issued, a grantee's right in all Restricted Stock Units that have not vested shall automatically terminate upon the grantee's termination of employment (or cessation of Service Relationship) with the Company and its Subsidiaries for any reason.

## SECTION 9. UNRESTRICTED STOCK AWARDS

Grant or Sale of Unrestricted Stock. The Administrator may grant (or sell at par value or such higher purchase price determined by the Administrator) an Unrestricted Stock Award under the Plan. An Unrestricted Stock Award is an Award pursuant to which the grantee may receive shares of Stock free of any restrictions under the Plan. Unrestricted Stock Awards may be granted in respect of past services or other valid consideration, or in lieu of cash compensation due to such grantee.

## SECTION 10. CASH-BASED AWARDS

Grant of Cash-Based Awards. The Administrator may grant Cash-Based Awards under the Plan. A Cash-Based Award is an Award that entitles the grantee to a payment in cash upon the attainment of specified performance goals. The Administrator shall determine the maximum duration of the Cash-Based Award, the amount of cash to which the Cash-Based Award pertains, the conditions upon which the Cash-Based Award shall become vested or payable, and such other provisions as the Administrator shall determine. Each Cash-Based

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Award shall specify a cash-denominated payment amount, formula or payment ranges as determined by the Administrator. Payment, if any, with respect to a Cash-Based Award shall be made in accordance with the terms of the Award and may be made in cash.

### SECTION 11. DIVIDEND EQUIVALENT RIGHTS

(a) Dividend Equivalent Rights. The Administrator may grant Dividend Equivalent Rights under the Plan. A Dividend Equivalent Right is an Award entitling the grantee to receive credits based on cash dividends that would have been paid on the shares of Stock specified in the Dividend Equivalent Right (or other Award to which it relates) if such shares had been issued to the grantee. A Dividend Equivalent Right may be granted hereunder to any grantee as a component of an award of Restricted Stock Units or as a freestanding award. The terms and conditions of Dividend Equivalent Rights shall be specified in the Award Certificate. Dividend equivalents credited to the holder of a Dividend Equivalent Right may be paid currently or may be deemed to be reinvested in additional shares of Stock, which may thereafter accrue additional equivalents. Any such reinvestment shall be at Fair Market Value on the date of reinvestment or such other price as may then apply under a dividend reinvestment plan sponsored by the Company, if any. Dividend Equivalent Rights may be settled in cash or shares of Stock or a combination thereof, in a single installment or installments. A Dividend Equivalent Right granted as a component of a Restricted Stock Unit Award shall provide that such Dividend Equivalent Right shall be settled only upon settlement or payment of, or lapse of restrictions on, such other Award, and that such Dividend Equivalent Right shall expire or be forfeited or annulled under the same conditions as such other Award.

(b) Termination. Except as may otherwise be provided by the Administrator either in the Award Certificate or, subject to Section 18 below, in writing after the Award is issued, a grantee's rights in all Dividend Equivalent Rights shall automatically terminate upon the grantee's termination of employment (or cessation of Service Relationship) with the Company and its Subsidiaries for any reason.

### SECTION 12. TRANSFERABILITY OF AWARDS

(a) Transferability. Except as provided in Section 12(b) below, during a grantee's lifetime, his or her Awards shall be exercisable only by the grantee, or by the grantee's legal representative or guardian in the event of the grantee's incapacity. No Awards shall be sold, assigned, transferred or otherwise encumbered or disposed of by a grantee other than by will or by the laws of descent and distribution or pursuant to a domestic relations order. No Awards shall be subject, in whole or in part, to attachment, execution, or levy of any kind, and any purported transfer in violation hereof shall be null and void.

(b) Administrator Action. Notwithstanding Section 12(a), the Administrator, in its discretion, may provide either in the Award Certificate regarding a given Award or by subsequent written approval that the grantee (who is an employee or director) may transfer his or her Non-Qualified Stock Options to his or her immediate family members, to trusts for the benefit of such family members, or to partnerships in which such family members are the only partners, provided that the transferee agrees in writing with the Company to be bound by all of the terms and conditions of this Plan and the applicable Award. In no event may an Award be transferred by a grantee for value.

(c) Family Member. For purposes of Section 12(b), "family member" shall mean a grantee's child, stepchild, grandchild, parent, stepparent, grandparent, spouse, former spouse, sibling, niece, nephew, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including adoptive relationships, any person sharing the grantee's household (other than a tenant of the grantee), a trust in which these persons (or the grantee) have more than 50 percent of the beneficial interest, a foundation in which these persons (or the grantee) control the management of assets, and any other entity in which these persons (or the grantee) own more than 50 percent of the voting interests.

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(d) Designation of Beneficiary. To the extent permitted by the Company, each grantee to whom an Award has been made under the Plan may designate a beneficiary or beneficiaries to exercise any Award or receive any payment under any Award payable on or after the grantee's death. Any such designation shall be on a form provided for that purpose by the Administrator and shall not be effective until received by the Administrator. If no beneficiary has been designated by a deceased grantee, or if the designated beneficiaries have predeceased the grantee, the beneficiary shall be the grantee's estate.

### SECTION 13. TAX WITHHOLDING

(a) Payment by Grantee. Each grantee shall, no later than the date as of which the value of an Award or of any Stock or other amounts received thereunder first becomes includable in the gross income of the grantee for Federal income tax purposes, pay to the Company, or make arrangements satisfactory to the Administrator regarding payment of, any Federal, state, or local taxes of any kind required by law to be withheld by the Company with respect to such income. The Company and its Subsidiaries shall, to the extent permitted by law, have the right to deduct any such taxes from any payment of any kind otherwise due to the grantee. The Company's obligation to deliver evidence of book entry (or stock certificates) to any grantee is subject to and conditioned on tax withholding obligations being satisfied by the grantee.

(b) Payment in Stock. Subject to approval by the Administrator, a grantee may elect to have the Company's required tax withholding obligation satisfied, in whole or in part, by authorizing the Company to withhold from shares of Stock to be issued pursuant to any Award a number of shares with an aggregate Fair Market Value (as of the date the withholding is effected) that would satisfy the withholding amount due; provided, however, that the amount withheld does not exceed the maximum statutory tax rate or such lesser amount as is necessary to avoid liability accounting treatment. The Administrator may also require Awards to be subject to mandatory share withholding up to the required withholding amount. For purposes of share withholding, the Fair Market Value of withheld shares shall be determined in the same manner as the value of Stock includible in income of the Participants. The required tax withholding obligation may also be satisfied, in whole or in part, by an arrangement whereby a certain number of shares of Stock issued pursuant to any Award are immediately sold and proceeds from such sale are remitted to the Company in an amount that would satisfy the withholding amount due.

### SECTION 14. SECTION 409A AWARDS

To the extent that any Award is determined to constitute "nonqualified deferred compensation" within the meaning of Section 409A (a "409A Award"), the Award shall be subject to such additional rules and requirements as specified by the Administrator from time to time in order to comply with Section 409A. In this regard, if any amount under a 409A Award is payable upon a "separation from service" (within the meaning of Section 409A) to a grantee who is then considered a "specified employee" (within the meaning of Section 409A), then no such payment shall be made prior to the date that is the earlier of (i) six months and one day after the grantee's separation from service, or (ii) the grantee's death, but only to the extent such delay is necessary to prevent such payment from being subject to interest, penalties and/or additional tax imposed pursuant to Section 409A. Further, the settlement of any 409A Award may not be accelerated except to the extent permitted by Section 409A.

### SECTION 15. TERMINATION OF EMPLOYMENT, TRANSFER, LEAVE OF ABSENCE, ETC.

(a) Termination of Employment. If the grantee's Service Relationship is with a Subsidiary and such Subsidiary ceases to be a Subsidiary, the grantee shall be deemed to have terminated his or her Service Relationship for purposes of the Plan.

(b) For purposes of the Plan, the following events shall not be deemed a termination of employment:

(i) a transfer to the employment or service of the Company from a Subsidiary or from the Company to a Subsidiary, or from one Subsidiary to another; or

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(ii) an approved leave of absence for military service or sickness, or for any other purpose approved by the Company, if the employee's right to re-employment is guaranteed either by a statute or by contract or under the policy pursuant to which the leave of absence was granted or if the Administrator otherwise so provides in writing.

### SECTION 16. AMENDMENTS AND TERMINATION

The Board may, at any time, amend or discontinue the Plan and the Administrator may, at any time, amend or cancel any outstanding Award for the purpose of satisfying changes in law or for any other lawful purpose, but no such action shall adversely affect rights under any outstanding Award without the holder's consent. Except as provided in Section 3(c) or 3(d), without prior stockholder approval, in no event may the Administrator exercise its discretion to reduce the exercise price of outstanding Stock Options or Stock Appreciation Rights or effect repricing through cancellation and re-grants or cancellation of Stock Options or Stock Appreciation Rights in exchange for cash or other Awards. To the extent required under the rules of any securities exchange or market system on which the Stock is listed, to the extent determined by the Administrator to be required by the Code to ensure that Incentive Stock Options granted under the Plan are qualified under Section 422 of the Code, Plan amendments shall be subject to approval by the Company stockholders entitled to vote at a meeting of stockholders. Nothing in this Section 16 shall limit the Administrator's authority to take any action permitted pursuant to Section 3(c) or 3(d).

### SECTION 17. STATUS OF PLAN

With respect to the portion of any Award that has not been exercised and any payments in cash, Stock or other consideration not received by a grantee, a grantee shall have no rights greater than those of a general creditor of the Company unless the Administrator shall otherwise expressly determine in connection with any Award or Awards. In its sole discretion, the Administrator may authorize the creation of trusts or other arrangements to meet the Company's obligations to deliver Stock or make payments with respect to Awards hereunder, provided that the existence of such trusts or other arrangements is consistent with the foregoing sentence.

### SECTION 18. GENERAL PROVISIONS

(a) No Distribution. The Administrator may require each person acquiring Stock pursuant to an Award to represent to and agree with the Company in writing that such person is acquiring the shares without a view to distribution thereof.

(b) Issuance of Stock. To the extent certificated, stock certificates to grantees under this Plan shall be deemed delivered for all purposes when the Company or a stock transfer agent of the Company shall have mailed such certificates in the United States mail, addressed to the grantee, at the grantee's last known address on file with the Company. Uncertificated Stock shall be deemed delivered for all purposes when the Company or a Stock transfer agent of the Company shall have given to the grantee by electronic mail (with proof of receipt) or by United States mail, addressed to the grantee, at the grantee's last known address on file with the Company, notice of issuance and recorded the issuance in its records (which may include electronic "book entry" records). Notwithstanding anything herein to the contrary, the Company shall not be required to issue or deliver any evidence of book entry or certificates evidencing shares of Stock pursuant to the exercise or settlement of any Award, unless and until the Administrator has determined, with advice of counsel (to the extent the Administrator deems such advice necessary or advisable), that the issuance and delivery is in compliance with all applicable laws, regulations of governmental authorities and, if applicable, the requirements of any exchange on which the shares of Stock are listed, quoted or traded. Any Stock issued pursuant to the Plan shall be subject to any stop-transfer orders and other restrictions as the Administrator deems necessary or advisable to comply with federal, state or foreign jurisdiction, securities or other laws, rules and quotation system on which the Stock is listed, quoted or traded. The Administrator may place legends on any Stock certificate or notations on any book

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entry to reference restrictions applicable to the Stock. In addition to the terms and conditions provided herein, the Administrator may require that an individual make such reasonable covenants, agreements, and representations as the Administrator, in its discretion, deems necessary or advisable in order to comply with any such laws, regulations, or requirements. The Administrator shall have the right to require any individual to comply with any timing or other restrictions with respect to the settlement or exercise of any Award, including a window-period limitation, as may be imposed in the discretion of the Administrator.

(c) Stockholder Rights. Until Stock is deemed delivered in accordance with Section 18(b), no right to vote or receive dividends or any other rights of a stockholder will exist with respect to shares of Stock to be issued in connection with an Award, notwithstanding the exercise of a Stock Option or any other action by the grantee with respect to an Award.

(d) Other Compensation Arrangements; No Employment Rights. Nothing contained in this Plan shall prevent the Board from adopting other or additional compensation arrangements, including trusts, and such arrangements may be either generally applicable or applicable only in specific cases. The adoption of this Plan and the grant of Awards do not confer upon any employee any right to continued employment with the Company or any Subsidiary.

(e) Trading Policy Restrictions. Option exercises and other Awards under the Plan shall be subject to the Company's insider trading policies and procedures, as in effect from time to time.

(f) Clawback Policy. Awards under the Plan shall be subject to the Company's clawback policy, as in effect from time to time.

### SECTION 19. EFFECTIVE DATE OF PLAN

This Plan shall become effective upon stockholder approval in accordance with applicable state law, the Company's bylaws and articles of incorporation, and applicable stock exchange rules. No grants of Stock Options and other Awards may be made hereunder after the tenth anniversary of the Effective Date and no grants of Incentive Stock Options may be made hereunder after the tenth anniversary of the date the Plan is approved by the Board.

### SECTION 20. GOVERNING LAW

This Plan and all Awards and actions taken thereunder shall be governed by, and construed in accordance with the laws of the Commonwealth of Massachusetts, applied without regard to conflict of law principles.

DATE APPROVED BY BOARD OF DIRECTORS: APRIL 3, 2018

DATE APPROVED BY STOCKHOLDERS:

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**REPLIGEN CORPORATION**  
**C/O AMERICAN STOCK TRANSFER**  
**59 MAIDEN LANE**  
**NEW YORK, NY 10038**

### **VOTE BY INTERNET - [www.proxyvote.com](http://www.proxyvote.com)**

Use the Internet to transmit your voting instructions and for electronic delivery of information. Vote by 11:59 P.M. ET on 05/15/2018. Have your proxy card in hand when you access the web site and follow the instructions to obtain your records and to create an electronic voting instruction form.

### **ELECTRONIC DELIVERY OF FUTURE PROXY MATERIALS**

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

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

Use any touch-tone telephone to transmit your voting instructions. Vote by 11:59 P.M. ET on 05/15/2018. Have your proxy card in hand when you access the web site and follow the instructions to obtain your records and to create an electronic voting instruction form.

### **VOTE BY MAIL**

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

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

KEEP THIS PORTION FOR YOUR RECORDS

DETACH AND RETURN THIS PORTION ONLY

**THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.**

|                                                                                                                                                                                                                                                                                                                                          |                          |                                    |                          |                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>The Board of Directors recommends you vote FOR the following:</b>                                                                                                                                                                                                                                                                     | <b>For All</b>           | <b>Withhold All</b>                | <b>For All Except</b>    | To withhold authority to vote for any individual nominee(s), mark "For All Except" and write the number(s) of the nominee(s) on the line below.<br><br>_____ |
| 1. Election of Directors                                                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> | <input type="checkbox"/>           | <input type="checkbox"/> |                                                                                                                                                              |
| <b>Nominees</b>                                                                                                                                                                                                                                                                                                                          |                          |                                    |                          |                                                                                                                                                              |
| 01 Nicolas M. Barthelemy                                                                                                                                                                                                                                                                                                                 |                          | 02 Glenn L. Cooper                 | 03 John G. Cox           | 04 Karen A. Dawes                                                                                                                                            |
| 06 Glenn P. Muir                                                                                                                                                                                                                                                                                                                         |                          | 07 Thomas F. Ryan, Jr.             |                          | 05 Tony J. Hunt                                                                                                                                              |
| <b>The Board of Directors recommends you vote FOR proposals 2., 3. and 4.</b>                                                                                                                                                                                                                                                            |                          |                                    |                          |                                                                                                                                                              |
| 2. To ratify the selection of Ernst & Young LLP as independent registered public accountants for fiscal year 2018.                                                                                                                                                                                                                       | <input type="checkbox"/> | <input type="checkbox"/>           | <input type="checkbox"/> |                                                                                                                                                              |
| 3. Advisory vote to approve the compensation paid to Repligen Corporation's named executive officers.                                                                                                                                                                                                                                    | <input type="checkbox"/> | <input type="checkbox"/>           | <input type="checkbox"/> |                                                                                                                                                              |
| 4. Approval of the Repligen Corporation 2018 Stock Option and Incentive Plan.                                                                                                                                                                                                                                                            | <input type="checkbox"/> | <input type="checkbox"/>           | <input type="checkbox"/> |                                                                                                                                                              |
| <b>NOTE:</b> The Board will consider and act upon any other business which may properly come before the meeting. THIS PROXY, WHEN PROPERLY EXECUTED, WILL BE VOTED IN THE MANNER DIRECTED HEREIN BY THE STOCKHOLDER OF RECORD. IF NO DIRECTION IS MADE, THIS PROXY WILL BE VOTED "FOR" PROPOSALS 1, 2, 3 and 4.                          |                          |                                    |                          |                                                                                                                                                              |
| For address change/comments, mark here.<br>(see reverse for instructions)                                                                                                                                                                                                                                                                | <input type="checkbox"/> |                                    |                          |                                                                                                                                                              |
| Please sign exactly as your name(s) appear(s) hereon. When signing as attorney, executor, administrator, or other fiduciary, please give full title as such. Joint owners should each sign personally. All holders must sign. If a corporation or partnership, please sign in full corporate or partnership name, by authorized officer. |                          |                                    |                          |                                                                                                                                                              |
|                                                                                                                                                                                                                                                                                                                                          |                          |                                    |                          |                                                                                                                                                              |
| Signature [PLEASE SIGN WITHIN BOX]                                                                                                                                                                                                                                                                                                       | Date                     | Signature (Joint Owners)      Date |                          |                                                                                                                                                              |

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Dear Stockholder:

Please take note of the important information enclosed with this Proxy.

Your vote counts, and you are strongly encouraged to exercise your right to vote these shares.

Please mark the boxes on the proxy card to indicate how these shares will be voted. Then, please sign the card, detach it and return your proxy in the enclosed postage-paid envelope. Thank you in advance for your prompt consideration of this matter.

Sincerely,

Repligen Corporation

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

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**REPLIGEN CORPORATION  
SOLICITED BY THE BOARD OF DIRECTORS  
FOR THE ANNUAL MEETING OF STOCKHOLDERS**

The undersigned hereby appoints Tony J. Hunt and Jon K. Snodgres, and each of them alone, proxies with full power of substitution, to vote all shares of common stock of the Corporation which the undersigned is entitled to vote at the Annual Meeting of Stockholders of Repligen Corporation to be held on the 16th day of May, 2018 at 8:00 a.m., local time, at the offices of Repligen Corporation, 41 Seyon Street, Building 1, Suite 100, Waltham, MA 02453, and any adjournments or postponements thereof, upon matters set forth in the Notice of Annual Meeting of Stockholders and Proxy Statement dated April 20, 2018, copies of which have been received by the undersigned. The proxies are further authorized to vote, in accordance with their judgment, upon such other business as may be properly presented at the meeting and any adjournments or postponements thereof.

**Address change/comments:**

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(If you noted any Address Changes and/or Comments above, please mark corresponding box on the reverse side.)

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