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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  
(Amendment No. )

Filed by the Registrant  Filed by a Party other than the Registrant

Check the appropriate box:

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

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**Harvard Bioscience, Inc.**

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Payment of Filing Fee (Check the appropriate box):

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

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

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

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

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(4) Proposed maximum aggregate value of transaction:

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- Fee paid previously with preliminary materials:
- Check box if any part of the fee is offset as provided by Exchange Act Rule 0-111(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.

(1) Amount previously paid:

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(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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HARVARD BIOSCIENCE, INC.  
84 October Hill Road  
Holliston, Massachusetts 01746-1371

April 5, 2019

Dear Stockholder:

You are cordially invited to attend the Annual Meeting of Stockholders of Harvard Bioscience, Inc. (the "Annual Meeting") to be held on Thursday, May 16, 2019 at 11:00 a.m. EDT at the offices of Burns & Levinson LLP, 125 Summer Street, Boston, Massachusetts 02110. At the meeting, we will be voting on the matters described in this Proxy Statement.

We are using the Internet as our primary means of furnishing the proxy materials to our stockholders. This process expedites the delivery of proxy materials, ensures materials remain easily accessible to stockholders, and allows stockholders to receive clear instructions for receiving materials and voting.

We are mailing the Notice of Internet Availability of Proxy Materials to stockholders on or about April 5, 2019. The Proxy Statement and 2018 Annual Report to Stockholders, which includes the Annual Report on Form 10-K for the year ended December 31, 2018, are available at [www.proxyvote.com](http://www.proxyvote.com).

The Notice of Internet Availability of Proxy Materials contains instructions for our stockholders' use of this process, including how to access our Proxy Statement and 2018 Annual Report and how to vote, including online or mail. To the extent you receive a proxy card, such proxy card will also contain instructions on how you may also vote by telephone. In addition, the Notice of Internet Availability of Proxy Materials contains instructions on how you may (i) receive a paper copy of the Proxy Statement and 2018 Annual Report, if you received only a Notice of Internet Availability of Proxy Materials this year, or (ii) elect to receive your Proxy Statement and Annual Report only over the Internet, if you received them by mail this year.

If you are unable to attend the meeting, it is still important that your shares be represented and voted. Therefore, regardless of the number of shares you own, PLEASE VOTE THROUGH THE INTERNET, BY TELEPHONE OR BY MAIL. Any stockholder who attends the meeting may vote in person, even if he or she has voted through the Internet, by telephone or by mail.

The Board of Directors has fixed the close of business on March 21, 2019 as the record date for determination of stockholders entitled to notice of, and to vote at, the Annual Meeting and any adjournments or postponements thereof.

**YOUR VOTE IS IMPORTANT. WHETHER OR NOT YOU PLAN TO ATTEND THE ANNUAL MEETING, PLEASE CAST YOUR VOTE ONLINE, BY TELEPHONE OR BY COMPLETING, DATING, SIGNING AND PROMPTLY RETURNING YOUR PROXY CARD OR VOTING INSTRUCTIONS CARD IN THE POSTAGE-PAID ENVELOPE (WHICH WILL BE PROVIDED TO THOSE STOCKHOLDERS WHO REQUEST TO RECEIVE PAPER COPIES OF THESE MATERIALS BY MAIL) BEFORE THE ANNUAL MEETING SO THAT YOUR SHARES ARE REPRESENTED AT THE ANNUAL MEETING. INSTRUCTIONS REGARDING THE METHODS OF VOTING ARE CONTAINED IN THE NOTICE OF INTERNET AVAILABILITY OF PROXY MATERIALS.**

Sincerely,

A handwritten signature in black ink, appearing to read 'Jeffrey A. Duchemin'.

Jeffrey A. Duchemin  
President and Chief Executive Officer





**HARVARD BIOSCIENCE, INC.**  
**84 October Hill Road**  
**Holliston, Massachusetts 01746-1371**  
**(508) 893-8999**

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**NOTICE OF ANNUAL MEETING OF STOCKHOLDERS**  
**To Be Held on Thursday, May 16, 2019**

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NOTICE IS HEREBY GIVEN that the Annual Meeting of Stockholders of Harvard Bioscience, Inc. (the "Company") will be held on Thursday, May 16, 2019, at 11:00 a.m. EDT at the offices of Burns & Levinson LLP, 125 Summer Street, Boston, Massachusetts 02110 for the following purposes:

1. The election of two Class I Directors, each nominated by the Board of Directors for a three-year term, such term to continue until the annual meeting of stockholders in 2022 and until such Director's successor is duly elected and qualified or until his earlier resignation or removal;
2. The ratification of the appointment of Grant Thornton LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2019;
3. Approval of an amendment to the Harvard Bioscience, Inc. Employee Stock Purchase Plan to increase the number of authorized shares of Common Stock available for issuance by 350,000 shares of Common Stock;
4. Approval, by a non-binding advisory vote, of the compensation of our named executive officers; and
5. Such other business as may properly come before the Annual Meeting and any adjournments or postponements thereof.

The Board of Directors has fixed the close of business on March 21, 2019 as the record date for determination of stockholders entitled to notice of, and to vote at, the Annual Meeting and any adjournments or postponements thereof. Only holders of Common Stock of record at the close of business on that date will be entitled to notice of, and to vote at, the Annual Meeting and any adjournments or postponements thereof. Each of the items of business listed above is more fully described in the proxy statement that accompanies this notice.

In the event there are not sufficient shares to be voted in favor of any of the foregoing proposals at the time of the Annual Meeting, the Annual Meeting may be adjourned in order to permit further solicitation of proxies.

The Board of Directors of Harvard Bioscience, Inc. recommends that you vote "FOR" the election of the nominees of the Board of Directors as Directors of Harvard Bioscience, Inc., "FOR" the proposal to ratify the appointment of Grant Thornton LLP as the Company's independent registered public accounting firm, "FOR" the proposal to approve an amendment to the Harvard Bioscience Inc. Employee Stock Purchase Plan to increase the number of authorized shares of Common Stock available for issuance thereunder by 350,000 shares, and "FOR" the proposal to approve, by a non-binding advisory vote, of the compensation of our named executive officers.

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**Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting to be Held on Thursday, May 16, 2019: The Proxy Statement and 2018 Annual Report to Stockholders, which includes the Annual Report on Form 10-K for the year ended December 31, 2018, are available at [www.proxyvote.com](http://www.proxyvote.com). The Annual Report, however, is not part of the proxy solicitation material.**

By Order of the Board of Directors,



Jeffrey A. Duchemin  
*President and Chief Executive Officer*

Holliston, Massachusetts  
April 5, 2019

**YOUR VOTE IS IMPORTANT. WHETHER OR NOT YOU PLAN TO ATTEND THE ANNUAL MEETING, PLEASE CAST YOUR VOTE ONLINE, BY TELEPHONE OR BY COMPLETING, DATING, SIGNING AND PROMPTLY RETURNING YOUR PROXY CARD OR VOTING INSTRUCTIONS CARD IN THE POSTAGE-PAID ENVELOPE (WHICH WILL BE PROVIDED TO THOSE STOCKHOLDERS WHO REQUEST TO RECEIVE PAPER COPIES OF THESE MATERIALS BY MAIL) BEFORE THE ANNUAL MEETING SO THAT YOUR SHARES ARE REPRESENTED AT THE ANNUAL MEETING.**

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**Harvard Bioscience, Inc.  
 Notice of 2019 Annual Meeting of Stockholders,  
 Proxy Statement and Other Information**

**Contents**

|   | <b>Page</b> |
|---|-------------|
| Proxy Statement   | 1           |
| Proposal 1: Election of Directors   | 3           |
| Information Regarding Directors   | 4           |
| Information Regarding the Board of Directors and its Committees   | 6           |
| Code of Business Conduct and Ethics   | 10          |
| Report of the Audit Committee   | 10          |
| Director Compensation   | 10          |
| Compensation Discussion and Analysis  | 12          |
| Executive And Director Compensation Process   | 19          |
| Compensation Committee Report   | 20          |
| Compensation Committee Interlocks and Insider Participation   | 20          |
| Summary Compensation Table  | 21          |
| Grants of Plan-Based Awards- 2018   | 22          |
| Outstanding Equity Awards at Fiscal Year-End- 2018  | 23          |
| Potential Payments Upon Termination or Change-in-Control  | 25          |
| Security Ownership of Certain Beneficial Owners and Management  | 30          |
| Equity Compensation Plan Information  | 32          |
| Transactions With Related Persons   | 33          |
| Section 16(a) Beneficial Ownership Reporting Compliance   | 33          |
| Expenses of Solicitation  | 34          |
| Submission of Stockholder Proposals for the 2020 Annual Meeting   | 34          |
| Submission of Securityholder Recommendations for Director Candidates  | 34          |
| Stockholder Communications with the Board of Directors  | 35          |
| Independent Registered Public Accounting Firm   | 35          |
| Proposal 2: Ratification of Appointment of Independent Registered Public Accounting Firm  | 35          |
| Proposal 3: Approval of an Amendment to the Harvard Bioscience, Inc. Employee Stock Purchase Plan                               | 36          |
| Proposal 4: Approval, by a non-binding advisory vote, of the compensation of Harvard Bioscience Inc.'s named executive officers | 40          |
| Multiple Stockholders Sharing the Same Address  | 40          |
| Other Matters   | 41          |
| Appendix A: Harvard Bioscience, Inc. Employee Stock Purchase Plan, as amended   | A-1         |
| Appendix B: Form of Plan Amendment to the Harvard Bioscience, Inc. Employee Stock Purchase Plan                                 | B-1         |

**HARVARD BIOSCIENCE, INC.**  
**84 October Hill Road**  
**Holliston, Massachusetts 01746-1371**  
**(508) 893-8999**

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**PROXY STATEMENT**

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**Annual Meeting of Stockholders to Be Held on Thursday, May 16, 2019**

This Proxy Statement is furnished in connection with the solicitation of proxies by the Board of Directors of Harvard Bioscience, Inc. (the “Company” or “we”) for use at the Annual Meeting of Stockholders of the Company to be held on Thursday, May 16, 2019, at 11:00 a.m. EDT at the offices of Burns & Levinson LLP, 125 Summer Street, Boston, Massachusetts 02110, and any adjournments or postponements thereof. You may obtain directions to the Annual Meeting at [www.proxyvote.com](http://www.proxyvote.com). At the Annual Meeting, the stockholders of the Company will be asked to consider and vote upon:

1. The election of two Class I Directors, each nominated by the Board of Directors (or the “Board”) for a three-year term, such term to continue until the annual meeting of stockholders in 2022 and until such Director’s successor is duly elected and qualified or until his earlier resignation or removal;
2. The ratification of the appointment of Grant Thornton LLP as the Company’s independent registered public accounting firm for the fiscal year ending December 31, 2019;
3. Approval of an amendment to the Harvard Bioscience, Inc. Employee Stock Purchase Plan to increase the number of authorized shares of Common Stock available for issuance thereunder by 350,000 shares;
4. Approval, by a non-binding advisory vote, of the compensation of our named executive officers; and
5. Such other business as may properly come before the Annual Meeting and any adjournments or postponements thereof.

We are pleased this year to again take advantage of the rules and regulations of the Securities and Exchange Commission, or SEC, that allow us to furnish proxy materials, which include our Proxy Statement and Annual Report, to our stockholders over the Internet and providing a Notice of Internet Availability of Proxy Materials by mail. We believe that this e-proxy process expedites stockholders’ receipt of proxy materials, including our Proxy Statement and Annual Report, while lowering the costs and reducing the environmental impact of our annual meeting. The Notice of Internet Availability of Proxy Materials is first being mailed to stockholders of the Company on or about April 5, 2019, in connection with the solicitation of proxies for the Annual Meeting. The Board of Directors has fixed the close of business on March 21, 2019 as the record date for the determination of stockholders entitled to notice of, and to vote at, the Annual Meeting (the “Record Date”). Only holders of Common Stock, par value \$.01 per share, of the Company (the “Common Stock”) of record at the close of business on the Record Date will be entitled to notice of, and to vote at, the Annual Meeting. As of the Record Date, there were 37,667,783 shares of Common Stock outstanding and entitled to vote at the Annual Meeting and approximately 107 stockholders of record. Each holder of a share of Common Stock outstanding as of the close of business on the Record Date will be entitled to one vote for each share held of record with respect to each matter properly submitted at the Annual Meeting.

The presence, in person or by proxy, of holders of at least a majority of the total number of outstanding shares of Common Stock entitled to vote is necessary to constitute a quorum for the transaction of business at the Annual Meeting. Shares held of record by stockholders or their nominees who do not return a signed and dated proxy, properly deliver proxies via the Internet or telephone, or attend the Annual Meeting in person will not be considered present or represented at the Annual Meeting and will not be counted in determining the presence of a quorum. Consistent with applicable law, we intend to count abstentions and broker non-votes only for the purpose of determining the presence or absence of a quorum for the transaction of business. A broker “non-vote” refers to shares held by a broker or nominee that does not have the authority, either express or discretionary, to vote on a particular matter. Applicable rules no longer permit brokers to vote in the election of Directors if the broker has not received instructions from the beneficial owner. Accordingly, it is important that beneficial owners instruct their brokers how they wish to vote their shares.

With respect to the election of two Class I Directors in Proposal No. 1, each such Director is elected by a plurality of the votes cast if a quorum is present. Votes may be cast for or withheld from each Director. In a plurality election, votes may only be cast in favor of or withheld from each nominee; votes that are withheld will be excluded entirely from the vote and will have no effect. This means that the two persons receiving the highest number of "FOR" votes will be elected as Directors.

Approval of Proposal Nos. 2, 3 and 4, regarding the ratification of Grant Thornton LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2019, approval of an amendment to our Employee Stock Purchase Plan and the non-binding advisory vote on the compensation of our named executive officers respectively, requires the affirmative vote of a majority of the votes cast at the Annual Meeting in person or by proxy.

Any shares not voted (whether by abstention, broker non-vote or otherwise) will have no impact on the election of the Directors, except to the extent that the failure to vote for an individual results in another individual receiving a larger percentage of votes, and no impact on the proposal for approval of each other matter expected to be voted on at the Annual Meeting.

The corporate actions described in this Proxy Statement will not afford stockholders the opportunity to dissent from the actions described herein or to receive an agreed or judicially appraised value for their shares.

You will not receive a printed copy of the proxy materials unless you request to receive these materials in hard copy by following the instructions provided in the Notice of Internet Availability of Proxy Materials. Instead, the Notice of Internet Availability of Proxy Materials will instruct you how you may access and review all of the important information contained in the proxy materials. The Notice of Internet Availability of Proxy Materials also instructs you how you may submit your proxy via the Internet or mail. To the extent you receive a proxy card, such proxy card will also contain instructions on how you may also vote by telephone. If you received a Notice of Internet Availability of Proxy Materials by mail and would like to receive a printed copy of our proxy materials, you should follow the instructions for requesting such materials included in the Notice of Internet Availability of Proxy Materials.

We encourage you to vote either online, by telephone or by completing, signing, dating and returning a proxy card or if you hold your shares through a brokerage firm, bank or other financial institution, by completing and returning a voting instruction form. This ensures that your shares will be voted at the Annual Meeting and reduces the likelihood that we will be forced to incur additional expenses soliciting proxies for the Annual Meeting.

Voting over the Internet, by telephone or mailing a proxy card will not limit your right to vote in person or to attend the Annual Meeting. Any record holder as of the Record Date may attend the Annual Meeting in person and may revoke a previously provided proxy at any time by: (i) executing and delivering a later-dated proxy to the corporate secretary at Harvard Bioscience, Inc., 84 October Hill Road, Holliston, Massachusetts 01746-1371; (ii) delivering a written revocation to the corporate secretary at the address above before the meeting; or (iii) voting in person at the Annual Meeting.

Beneficial holders who wish to change or revoke their voting instructions should contact their brokerage firm, bank or other financial institution for information on how to do so. Beneficial holders who wish to attend the Annual Meeting and vote in person should contact their brokerage firm, bank or other financial institution holding shares of Common Stock on their behalf in order to obtain a "legal proxy", which will allow them to vote in person at the meeting. Attendance at the Annual Meeting will not, by itself, revoke a proxy.

Our Board of Directors recommends a vote "FOR" the nominees of the Board of Directors with respect to Proposal No. 1, and an affirmative vote on proposal Nos. 2, 3 and 4. Proxies will be voted as specified. If your proxy is properly submitted, it will be voted in the manner you direct. **If you do not specify instructions with respect to any particular matter to be acted upon at the meeting, proxies will be voted in favor of the Board of Directors' recommendations.**

**Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting to be Held on Thursday, May 16, 2019: The Proxy Statement and 2018 Annual Report to Stockholders, which includes the Annual Report on Form 10-K for the year ended December 31, 2018, are available at [www.proxyvote.com](http://www.proxyvote.com). The Annual Report, however, is not part of the proxy solicitation material.**



**PROPOSAL 1**  
**ELECTION OF DIRECTORS**

The Board of Directors of the Company currently consists of six members and is divided into three classes of Directors, with two Directors in Class I, three Directors in Class II and one Director in Class III.

Directors serve for three-year terms with one class of Directors being elected by our stockholders at each annual meeting to succeed the Directors of the same class whose terms are then expiring. Each nominee elected as a Director will continue in office until his or her successor has been elected and qualified, or until his or her death, resignation or retirement.

At the Annual Meeting, two Class I Directors, each nominated by the Board of Directors, will stand for re-election to serve until the 2022 annual meeting of stockholders and until his successor is duly elected and qualified or until his earlier resignation or removal. At the recommendation of the Governance Committee, the Board of Directors has nominated Mr. James W. Green and Mr. Bertrand Loy for election as the Class I Directors of the Company. Unless otherwise specified in the proxy, it is the intention of the persons named in the proxy to vote the shares represented by each properly executed proxy "FOR" the election of Mr. James W. Green and Mr. Bertrand Loy. The nominees have each agreed to stand for re-election and, if re-elected, to serve as Director. However, if any person nominated by the Board of Directors is unable to serve or will not serve, the proxies will be voted for the election of such other person or persons as the Governance Committee and the Board of Directors may recommend.

**Vote Required**

The affirmative vote of a plurality of the votes cast by holders of shares of Common Stock present or represented by proxy and entitled to vote on the matter at the Annual Meeting is required for the election of the nominees as Class I Directors of the Company.

**OUR BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS A VOTE "FOR" THE ELECTION OF THE FOLLOWING NOMINEES OF THE BOARD OF DIRECTORS: JAMES W. GREEN AND BERTRAND LOY. PROPERLY AUTHORIZED PROXIES SOLICITED BY THE BOARD OF DIRECTORS WILL BE VOTED "FOR" EACH OF THE NOMINEES UNLESS INSTRUCTIONS TO WITHHOLD OR TO THE CONTRARY ARE GIVEN.**

## INFORMATION REGARDING DIRECTORS

Set forth below is certain information regarding the Directors of the Company, including the Class I Directors who have been nominated for election at the Annual Meeting, based on information furnished to the Company by each Director. The biographical description below for each Director includes his or her age, all positions he or she holds with the Company, his or her principal occupation and business experience over at least the past five years, and the names of other publicly-held companies for which he or she currently serves as a Director or has served as a Director during at least the past five years. The biographical description below for each Director also includes the specific experience, qualifications, attributes and skills that led to the conclusion by the Board of Directors that such person should serve as a Director of the Company. In addition to such specific information, we also believe that all of our Directors have a reputation for integrity, honesty and adherence to high ethical standards. Further, they have each demonstrated business acumen and an ability to exercise sound judgment as well as a commitment of service to the Company and our Board.

The Board of Directors has determined that the incumbent Directors listed below, other than our Chief Executive Officer Mr. Duchemin, are “independent” as such term is currently defined by applicable NASDAQ rules.

The following information is current as of April 1, 2019, based on information furnished to the Company by each Director:

### Directors of Harvard Bioscience, Inc.

| Name  | Age | Position with the Company            | Director Since |
|---|-----|--------------------------------------|----------------|
| <b>Class I Directors—Term expires 2019; Nominated to Serve a Term Expiring 2022</b> |     |                                      |                |
| <i>James W. Green</i> (CC)(GC)*   | 60  | Chairman                             | 2015           |
| <i>Bertrand Loy</i> (AC)(GC)*   | 53  | Director                             | 2014           |
| <b>Class II Directors—Term expires 2020</b>   |     |                                      |                |
| <i>John F. Kennedy</i> (AC)(CC)   | 70  | Director                             | 2000           |
| <i>Thomas W. Loewald</i> (CC)   | 56  | Director                             | 2017           |
| <i>Katherine A. Eade</i> (GC) (AC)  | 45  | Director                             | 2017           |
| <b>Class III Director—Term expires 2021</b>   |     |                                      |                |
| <i>Jeffrey A. Duchemin</i>  | 53  | Chief Executive Officer and Director | 2013           |

\* Nominee for election.

(AC) Member of the Audit Committee

(CC) Member of the Compensation Committee

(GC) Member of the Governance Committee

*Nominees for Election as Class I Directors— Nominated to Serve Terms Expiring 2022*

*James W. Green* has served as a Director of the Company since April 2015 and was appointed Chairman on June 5, 2017. Mr. Green is a member of the Compensation Committee and Governance Committee. Mr. Green is a General Partner of Grantchester Group, with over 30 years of experience in healthcare and technology. Mr. Green earlier served as President, Chief Executive Officer and a Director of Analogic Corporation, a leading publicly held advanced medical and security imaging company from 2007 until October 2016. From 2005 to 2007, Mr. Green worked as Regional Vice President of Unilab Corp., a California division of Quest Diagnostics Corporation, successfully integrating full Unilab operations into the national laboratory network of Quest Diagnostics. From 1983 to 2005, Mr. Green worked in various other leadership positions at Koninklijke Philips Electronics NV, St. Jude Medical Inc., Beckman Instruments, McDonnell Douglas Corporation and Northrop Advanced Systems. Mr. Green holds a B.S. from the University of Missouri at Columbia, an M.S. from the University of Southern California and is a graduate of the Stanford University Executive Program. We believe Mr. Green’s qualifications to sit on our Board of Directors include his executive leadership experience and global experience in technology, healthcare and life science industries in a variety of executive positions.

*Bertrand Loy* has served as a Director of the Company since November 2014 and currently serves as Chairman of the Governance Committee and is a member of the Audit Committee. Since November 2012, Mr. Loy has served as President, CEO and a Director of Entegris Inc., a provider of yield-enhancing materials and solutions used in advanced high-tech manufacturing environments. Prior to that, he served as Chief Operating Officer of Entegris from 2008 to 2012 and Chief Administrative Officer of Entegris from 2005 to 2008. He previously worked as Vice President and Chief Financial Officer of Mykrolis Corp. from 2001 until its merger with Entegris in 2005. From 1995 to 2000, Mr. Loy was with Millipore initially as the Director of Finance and Manufacturing for Millipore's Laboratory Water Division before moving to the position of Chief Information Officer. He began his career with Sandoz Pharmaceuticals (now Novartis) where he held various positions in strategic planning, finance and audit in Europe, Japan and Latin America from 1989 to 1995. Mr. Loy earned an M.B.A. at ESSEC Business School in France. We believe Mr. Loy's qualifications to sit on our Board of Directors include his extensive experience as a Chief Executive Officer, as well as his experience in operational management and his extensive international experience in Europe, Asia-Pacific and the Americas.

*Incumbent Class II Directors—Terms Expiring 2020*

*John F. Kennedy* has served as a Director of the Company since October 2000. Mr. Kennedy currently serves as Chairman of the Audit Committee and is a member of the Compensation Committee. From June 2006 until his retirement in October 2008, Mr. Kennedy served as President and Chief Financial Officer of Nova Ventures Corporation, the management company providing executive management services to the operating companies of Nova Holdings LLC, Nova Analytics Corporation and Nova Technologies Corporation. From July 2002 to June 2006, Mr. Kennedy served as the President and Chief Financial Officer of Nova Analytics Corporation, a worldwide supplier and integrator of analytical instruments. From August 1999 to April 2002, Mr. Kennedy served as the Senior Vice President, Finance, Chief Financial Officer and Treasurer of RSA Security Inc., an e-business security company. Prior to joining RSA Security, Mr. Kennedy was Chief Financial Officer of Decalog, NV, a developer of enterprise investment management software, from 1998 to 1999. From 1993 to 1998, Mr. Kennedy served as Vice President of Finance, Chief Financial Officer and Treasurer of Natural MicroSystems Corporation, a telecommunications company. Mr. Kennedy, a former CPA, also practiced as a public accountant at KPMG for 6 years. Mr. Kennedy serves on the Board of Directors of Datacom Systems, Inc. Mr. Kennedy holds an M.S.B.A. in accounting from the University of Massachusetts Amherst. We believe Mr. Kennedy's qualifications to sit on our Board of Directors include his executive leadership experience, his significant operating, accounting and financial management expertise and the knowledge and understanding of our Company that he has acquired over seventeen years of service on our Board.

*Thomas W. Loewald* has served as a Director of the Company since October 2017 and is Chairman of the Compensation Committee. Since September 2017, Mr. Loewald has served as President of the Extrusion and Lamination Division of ProAmpac, a private-equity owned flexible packaging company. Prior to that, he served as Senior Vice President and Chief Commercial Officer of Thermo Fisher Scientific, a multinational biotechnology product development company. He previously worked in various roles of Thermo Fisher Scientific from 2002 to 2016. Prior to Thermo Fisher, Mr. Loewald led sales, marketing, and customer service for the adhesives division of Tyco International from 1998 to 2002. Prior to Tyco, Tom held a series of roles with General Electric's Plastics and Materials businesses. Mr. Loewald holds a B.A. in economics from Middlebury College and an M.B.A. in business administration from Dartmouth College. We believe Mr. Loewald's qualifications to sit on our Board of Directors include his executive leadership experience and his extensive management experience.

*Katherine A. Eade* has served as a Director of the Company since October 2017 and is a member of the Governance Committee and the Audit Committee. Ms. Eade is the Deputy General Counsel of La-Z-Boy Incorporated and has more than 15 years of experience advising Fortune 500 companies on significant corporate transactions, governance matters, securities, and risk management. Prior to joining La-Z-Boy, Ms. Eade was the Director, M&A Law and Transactions for Corning Incorporated and Division Counsel for Corning's Life Sciences and Pharmaceutical Technologies divisions. Her life science acquisitions for Corning included the \$730 million purchase of BD's Discovery Labware business. Previous to her work at Corning, Ms. Eade was an attorney at Cleary Gottlieb Steen & Hamilton LLP, a leading international law firm, for over seven years. Earlier in her career, she served as a law clerk for Judge Morton I. Greenberg of the U.S. Court of Appeals for the Third Circuit. Ms. Eade earned a J.D., cum laude, from Harvard Law School and a B.A. in Government, summa cum laude, from Cornell University. We believe Ms. Eade's qualifications to sit on our Board of Directors include her significant experience in mergers and acquisitions, including in the life sciences industry, and her extensive experience in capital markets and corporate governance.

*Incumbent Class III Director—Nominated to Serve Term Expiring 2021*

*Jeffrey A. Duchemin* was appointed Chief Executive Officer on August 26, 2013. Mr. Duchemin assumed the additional roles of President on November 1, 2013 and Director on October 29, 2013. Prior to joining Harvard Bioscience, Mr. Duchemin spent 16 years with Becton Dickinson ("BD") in progressive sales, marketing and executive leadership positions across BD's three business segments; BD Medical Systems, BD Diagnostic Systems, and BD Biosciences. In October 2012, BD Biosciences Discovery Labware was acquired by Corning Life Sciences. Mr. Duchemin was a Global Business Director for Corning Life Sciences until his departure to Harvard Bioscience. Mr. Duchemin is a transformational leader with demonstrated business results. The depth of his experience spans across a broad range of life science research and medical device products resulting in growth on a global basis. Mr. Duchemin earned an M.B.A. from Southern New Hampshire University and a B.S. in accounting from the University of Massachusetts Dartmouth. We believe Mr. Duchemin's qualifications to sit on our Board of Directors include his executive leadership experience and global experience in the life science industry in a variety of executive positions.

### **INFORMATION REGARDING THE BOARD OF DIRECTORS AND ITS COMMITTEES**

During the year ended December 31, 2018, our Board of Directors held eight meetings. Each of the Directors attended at least 85% of the total number of meetings of the Board of Directors held while he was a Director and of the committees of which he was a member. The Board of Directors encourages Directors to attend in person the Annual Meeting of Stockholders of the Company, or Special Meeting in lieu thereof, or, if unable to attend in person, to participate by other means, if practicable. In recognition of this policy, the Board of Directors typically schedules a regular meeting of the Board of Directors to be held on the date of, and immediately following, the Annual Meeting of Stockholders. All of the Directors in office at the time attended, in person or by telephone, the 2018 Annual Meeting of Stockholders held on May 17, 2018. The non-employee Directors meet regularly in executive sessions outside the presence of management.

Mr. Green has been the Chairman of our Board since June 2017. Among other things, the Chairman provides feedback to the Chief Executive Officer on executive sessions and facilitates discussion among the independent directors outside of meetings of the Board of Directors. The Chief Executive Officer is responsible for the day-to-day management of our Company and the development and implementation of our Company's strategy. Our Board of Directors currently believes that separating the roles of Chief Executive Officer and Chairman contributes to an efficient and effective board. Our Board of Directors does not have a current requirement that the roles of Chief Executive Officer and Chairman of the Board be either combined or separated, because the Board currently believes it is in the best interests of our Company to make this determination based on the position and direction of our Company and the constitution of the Board and management team. From time to time, the Board will evaluate whether the roles of Chief Executive Officer and Chairman of the Board should be combined or separated. The Board has determined that having separate roles of our Company's Chief Executive Officer and Chairman is in the best interest of our stockholders at this time.

The Board of Directors has established an Audit Committee (the “Audit Committee”), a Compensation Committee (the “Compensation Committee”) and a Governance Committee (the “Governance Committee”).

#### *Audit Committee*

The Audit Committee currently consists of Messrs. Kennedy and Loy, and Ms. Eade. Mr. Kennedy serves as the Chairman. The Audit Committee is comprised entirely of independent Directors and it operates under a Board approved charter that sets forth its duties and responsibilities. The Audit Committee met eight times during 2018.

The Audit Committee is governed by the Sixth Amended and Restated Audit Committee Charter which was approved by the Board of Directors on April 26, 2016. The Audit Committee Charter is available on the Corporate Governance page in the Investor Relations section of our website at [www.harvardbioscience.com](http://www.harvardbioscience.com). Please note that the information contained on the Company website is not incorporated by reference in, or considered to be a part of, this Proxy Statement.

Under its charter, the Audit Committee is responsible for, among other things:

- reviewing with the independent registered public accounting firm and management the adequacy and effectiveness of internal controls over financial reporting and related matters;
- reviewing and consulting with management and the independent registered public accounting firm on matters related to the annual audit, the annual and quarterly financial statements and related disclosures, earnings releases and the related accounting principles, policies, practices and judgments;
- making a recommendation to the Board as to whether our audited financial statements should be included in our Annual Report on Form 10-K;
- appointing, retaining and terminating, and determining compensation of, the Company’s independent auditors;
- the oversight of the Company’s independent auditors and the evaluation of the independent auditors’ qualifications, performance and independence, including performance of the lead audit partner, and reporting of such evaluation to the Board;
- assurance of the regular rotation of audit partners, including any lead and concurring partners, in accordance with applicable laws and regulations;
- preparation of the Audit Committee report required to be included in our annual proxy statement; and
- reporting matters that arise relating to quality or integrity of our financial statements, legal compliance, performance of the independent auditors and other matters, to the Board and reviewing such matters with the Board.

The Audit Committee is responsible for reviewing and discussing with management our policies with respect to risk assessment and risk management. The Board and the Audit Committee discuss matters relating to risks that arise or may arise.

The Audit Committee is also responsible for, and has established policies and procedures with respect to, the pre-approval of all services provided by the independent auditors. When assessing the independence of our auditors, the Audit Committee considers the independent registered public accounting firm’s provision of non-audit services to the Company.

The Audit Committee has also established procedures for the receipt, retention and treatment, on a confidential basis, of complaints received by the Company. The Board of Directors, including the Audit Committee, adopted our Second Amended and Restated Code of Business Conduct and Ethics on April 26, 2016, a copy of which is available on the Corporate Governance page in the Investor Relations section of our website at [www.harvardbioscience.com](http://www.harvardbioscience.com). Please note that the information contained on the website is not incorporated by reference in, or considered to be a part of, this Proxy Statement.

With respect to the Company’s the independent registered public accounting firm, currently Grant Thornton, in accordance with SEC rules and Grant Thornton policies, audit partners are subject to rotation requirements to limit the number of consecutive years an individual partner may provide service to our Company. For lead and concurring audit partners, the maximum number of consecutive years of service in that capacity is five years. Our Audit Committee is involved in the selection of the lead audit partner. The process for selection of our lead audit partner pursuant to this rotation policy involves a meeting between the Chairman of the Audit Committee and the candidate for the role, as well as discussion by the full Audit Committee and with management.

The Board of Directors has determined that Messrs. Kennedy and Loy, and Ms. Eade, are “independent” as such term is currently defined by NASDAQ rules, meet the criteria for independence set forth under the rules of the Securities and Exchange Commission, and are able to read and understand fundamental financial statements. The Board of Directors has also determined that each of Messrs. Kennedy and Loy qualifies as an “audit committee financial expert” under the rules of the Securities and Exchange Commission.

#### *Compensation Committee*

The Compensation Committee currently consists of Messrs. James W. Green, Kennedy and Loewald. Mr. Loewald serves as the Chairman. The Compensation Committee is comprised entirely of independent Directors and it operates under a Board approved charter that sets forth its duties and responsibilities. The Compensation Committee met fourteen times during 2018.

The Compensation Committee adopted the Fourth Amended and Restated Compensation Committee Charter on April 26, 2016. The Compensation Committee Charter is available on the Corporate Governance page in the Investor Relations section of our website at [www.harvardbioscience.com](http://www.harvardbioscience.com). Please note that the information contained on the website is not incorporated by reference in, or considered to be a part of, this Proxy Statement.

The Compensation Committee determines and oversees the execution of our compensation philosophy and oversees the administration of our executive compensation programs. Its responsibilities also include overseeing the Company’s compensation and benefit plans and policies, retaining or terminating committee advisors, independence evaluation of compensation advisors, administering its stock plans (including reviewing and approving equity grants) and reviewing and approving annually all compensation decisions for the Company’s executive officers, including the CEO and the other executive officers named in the 2018 Summary Compensation Table. See “Executive Compensation—Compensation Discussion and Analysis” later in this Proxy Statement for information concerning the Compensation Committee’s role, processes and activities in overseeing executive compensation.

The Board of Directors has determined that Messrs. James W. Green, Kennedy and Loewald are “independent” as such term is currently defined by NASDAQ rules.

#### *Governance Committee*

The current members of the Governance Committee are Messrs. James W. Green and Loy, and Ms. Eade. Mr. Loy is the Chairman. The Governance Committee is comprised entirely of independent Directors and it operates under a Board approved charter that sets forth its duties and responsibilities. The Governance Committee met two times during 2018.

Under the terms of its charter, the Governance Committee is responsible for identifying individuals qualified to become Board members, consistent with criteria recommended by the Governance Committee and approved by the Board of Directors, and recommending that the Board of Directors select the Director candidates for election at each annual meeting of stockholders. Its responsibilities also include recommending to the Board of Directors the criteria for membership on Board Committees. The Governance Committee is also responsible for assisting the Board of Directors with such corporate governance matters as the Board of Directors may request.

In identifying and evaluating nominees for the Board of Directors, the Governance Committee may solicit recommendations from any or all of the following sources: non-management Directors, the Chief Executive Officer, other executive officers, third-party search firms or any other source it deems appropriate. In addition, the Governance Committee has established a policy that it will review and consider any Director candidates who have been recommended by securityholders in compliance with certain procedures established by the Governance Committee. The procedures to be followed by securityholders in submitting such recommendations are described in the section entitled “Submission of Securityholder Recommendations for Director Candidates” included in this Proxy Statement. The Governance Committee will review and evaluate the qualifications of any such proposed Director candidate and conduct inquiries it deems appropriate.

The Governance Committee will evaluate all such proposed Director candidates, including those recommended by securityholders in compliance with the procedures established by the Governance Committee, in the same manner, with no regard to the source of the initial recommendation of such proposed Director candidate. When considering a potential candidate for membership on the Board of Directors, the Governance Committee may consider, in addition to the minimum qualifications and other criteria for Board membership approved by the Board of Directors, all facts and circumstances that the Governance Committee deems appropriate or advisable, including, among other things, the skills of the proposed Director candidate, his or her availability, depth and breadth of business experience or other background characteristics, his or her independence and the needs of the Board of Directors. At a minimum, each candidate must have high personal and professional integrity, have demonstrated ability and judgment, and be effective, in conjunction with the other Directors and candidates, in collectively serving the long-term interests of the stockholders. In addition, the Governance Committee will recommend that the Board select candidates for nomination to help ensure that a majority of the Board shall be “independent” in accordance with NASDAQ rules and each of its Audit, Compensation and Governance Committees shall be comprised entirely of independent Directors; provided, however, in accordance with NASDAQ rules, under exceptional and limited circumstances, if a committee has at least three members, the Board may appoint one individual to such committee who does not satisfy the independence standards. Although there is no specific policy regarding the consideration of diversity in identifying Director candidates, the Governance Committee may consider whether the candidate, if elected, assists in achieving a mix of Board members that represents a diversity of background and experience. The Governance Committee also may consider whether the candidate has direct experience in the biotechnology, pharmaceutical and/or life science research industries or in the markets in which the Company operates.

The Board of Directors has determined that Messrs. James W. Green and Loy and Ms. Eade are “independent” as such term is currently defined by NASDAQ rules.

The Governance Committee Charter is available on the Corporate Governance page in the Investor Relations section of our website at [www.harvardbioscience.com](http://www.harvardbioscience.com). Please note that the information contained on the website is not incorporated by reference in, or considered to be a part of, this Proxy Statement.

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

Risks to the Company are discussed by the Board of Directors during the year. Management is responsible for the day-to-day management of risks we face, while the Board, as a whole and through its Committees, oversees risk management. The Audit Committee is responsible for reviewing and discussing with management our policies with respect to risk assessment and risk management. The Board of Directors and the Audit Committee review and discuss, including with management, risks that arise or may arise, including in relation to legal, compliance and cyber-security. For example, the Audit Committee discusses financial risk, including with respect to financial reporting and internal controls, with management and our independent registered public accounting firm and the steps management has taken to minimize those risks. Our Board of Directors also administers its risk oversight function through the required approval by the Board (or a Committee of the Board) of significant transactions and other material decisions.

#### *Risk Considerations in our Compensation Programs*

The Compensation Committee believes that risks arising from our policies and practices for compensating employees are not reasonably likely to have a material adverse effect on the Company.

#### *Non-Employee Director Ownership Guidelines*

Our Board has implemented equity ownership guidelines with respect to our non-employee directors. Such ownership guidelines require each non-employee member of the Board of Directors, within five years from April 29, 2014, as to existing directors at such time, and five years from their initial election to the Board, as to directors initially elected after such date, to own shares of our Common Stock having a value of at least three times the annual retainer of the non-employee directors. With respect to satisfying such guidelines, unvested deferred stock awards of restricted stock units are included in the calculation while stock options are excluded.

## CODE OF BUSINESS CONDUCT AND ETHICS

The Board of Directors adopted a Second Amended and Restated Code of Business Conduct and Ethics on April 26, 2016, which applies to all Directors, officers and employees of the Company and its subsidiaries including the Chief Executive Officer, the Chief Financial Officer, principal accounting officer, controller and any person performing similar functions. The Second Amended and Restated Code of Business Conduct and Ethics is available on the Corporate Governance page in the Investor Relations section of our website at [www.harvardbioscience.com](http://www.harvardbioscience.com). We intend to post any amendments to or waivers from this Second Amended and Restated Code of Business Conduct and Ethics at this location on our website. Please note, however, that the information contained on the website is not incorporated by reference in, or considered a part of, this Proxy Statement.

### REPORT OF THE AUDIT COMMITTEE

*Notwithstanding anything to the contrary set forth in any of the Company's previous or future filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, that might incorporate this Proxy Statement or any future filing with the Securities and Exchange Commission, in whole or in part, the following report shall not be deemed incorporated by reference into any such filing.*

The undersigned members of the Audit Committee of the Board of Directors of the Company submit this report in connection with the committee's review of the financial reports of the Company for the fiscal year ended December 31, 2018 as follows:

1. The Audit Committee has reviewed and discussed with management the audited financial statements of the Company for the fiscal year ended December 31, 2018.
2. The Audit Committee has discussed with representatives of Grant Thornton LLP the matters required to be discussed with them by applicable requirements of Public Company Accounting Oversight Board Auditing Standard No. 16.
3. The Audit Committee has received the written disclosures and the letter from the independent accountant required by the Public Company Accounting Oversight Board regarding the independent accountant's communications with the Audit Committee concerning independence, and has discussed with the independent accountant the independent accountant's independence.

Based on the review and discussions referred to above, the Audit Committee recommended to the Board of Directors that the audited financial statements be included in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2018 for filing with the Securities and Exchange Commission.

Submitted by the Audit Committee:

John F. Kennedy, Chairman  
Katherine A. Eade  
Bertrand Loy

### DIRECTOR COMPENSATION

We use a mix of cash and/or stock-based incentive compensation to attract and retain qualified candidates to serve on our Board. As described below, our Director Compensation program currently utilizes only stock-based incentive compensation. In setting director compensation, the Board of Directors and the Compensation Committee consider the significant amount of time that Directors expend in fulfilling their duties to the Company as well as the skill-level required by the Company of members of the Board.

Directors who are also employees of the Company receive no additional compensation for service as a Director. Non-employee Directors receive the compensation described below.

#### Compensation of Non-Employee Directors Upon Initial Election to the Board

Each non-employee director will be entitled to receive a non-qualified stock option having an aggregate Black-Scholes cash value of \$134,400, rounded to the nearest 100 shares, provided that in no case shall such stock option be less than 25,000 shares (so long as 25,000 shares are required to be granted under the equity incentive plan of the Corporation). Such option shall be for the purchase of common stock of the Corporation and shall vest annually over three years and be granted on the fifth business day following his or her initial election to the Board.



## Annual Compensation of Non-Employee Directors

### *Annual Retainers*

Each non-employee director will be entitled to receive annual retainer amounts for each respective role on the Board. In lieu of cash, such aggregate annual retainer amounts shall each be satisfied by the issuance of deferred stock awards of restricted stock units as described herein.

The respective annual retainer value for each particular role on the Board are as follows:

| Role                          | Annual Retainer Value |
|-------------------------------|-----------------------|
| Non-employee director         | \$ 35,280             |
| Chairman of the Board         | \$ 35,280             |
| Audit Committee chair         | \$ 18,144             |
| Audit Committee member        | \$ 9,072              |
| Compensation Committee chair  | \$ 12,096             |
| Compensation Committee member | \$ 6,048              |
| Governance Committee chair    | \$ 5,040              |
| Governance Committee member   | \$ 5,040              |

The annual retainer awards (each a “Retainer Award”) are generally granted on the first trading day of January (the “Grant Date”) and vest quarterly over the calendar year on each March 31, June 30, September 30 and December 31. The number of shares of common stock subject to a Retainer Award is equal to the amount of cash that would have been received had the retainers all been paid in cash, divided by the average daily closing market price of the common stock for the month of November immediately preceding the Grant Date, rounded to the nearest 100 shares.

In the event that a non-employee director is named Chairman or joins any committees of the Board of Directors during a fiscal year after the Grant Date, such director shall be granted a Retainer Award (the “Additional Retainer Award”), in relation to such additional roles and respective retainer amounts pro-rated for the remainder of such year. Such Additional Retainer Award shall be granted on the first trading day of the month after the individual is appointed to such roles. The Additional Retainer Award shall vest in equal amounts spread over the remaining quarterly vesting dates of the Retainer Awards for such calendar year subject to continued service as a non-employee director on the applicable vesting dates. The number of shares of common stock subject to an Additional Retainer Award is equal to the amount of cash that would have been received had the retainers all been paid in cash, divided by the average daily closing market price of the common stock for the calendar month that is two months prior to the month the director was appointed to the additional roles, rounded to the nearest 100 shares (i.e., the month of June if the director was appointed to the additional roles on August 15).

In the event a director’s service (including as a Board member, or their role as Chairman, Committee Chairman, Committee member) ends during a particular quarter, the vesting date for such quarter in relation to the portion of the award attributable to such roles that are ending, shall be the last day of the director’s term in the respective role such that the full quarterly amount attributable to such roles shall vest on that earlier vesting date.

### *Annual Equity Award*

Each non-employee director will also be entitled to receive an equity award having an aggregate cash value of \$80,640, rounded to the nearest 100 shares, vesting fully on the earlier to occur of (i) the date of the Corporation’s next Annual Meeting of Stockholders after the grant date, immediately prior to the commencement of such meeting, and (ii) one year from the date of grant and granted on the fifth business day following the Corporation’s Annual Meeting of Stockholders, with such award to be evidenced by a grant of deferred stock awards of restricted stock units.

## Expenses

In addition, non-employee directors shall be reimbursed for their expenses incurred in connection with attending Board and Committee meetings.

### Director Compensation Table

The following table presents the compensation provided by us to the non-employee Directors who served during the fiscal year ended December 31, 2018.

| Name (1)               | Fees<br>Earned or<br>Paid as Part of<br>Retainer Award | Option<br>Awards (2), (3) | Restricted Stock<br>Awards (4) | Total      |
|------------------------|--|---------------------------|--------------------------------|------------|
| <i>James Green</i>     | \$ 72,900  | \$ -                      | \$ 80,545                      | \$ 153,445 |
| <i>John F. Kennedy</i> | 61,765   | -                         | 80,545                         | 142,310    |
| <i>Earl R. Lewis</i>   | 15,750   | -                         | -                              | 15,750     |
| <i>Bertrand Loy</i>    | 48,600   | -                         | 80,545                         | 129,145    |
| <i>George Uveges</i>   | 27,900   | -                         | -                              | 27,900     |
| <i>Katherine Eade</i>  | 41,682   | -                         | 80,545                         | 122,227    |
| <i>Thomas Loewald</i>  | 44,477   | -                         | 80,545                         | 125,022    |

- (1) Jeffrey A. Duchemin, the Company's Chief Executive Officer is not included in this table as he is an employee of the Company and thus receives no compensation for his service as a Director. The compensation received by Mr. Duchemin as an employee of the Company is shown in the Summary Compensation Table later in this Proxy Statement.
- (2) Based on the aggregate grant date fair value computed awards in accordance with the provisions of FASB ASC 718, "Compensation—Stock Compensation". Assumptions used in the calculation of this amount are included in Note 14 to the Company's audited financial statements for the fiscal year ended December 31, 2018 included in the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 18, 2019.
- (3) The aggregate number of option awards outstanding at December 31, 2018, and held by the non-employee Directors were as follows: 60,000 options for Mr. James Green; 37,059 options for Mr. Kennedy; 0 options for Mr. Lewis; 55,300 options for Mr. Loy; 0 options for Mr. Uveges; 87,600 options for Ms. Eade; and 87,600 options for Mr. Loewald.
- (4) The aggregate number of restricted stock awards outstanding at December 31, 2018, and held by the non-employee Directors were as follows: 18,100 awards for Mr. James Green; 18,100 awards for Mr. Kennedy; 0 awards for Mr. Lewis; 18,100 awards for Mr. Loy; 0 awards for Mr. Uveges; 18,100 awards for Ms. Eade; and 18,100 awards for Mr. Loewald.

### COMPENSATION DISCUSSION AND ANALYSIS

Our compensation philosophy is designed to support our key objective of creating value for our stockholders by growing our revenues, growing our U.S. GAAP and non-GAAP adjusted earnings per diluted share, growing our adjusted EBITDA, exclusive of one-time charges, increasing our total market capitalization and growing our share price. Our Compensation Committee is responsible for establishing and approving the compensation for all executive officers of the Company.

This Compensation Discussion and Analysis explains our compensation objectives, policies and practices with respect to our Chief Executive Officer, our Chief Financial Officer, and our other two most highly-compensated executive officers as determined in accordance with applicable SEC rules, which are collectively referred to as the named executive officers or, in this “Compensation Discussion and Analysis” section, our executives. Our named executive officers are currently as follows: Jeffrey A. Duchemin, Chief Executive Officer and President and Kam Unninaray, our Chief Financial Officer since the commencement of her employment on November 26, 2018.

This proxy statement also includes disclosures required with respect to Robert E. Gagnon, our former Chief Financial Officer, who served in such capacity during fiscal 2018 until his resignation in August 2018, and Yong Sun, our former Vice President and General Manager of Physiology, Cell and Molecular Instruments, who served in such capacity during all fiscal 2018 as his resignation was effective as of January 4, 2019.

### ***Objectives of Our Executive Compensation Programs***

Our compensation programs for our named executive officers are designed to achieve the following objectives:

- attract and retain high performing and experienced executives;
- motivate and reward executives whose knowledge, skills and performance are critical to our success;
- align the interests of our executives and stockholders by motivating executives to increase stockholder value and rewarding executives when stockholder value increases;
- foster a shared commitment among executives by coordinating their goals; and
- motivate our executives to manage our business to meet our short and long-term objectives, and reward them for meeting these objectives.

### ***Compensation Elements***

The elements of executive compensation include base salary, annual cash incentive bonuses, employment agreements, long-term equity incentive compensation and broad-based benefits programs.

### ***Consultant, Peer Group Information and Benchmarking***

In 2018, the Compensation Committee engaged Arthur J. Gallagher & Co. (“Gallagher”) to provide analysis and recommendations pertaining to our compensation philosophy, peer group comparisons and competitiveness of salary, bonus and long-term incentive compensation. The Compensation Committee confirmed, with the assistance of Gallagher, the peer group for 2018, which included Abaxis, Inc., Cardiovascular Systems Inc., Cogentix Medical, Inc., Cutera Inc., Digirad Corporation, Enzo Biochem, Inc., Exactech Inc., Fluidigm Corporation, Fonar Corporation, Genmark Diagnostics Inc., IRIDEX Corporation, Lemaitre Vascular Inc., Luminex Corporation, NanoString Technologies, Inc., Neogenomics Inc., Pacific Biosciences of California, Inc., and Quidel Corporation.

In the first quarter of 2018, the Compensation Committee engaged Gallagher to provide analysis and recommendations pertaining to the compensation, including salary, bonus and equity grants, with respect to our Chief Executive Officer and Chief Financial Officer. The Compensation Committee utilized the reports, recommendations and insight of Gallagher, along with a variety of additional factors, including input from Mr. Duchemin as to the other executive officers, in determining the appropriate compensation, including salary, bonus and equity grants, with respect to Messrs. Duchemin, Gagnon and Sun.

### ***Base Salary***

We pay our executives a base salary, which we review and determine annually. We believe that a competitive base salary is a necessary element of any compensation program that is designed to attract and retain talented and experienced executives. We also believe that attractive base salaries can motivate and reward executives for their overall performance. Although base salaries are established in part based on the individual experience, skills and expected contributions during the coming year of each of our executives and each executive’s performance during the prior year, we do not view base salaries as primarily serving our objective of paying for performance.

It is our goal to maintain a base salary structure among our executives that, in our judgment, appropriately reflects their respective roles and responsibilities. For 2018, for the period from January 1 to March 31, the base salaries for the named executive officers were as follows: \$528,815 per year for Mr. Duchemin, \$335,580 per year for Mr. Gagnon and \$236,436 per year for Mr. Sun. For the period from March 31 to December 31 during 2018, the base salaries for the named executive officers were based on the following increased amounts established by the Compensation Committee: \$557,000 per year for Mr. Duchemin, \$356,000 per year for Mr. Gagnon and \$256,000 per year for Mr. Sun. For Ms. Unninaray, whose employment commenced on November 26, 2018, her base salary was \$340,000 per year for 2018. Their current salaries are based on the factors discussed above as well as our goal of maintaining a base salary structure among our executives that, in our judgment, appropriately reflects their respective roles and responsibilities.

Our executives' base salaries reflect the initial base salaries that we negotiated with each of our executives at the time of his or her initial employment and our subsequent adjustments to these amounts, to reflect market increases, our growth, our executives' performance and increased experience, any changes in our executives' roles and responsibilities and other factors. The base salaries of our executives are based on our understanding of base salaries for comparable positions at similarly situated companies at the time, the individual experience and skills of, and expected contribution from each executive, the roles and responsibilities of the executive, the base salaries and annual bonus eligibility of our existing executives and other factors.

#### *Annual Cash Incentive Bonuses*

Consistent with our emphasis on performance-based incentive compensation programs, our executives are eligible to receive annual cash incentive bonuses. The Compensation Committee of our Board has the authority to provide such bonuses for a given fiscal year based on the performance of our executives as with respect to the key performance areas and targets established by the Compensation Committee for such period. These bonuses are primarily based upon our company meeting certain growth targets, which historically have been measured by exceeding targets relating to non-GAAP earnings per diluted share, revenue growth, adjusted EBITDA, each exclusive of one-time charges. In addition to the primary bonus components that may be earned based on the achievement of specific performance areas and targets set by the Compensation Committee, the bonus also often includes a discretionary component. When assessing any such discretionary component, the Compensation Committee also considers other performance goals, current economic conditions and exceptional and/or inadequate performances by each executive officer.

The primary objective of our annual cash incentive bonuses is to motivate and reward our named executive officers for meeting our short-term objectives. We have structured our annual cash incentive bonuses in a manner so that they may represent a meaningful portion of our executives' currently paid out cash compensation. In establishing these levels, in addition to considering the incentives that we want to provide to our executives, we also consider the bonus levels for comparable positions at peer group companies and our historical practices.

In 2018, the Compensation Committee of our Board established performance targets with respect to the annual cash incentive bonuses for the named executive officers in 2018, including Messrs. Duchemin, Gagnon and Sun. For 2018, varying bonus payouts were available in the range of \$0.21 to \$0.265 of non-GAAP earnings per diluted share, subject to foreign currency fluctuation impact, and \$119 million to \$124 million of revenue. In determining whether and to what extent to award any annual cash incentive bonus for 2018, the Compensation Committee considered if the established target was met and or exceeded. In addition to the achievement of the corporate goal noted above, the Compensation Committee assessed the extent to which each executive officer contributed to our achievement of such target.

For 2018, in accordance with their respective employment arrangements, in the event the objective was determined by the Board of Directors or the Compensation Committee (and our Chief Executive Officer with respect to Mr. Sun) was achieved, and depending on the level of achievement within the objective range, each of our named executive officers were eligible to receive cash incentive compensation on an annual basis of up to one hundred fifty percent (150%) of his base salary with respect to Mr. Duchemin, one hundred percent (100%) of his base salary with respect to Mr. Gagnon, and thirty five percent (35%) of their respective base salaries for Mr. Sun.

For fiscal 2018, based on the executive's performance and other considerations of the Compensation Committee, the Compensation Committee awarded a bonus to Mr. Duchemin in the amount of \$367,620. These bonuses were based on the achievement of the revenue objectives described above, as well as discretionary bonuses awarded by the Compensation Committee. The cash bonus was paid in 2019. The non-GAAP earnings per diluted share objective described above was not achieved, and therefore no bonuses were awarded based on that target objective. Ms. Unnayar was paid a bonus of \$10,000 for fiscal 2018. The cash bonus was paid in 2019. As Mr. Gagnon and Mr. Sun each submitted resignations during fiscal 2018, they were not awarded any bonuses.

### *Long-Term Equity Incentive Compensation*

We grant long-term equity incentive awards in the form of stock option awards and/or deferred stock awards of restricted stock units (“RSU”) to executives as part of our total compensation package. We place a significant emphasis on performance-based incentive compensation. These awards generally represent a significant portion of total executive compensation. We use long-term equity incentive awards in order to align the interests of our executives and our stockholders by providing our executives with strong incentives to increase stockholder value and a significant reward for doing so.

In the first quarter of 2018, the Compensation Committee of the Board of Directors, taking into consideration the analysis and recommendations of Gallagher, approved the grant of time-based RSU awards and market condition performance based RSUs to our named executive officers. In addition, in the first quarter of 2018, as part of the granting of certain bonuses and incentive compensation to members of management following our acquisition of Data Sciences International, Inc., Mr. Sun was also granted an additional time-based RSU. In addition, in connection with the hiring of Ms. Unninayar, on November 26, 2018, she was granted stock options and time-based RSUs. These 2018 awards granted to our named executive officers are described in the table and subsequent disclosures below.

The Compensation Committee’s long-term incentive strategy allows for use of a portfolio approach when granting awards. Each element of the portfolio is intended to address a different aspect of long-term incentive compensation, as set forth below:

- Time-based RSUs provide an interest in the value of the Company’s shares, because, even though they vest over time, they provide recipients with a certain equity interest, assuming continued employment. In addition to promoting retention, time-based RSUs further align executives’ interests with the interests of shareholders and provide a long-term ownership mentality as well as motivation to succeed in the long-term because the value of RSUs does not solely depend upon increases in the market price of our shares, which may occur over a short period of time.
- Stock options provide rewards based upon the appreciation in value to shareholders, as measured by the increase in our share price, and there is no value to these awards if our share price does not increase.
- Market condition RSUs which provide an additional incentive for executive officers to create shareholder value, as these awards only vest if the relative total shareholder return, or TSR, of our Common Stock as compared to companies in the utilized index exceeds the performance goals established by the Committee. The Committee believes that measuring TSR on a relative, rather than on an absolute, basis provides a more relevant measure of the performance of the Company’s stock. By mitigating the impact of macroeconomic factors (both positive and negative) that are beyond the control of the Company and its executives, relative TSR provides rewards that are better aligned to relative performance through varying economic cycles. These market condition RSUs also provide a retention incentive since these awards generally vest over a three year period.

Our decisions regarding the amount and type of long-term equity incentive compensation and relative weighting of these awards among total executive compensation have also been based on our understanding of market practices of our peer group companies and take into account additional factors such as level of individual responsibility, experience and performance.

An RSU is a grant representing the right to receive a share of Common Stock upon vesting of the RSU and satisfaction of other conditions but for which no share of Common Stock is issued until the RSU vests and any other applicable conditions are satisfied. A holder of an RSU does not have any rights of a stockholder until the RSU vests and is converted to Common Stock. The fair value of RSUs is based on the market price of our stock on the date of grant. Unvested RSUs are forfeited in the event of termination of employment or engagement with the Company.

Stock option awards provide our executive officers with the right to purchase shares of our Common Stock at a fixed exercise price typically for a period of up to ten years, subject to continued employment with our Company. Stock options are earned based on continued service to us and generally vest over a range of one to four years. The exercise price of each stock option award granted under our Third Amended and Restated 2000 Stock Option and Incentive Plan (as amended, the “Equity Plan”) is based on the fair market value of our Common Stock on the grant date. The fair market value of our Common Stock is defined as the closing market price of a share of our Common Stock on the date of grant. We do not have any program, plan or practice of setting the exercise price based on a date or price other than the fair market value of our Common Stock on the grant date.

Stock option awards and RSU awards, including time-based and market condition, are made pursuant to our Equity Plan. See “Potential Payments Upon Termination or Change-in-Control” for a discussion of the change-in-control provisions related to stock option awards and RSUs.

The Compensation Committee aims to grant annual stock option grants and RSUs to named executive officers on the fifth business day following the public issuance of our earnings release for the most recent completed fiscal year, to coincide with the granting of annual equity grants to our employees generally. Nevertheless, aside from a portion of Mr. Sun’s grants, in fiscal 2018, the long term incentive grants to our named executive officers were granted on the fifth business day following the annual meeting of stockholders in 2018 as the Compensation Committee elected to wait until after the 2018 amendment to the Equity Plan to increase the number of authorized shares of Common Stock available for issuance thereunder was approved by our stockholders. Stock options granted to employees hired or promoted during a month are generally granted on the first business day of the following month. If NASDAQ is closed on the appropriate business day as described above, then the grants will instead be made on the next day that NASDAQ is open for trading. The Compensation Committee retains the discretion to grant options and other awards at such other times as it may deem appropriate.

In 2018, we granted time based RSUs and market condition RSUs to our named executive officers as follows:

|                     | <b>Stock Option Awards (#) (1)</b> | <b>Market Condition RSUs (2)</b> | <b>Time Based RSUs (3)</b> |
|---------------------|------------------------------------|----------------------------------|----------------------------|
| Jeffrey A. Duchemin | --                                 | 94,444                           | 94,444                     |
| Kam Unninayar       | 44,585                             | --                               | 18,469                     |
| Robert E. Gagnon    | --                                 | 40,000                           | 40,000                     |
| Yong Sun            | --                                 | 22,500                           | 31,388                     |
|                     | <u>44,585</u>                      | <u>156,944</u>                   | <u>184,301</u>             |

(1) These options were granted on November 26, 2018, vest in four equal installments on each of November 1, 2019, 2020, 2021 and 2022, and have a term of ten years from the date of grant.

(2) These market condition RSUs were granted on May 24, 2018. The vesting of these restricted stock units is cliff-based and linked to the achievement of a relative total shareholder return, or TSR, of our Common Stock from May 24, 2018 to the earlier of (i) May 24, 2019 or (ii) upon a change of control (measured relative to the NASDAQ Biotechnology index and based on the 20-day trading average price before such date). The target number of these restricted stock units that may be earned is reported above; the maximum amount is 150% of the number reported and cap of 100% in the event of negative TSR. The TSR calculations will be adjusted to reflect stock splits, recapitalizations and other similar events. The market condition RSUs will vest at target—the amount reported in the table above—if the TSR of the Company’s Common Stock is at the 50th percentile of companies in the NASDAQ Biotechnology index. A payout at maximum, which is 150% of the target award, may be achieved if the relative TSR is at or above the 75th percentile of companies in the NASDAQ Biotechnology index. In order to receive a payout at threshold, which is 50% of the target award, the relative TSR must be at or above the 33rd percentile of companies in the NASDAQ Biotechnology index. If the relative TSR of the Company’s Common Stock is below the 20th percentile, the market condition RSUs will not vest and the awards will be forfeited. The complete payout matrix for the market condition RSUs granted in fiscal 2018 is presented in the table below:

| <b>Relative TSR Percentile Rank</b>             | <b>Performance Factor</b>   |
|---|---|
| 20 <sup>th</sup> percentile or lower            | 0%  |
| 21 <sup>st</sup> to 32 <sup>nd</sup> percentile | for each 1 percentile in range above 20 <sup>th</sup> percentile, 4%                          |
| 33 <sup>rd</sup> percentile                     | 50%   |
| 34 <sup>th</sup> to 49 <sup>th</sup> percentile | 50%, plus for each 1 percentile in range above 33 <sup>rd</sup> percentile, an additional 3%  |
| 50 <sup>th</sup> percentile                     | 100%  |
| 51 <sup>st</sup> to 74 <sup>th</sup> percentile | 100%, plus for each 1 percentile in range above 50 <sup>th</sup> percentile, an additional 2% |
| 75 <sup>th</sup> percentile or higher           | 150%  |

(3) A time-based RSU was granted to Mr. Sun on March 8, 2018 in the amount of 8,888 shares and vested in full on that date. The remaining time-based RSUs were granted on May 24, 2018 (November 26, 2018 as to Ms. Unninayar) and vest in four equal installments on each of January 1, 2019, 2020, 2021 and 2022.

As noted above, reports provided by Gallagher in 2018 were utilized and taken into consideration by the Compensation Committee when setting the amount of these grants noted in the table above to our current named executive officers.

#### ***Employment Agreements***

##### ***Chief Executive Officer***

We have entered into an employment agreement with Mr. Duchemin, dated August 26, 2013. This agreement, as amended, currently provides for a term ending August 26, 2020, which such term shall automatically be extended for two additional years following the end of the term then in effect unless, not less than 90 days prior to each such date, either party shall have given written notice to the other that it does not wish to extend the agreement. As amended, Mr. Duchemin's employment agreement provides for an annual base salary, as well as eligibility to receive cash incentive compensation on an annual basis of up to a one hundred fifty percent (150%) of his base salary upon meeting objectives as determined by the Board of Directors or the Compensation Committee, which may include non-GAAP earnings per share (on a pro-forma basis, as applicable), revenue growth, and EBITDA, each exclusive of one-time charges, and other discretionary factors. Under the employment agreement, the base salary amount is subject to review annually by our Board of Directors and Compensation Committee. Mr. Duchemin is also eligible to participate in other incentive compensation plans as the Board of Directors or Compensation Committee shall provide for our senior executive officers. In connection with his hiring, Mr. Duchemin also received an inducement stock option grant of 500,000 options.

The employment agreement with Mr. Duchemin also requires us to provide certain payments and benefits to this executive in the event of a termination of the executive's employment by us without cause, by the executive for good reason or upon death or disability. In return, such executive covenants not to compete or solicit our employees for one year following the termination of employment. We believe that negotiation of the severance level in advance makes it less problematic for our Board of Directors to terminate executives for performance reasons without the need for protracted negotiation over severance. The employment agreement with Mr. Duchemin also provides change-in-control benefits, and has customary best net/modified economic cutback 280G provisions, as recommended by Gallagher. See "Potential Payments Upon Termination or Change-in-Control" for a summary of these termination related provisions.

### ***Chief Financial Officer***

We have entered into an employment agreement with Ms. Unninayar, dated October 18, 2018. The agreement provides for an initial term ending November 26, 2019, which such term shall automatically be extended for two additional years following the end of the term then in effect unless, not less than 90 days prior to each such date, either party shall have given written notice to the other that it does not wish to extend the agreement. Ms. Unninayar's employment agreement provides for an annual base salary (initially \$340,000) and eligibility to receive cash incentive compensation on an annual basis of up to a fifty percent (50%) of her base salary upon meeting objectives as determined by the Board of Directors or the Compensation Committee from time to time, which such bonus is subject to a 0 to 2x multiplier depending on individual and Company performance as determined by the Board or a Committee thereof. Under the employment agreement, the base salary amount is subject to review annually by our Board of Directors and Compensation Committee. Ms. Unninayar is also eligible to participate in other incentive compensation plans as the Board of Directors or Compensation Committee shall provide for our senior executive officers. The employment agreement also includes a customary best net/modified economic cutback 280G provisions. In connection with her hiring, Ms. Unninayar also received inducement equity awards having an aggregate value at issuance of \$140,000, consisting of \$70,000 in non-qualified stock options, and \$70,000 in deferred stock awards of restricted stock units. The employment agreement also requires us to provide certain payments and benefits to the executive in the event of a termination of the executive's employment by us without cause, by the executive for good reason or upon death or disability. In return, such executive covenants not to compete or solicit our employees for one year following the termination of employment. We believe that negotiation of the severance level in advance makes it less problematic for our Board of Directors to terminate these executives for performance reasons without the need for protracted negotiation over severance. The employment agreement with Ms. Unninayar also provide change-in-control benefits. See "Potential Payments Upon Termination or Change-in-Control" for a summary of these termination related provisions.

### ***Our Former Chief Financial Officer***

Prior to his resignation in 2018, we entered into an employment agreement with Mr. Gagnon, dated October 2, 2013. As amended, Mr. Gagnon's employment agreement provided for an annual base salary and eligibility to receive cash incentive compensation on an annual basis of up to a one hundred percent (100%) of his base salary upon meeting objectives as determined by the Board of Directors or the Compensation Committee, which included non-GAAP earnings per share (on a pro-forma basis, as applicable), revenue growth, and EBITDA, each exclusive of one-time charges, and other discretionary factors. Mr. Gagnon was also eligible to participate in other incentive compensation plans as the Board of Directors or Compensation Committee provided for our senior executive officers. The employment agreement with Mr. Gagnon also required us to provide certain payments and benefits to the executive in the event of a termination of the executive's employment by us without cause, by the executive for good reason or upon death or disability. In return, each such executive covenants not to compete or solicit our employees for one year following the termination of employment. We believe that negotiation of the severance level in advance makes it less problematic for our Board of Directors to terminate these executives for performance reasons without the need for protracted negotiation over severance. The employment agreement with Mr. Gagnon also provided change-in-control benefits, and had customary best net/modified economic cutback 280G provisions, as recommended by Gallagher. See "Potential Payments Upon Termination or Change-in-Control" for a summary of these termination related provisions.

### ***Our Former Vice President***

Prior to his resignation, we had also entered into an employment agreement, dated May 26, 2016 with Mr. Sun. The employment agreement entitled Mr. Sun to an annual base salary (which was initially \$225,000 following execution of his offer letter in 2013). Furthermore, Mr. Sun was eligible to receive cash incentive compensation on an annual basis of up to thirty five percent (35%) of his base salary upon meeting objectives as determined by our Chief Executive Officer, Board of Directors or a Committee thereof. Under the employment agreement, Mr. Sun was also eligible to participate in other incentive compensation plans as the Board of Directors or Compensation Committee shall provide for our senior executive officers. Mr. Sun's employment agreement also contained provisions regarding the provision of customary additional benefits such as medical, dental, vacation, signing bonus and life insurance. Additionally, Mr. Sun's employment agreement required us to provide certain payments and benefits in the event of a termination of Mr. Sun's employment by us without cause, by the executive for good reason, or upon a change of control. See "Potential Payments Upon Termination or Change-in-Control" for a summary of these termination related provisions. Mr. Sun's employment agreement also included a customary best net/modified economic cutback 280G provision, as recommended by Gallagher.



### ***Broad-Based Benefits Programs***

All full-time employees in the United States, including our named executive officers, may participate in our Employee Stock Purchase Plan and in our health and welfare benefit programs, including medical coverage, dental coverage, disability insurance, life insurance and our 401(k) plan. We offer similar plans in foreign countries.

### ***Consideration of Stockholder Advisory Vote on Executive Compensation***

At our 2018 Annual Meeting of Stockholders held on May 17, 2018, approximately 98% of the votes cast were cast in favor of the executive compensation of our named executive officers.

### ***Executive Stock Ownership Guidelines***

At the recommendation of our Compensation Committee, our Board of Directors has implemented updated executive stock ownership guidelines with respect to our named executive officers. Such ownership guidelines require, within five years from February 26, 2019 as to existing named executive officers at such time, and five years from their initial appointment or designation as named executive officers, as to named executive officers initially appointed or designated after such date, our named executive officers to own our Common Stock with a market value equal to at least three times their respective annual base salary. With respect to satisfying such guidelines, stock options are excluded in the calculation while shares owned outright or beneficially owned (as defined under Rule 13d-3 of the Securities Exchange Act of 1934, as amended), restricted shares, including shares granted but not vested; shares issuable upon the settlement of RSUs and shares held in our Employee Stock Purchase Plan are all included. The Compensation Committee will monitor compliance with the stock ownership guidelines, including approving any hardship exceptions or implementing any non-compliance penalties.

### ***Anti-Short Selling and Anti-Margin Policies***

The Company's Insider Trading Guidelines explicitly prohibit directors, officers and employees from (i) selling any securities of the Company that are not owned by such person at the time of the sale, (ii) buying or selling puts, calls or options in respect of the Company's securities at any time, and (iii) purchasing any securities of the Company on margin.

## **EXECUTIVE AND DIRECTOR COMPENSATION PROCESS**

Our Compensation Committee has the authority to determine all compensation payable to our executive officers. Our Chief Executive Officer makes recommendations to our Compensation Committee regarding the compensation of all executive officers, excluding his own, but our Compensation Committee is ultimately responsible for approving this compensation. In the past the Compensation Committee has engaged Radford, an Aon Consulting company, and most recently, Gallagher, to provide analysis and recommendations pertaining to our compensation philosophy, peer group comparisons and competitiveness of salary, bonus and long-term incentive compensation.

Generally, our Chief Executive Officer recommends the terms of an annual corporate bonus plan to our Compensation Committee. Our Compensation Committee then, after considering the recommendations made by our Chief Executive Officer, determines the terms and amount of compensation to pay to each of our executive officers, including our Chief Executive Officer, and the terms of any corporate bonus plans and related targets and objectives.

Our Board of Directors has the authority to approve all compensation payable to our Directors, although our Compensation Committee is responsible for making recommendations to our Board regarding their compensation. Additionally, our Chief Executive Officer may also make recommendations or assist our Compensation Committee in making recommendations regarding Director compensation. Our Board of Directors and Compensation Committee annually review our Director compensation to ensure that the Director compensation package remains competitive such that we are able to recruit and retain qualified Directors.

#### **COMPENSATION COMMITTEE REPORT**

We, the Compensation Committee of the Board of Directors of Harvard Bioscience, Inc., have reviewed and discussed the Compensation Discussion and Analysis set forth above with the management of the Company, and, based on such review and discussion, have recommended to the Board of Directors inclusion of the Compensation Discussion and Analysis in this Proxy Statement and, through incorporation by reference from this Proxy Statement, the Company's Annual Report on Form 10-K for the year ended December 31, 2018.

Compensation Committee:

Thomas W. Loewald, Chairman  
James W. Green  
John F. Kennedy

#### **COMPENSATION COMMITTEE INTERLOCKS AND INSIDER PARTICIPATION**

During the 2018 fiscal year, the Compensation Committee consisted of Messrs. Green, Kennedy and Loewald. None of these Directors has served as an officer or employee of the Company or any of its subsidiaries. During the 2018 fiscal year, to the knowledge of the Company, none of its executive officers:

- served as a member of the Compensation Committee of another entity; or
- served as a Director of another entity.

## SUMMARY COMPENSATION TABLE

The table below summarizes the total compensation paid or earned by each of the named executive officers noted below for services rendered in all capacities, including our Chief Executive Officer, our Chief Financial Officer and our former Chief Financial Officer and former Vice President and General Manager of Physiology, Cell and Molecular Instruments during 2018, all during the fiscal years ended December 31, 2018, 2017 and 2016.

| <u>Name and Principal Position</u>   | <u>Year</u> | <u>Salary (\$)</u> | <u>Bonus (\$)</u> | <u>Option Awards (\$)<br/>(1)</u> | <u>Time Based RSUs(\$)</u> | <u>Market Condition RSUs (\$)</u> | <u>All Other Compensation (\$)</u> | <u>Total (\$)</u> |
|--|-------------|--------------------|-------------------|-----------------------------------|----------------------------|-----------------------------------|------------------------------------|-------------------|
| <i>Jeffrey A. Duchemin</i><br>President and<br>Chief Executive Officer     | 2018        | \$ 551,580         | \$ 367,620        | \$ -                              | \$ 420,276                 | \$ 395,720                        | \$ 24,109(2)                       | \$ 1,759,305      |
|  | 2017        | 526,536            | 158,085           | -                                 | 822,501                    | -                                 | 24,109(3)                          | 1,531,231         |
|  | 2016        | 505,804            | -                 | -                                 | 822,501                    | -                                 | 24,109(4)                          | 1,352,414         |
| <i>Kam Unninayar</i><br>Chief Financial Officer                            | 2018        | \$ 26,154          | \$ 10,000         | \$ 69,998                         | \$ 69,998                  | \$ -                              | \$ -                               | \$ 176,150        |
| <i>Robert E. Gagnon</i><br>Former Chief Financial Officer<br>and Treasurer | 2018        | \$ 242,535         | \$ -              | \$ -                              | \$ 178,000                 | \$ 167,600                        | \$ 10,370(5)                       | \$ 598,505        |
|  | 2017        | 333,661            | 69,969            | -                                 | 500,002                    | -                                 | 11,269(6)                          | 914,901           |
|  | 2016        | 324,202            | -                 | -                                 | 499,997                    | -                                 | 11,269(7)                          | 835,468           |
| <i>Yong Sun</i><br>Vice President and<br>General Manager                   | 2018        | \$ 254,911         | \$ -              | \$ -                              | \$ 100,125                 | \$ 94,275                         | \$ 11,181(8)                       | \$ 460,492        |
|  | 2017        | 247,457            | 24,880            | 12,700                            | 250,999                    | -                                 | 49,898(9)                          | 585,934           |
|  | 2016        | 240,442            | -                 | -                                 | 251,000                    | -                                 | 9,610(10)                          | 501,052           |

- (1) Based on the aggregate grant date fair value computed in accordance with the provisions of FASB ASC 718, "Compensation—Stock Compensation". Assumptions used in the calculation of this amount are set forth in Note 14 to the Company's audited financial statements for the fiscal year ended December 31, 2018, included in the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 18, 2019.
- (2) Includes \$12,000 for personal usage of Company leased automobile (as calculated in accordance with Internal Revenue Service guidelines and included as compensation on the W-2), \$10,600 in matching contributions made by the Company to Mr. Duchemin's tax-qualified 401(k) Savings Plan account and \$1,509 representing life insurance purchased for Mr. Duchemin's benefit.
- (3) Includes \$12,000 for personal usage of Company leased automobile (as calculated in accordance with Internal Revenue Service guidelines and included as compensation on the W-2), \$10,600 in matching contributions made by the Company to Mr. Duchemin's tax-qualified 401(k) Savings Plan account, and \$1,509 representing life insurance purchased for Mr. Duchemin's benefit.
- (4) Includes \$12,000 for personal usage of Company leased automobile (as calculated in accordance with Internal Revenue Service guidelines and included as compensation on the W-2), \$10,600 in matching contributions made by the Company to Mr. Duchemin's tax-qualified 401(k) Savings Plan account and \$1,509 representing life insurance purchased for Mr. Duchemin's benefit.
- (5) Includes \$9,701 in matching contributions made by the Company to Mr. Gagnon's tax-qualified 401(k) Savings Plan account and \$669 representing life insurance purchased for Mr. Gagnon's benefit.
- (6) Includes \$10,600 in matching contributions made by the Company to Mr. Gagnon's tax-qualified 401(k) Savings Plan account and \$669 representing life insurance purchased for Mr. Gagnon's benefit.
- (7) Includes \$10,600 in matching contributions made by the Company to Mr. Gagnon's tax-qualified 401(k) Savings Plan account and \$669 representing life insurance purchased for Mr. Gagnon's benefit.
- (8) Includes \$10,196 in matching contributions made by the Company to Mr. Sun's tax-qualified 401(k) Savings Plan account and \$985 representing life insurance purchased for Mr. Sun's benefit.
- (9) Includes \$9,902 in matching contributions made by the Company to Mr. Sun's tax-qualified 401(k) Savings Plan account and a bonus of 8,888 shares of unrestricted stock, valued at \$39,996, in part based on the performance of the PCMI product family in fiscal 2017. This stock award was granted in the first quarter of 2018.
- (10) Includes \$9,610 in matching contributions made by the Company to Mr. Sun's tax-qualified 401(k) Savings Plan account.

**GRANTS OF PLAN-BASED AWARDS—2018**

The following table sets forth certain information concerning the individual grant of time-based RSUs to the named executive officers who received such grants during the fiscal year ended December 31, 2018. These awards identified in the table below are also reported in the Outstanding Equity Awards at Fiscal Year-End—2018 included within the proxy statement.

| <b>Name</b>                | <b>Award Type</b>    | <b>Grant Date</b> | <b>Number of Shares of Stock or Units (#)</b> | <b>Grant Date Fair Value of Stock and Option Awards (\$)</b> |
|----------------------------|----------------------|-------------------|---|--|
| <b>Jeffrey A. Duchemin</b> | Time Based RSU       | 5/24/2018         | 94,444(1)                                     | 420,276(6)   |
| <b>Jeffrey A. Duchemin</b> | Market Condition RSU | 5/24/2018         | 94,444(2)                                     | 395,720(7)   |
| <b>Kam Unninayar</b>       | Time Based RSU       | 11/26/2018        | 18,469(3)                                     | 69,998(6)  |
| <b>Kam Unninayar</b>       | Option Awards        | 11/26/2018        | 44,585(4)                                     | 69,998(8)  |
| <b>Robert E. Gagnon</b>    | Time Based RSU       | 5/24/2018         | 40,000(1)                                     | 178,000(6)   |
| <b>Robert E. Gagnon</b>    | Market Condition RSU | 5/24/2018         | 40,000(2)                                     | 167,600(7)   |
| <b>Yong Sun</b>            | Time Based RSU       | 5/24/2018         | 22,500(1)                                     | 100,125(6)   |
| <b>Young Sun</b>           | Stock Award          | 3/8/2018          | 8,888(5)                                      | 39,996(5)  |
| <b>Yong Sun</b>            | Market Condition RSU | 5/24/2018         | 22,500(2)                                     | 94,275(7)  |

- (1) These restricted stock units were granted on May 24, 2018 and vest in four equal installments on each of the first four anniversaries of January 1, 2018. The vesting of all restricted stock units is subject to the executive's continued employment with the Company, and is also subject, in some instances, to acceleration in connection with certain termination events and a change-in-control as described in "Potential Payments Upon Termination or Change-in-Control."
- (2) These market condition restricted stock units were granted on May 24, 2018 with performance based vesting conditions. The RSUs vest in three equal annual installments on May 24, 2019, May 24, 2020 and May 24, 2021, and are linked to the achievement of a relative total shareholder return of the Issuer's common stock from May 24, 2018 to the earlier of May 24, 2019 or upon a change of control (measured relative to the NASDAQ Biotechnology index and based on the 20-day trading average price before each such date). The target number of these RSUs that may be earned is noted in the table above; the maximum amount is 150% of the number reported.
- (3) These restricted stock units were granted on November 26, 2018 and vest in four equal installments on each of the first four anniversaries of January 1, 2018. The vesting of all restricted stock units is subject to the executive's continued employment with the Company, and is also subject, in some instances, to acceleration in connection with certain termination events and a change-in-control as described in "Potential Payments Upon Termination or Change-in-Control."

- (4) These stock options were granted on November 26, 2018 and vest in four equal installments on each of the first four anniversaries of November 1, 2018. The vesting of all stock options is subject to the executive's continued employment with the Company, and is also subject, in some instances to acceleration in connection with certain termination events and a change-in-control as described in "Potential Payments Upon Termination or Change-in-Control."
- (5) This unrestricted stock award was granted on March 8, 2018. The fair value of the stock award was based on the closing market price of the Company's stock on the date of the grant multiplied by the total number of the shares granted to Mr. Sun.
- (6) The fair value of the RSU's are based on the closing market price of the Company's stock on the date of the grant multiplied by the total number of the RSU's granted to each of the named executive officers of the Company.
- (7) The fair value of the market condition RSU's are based on the Monte-Carlo simulated value on the grant date.
- (8) Based on the aggregate grant date fair value computed in accordance with the provisions of FASB ASC 718, "Compensation—Stock Compensation". Assumptions used in the calculation of this amount are set forth in Note 14 to the Company's audited financial statements for the fiscal year ended December 31, 2018, included in the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 19, 2019.

#### ***Discussion of Summary Compensation and Grants of Plan-Based Awards Tables***

Our 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." A summary of certain material terms of our compensation plans and arrangements is set forth below. The terms of employment agreements that we have entered into with our executives are described below under "Potential Payments Upon Termination or Change-in-Control."

#### ***Annual Cash Incentive Bonuses***

As described above under "Compensation Discussion and Analysis - Annual Cash Incentive Bonuses," for 2018, the Compensation Committee awarded annual cash bonus to Mr. Duchemin in the amount of \$367,620.

#### ***2018 Equity Awards***

In 2018, we granted stock option and time-based RSUs to the named executive officers under our Equity Plan. The vesting and other key terms of such awards is discussed in more detail above under "Compensation Discussion and Analysis - Long-Term Equity Incentive Compensation." The vesting of such awards is subject to continued employment with our Company, and in some instances, to acceleration in connection with certain termination events and a change-in-control as described in "Potential Payments Upon Termination or Change-in-Control."

#### **OUTSTANDING EQUITY AWARDS AT FISCAL YEAR-END—2018**

The following table sets forth information concerning the number and value of exercisable and unexercisable options to purchase Common Stock, and the number of time-based RSUs held by the applicable named executive officers noted below as of December 31, 2018.

**Outstanding Equity Awards at Fiscal Year-End – 2018**

|                            | <u>Option Awards (12)</u>  |  |   |                                       | <u>Time Based<br/>Restricted Stock<br/>Units (12)</u>                                  | <u>Market Condition<br/>Restricted Stock Units (12)</u>                                      |
|----------------------------|--|--|---|---------------------------------------|--|--|
|                            | <u>Number of<br/>Securities<br/>Underlying<br/>Unexercised<br/>Options (#)<br/>Exercisable</u> | <u>Number of<br/>Securities<br/>Underlying<br/>Unexercised<br/>Options (#)<br/>Unexercisable</u> | <u>Option<br/>Exercise<br/>Price (\$)</u> | <u>Option<br/>Expiration<br/>Date</u> | <u>Number of<br/>Securities<br/>Underlying<br/>Unexercised<br/>Time Based<br/>RSUs</u> | <u>Number of<br/>Securities<br/>Underlying<br/>Unexercised<br/>Market Condition<br/>RSUs</u> |
| <i>Jeffrey A. Duchemin</i> | -  | -  | -   | -                                     | 94,444 (6)   | 94,444 (11)  |
|                            | 97,500   | 32,500 (1)   | \$ 5.56                                   | 6/4/2025                              | 268,206 (7)  | -  |
|                            | 300,000  | - (2)  | \$ 4.12                                   | 5/30/2024                             | 145,833 (8)  | -  |
|                            | 350,000  | - (3)  | \$ 4.31                                   | 11/18/2023                            | -  | -  |
|                            | <u>747,500</u>   | <u>32,500</u>  |   |                                       | <u>508,483</u>   | <u>94,444</u>  |
| <i>Kam Unninayar</i>       | -  | 44,585 (4)   | \$ 3.79                                   | 11/26/2028                            | 18,469 (9)   | -  |
|                            | -  | <u>44,585</u>  |   |                                       | <u>18,469</u>  | -  |
| <i>Yong Sun</i>            | -  | -  | -   | -                                     | 22,500 (6)   | 22,500 (11)  |
|                            | 2,500  | 7,500 (5)  | \$ 3.25                                   | 2/6/2027                              | 81,847 (7)   | -  |
|                            | 24,375   | 8,125 (1)  | \$ 5.56                                   | 6/4/2025                              | 44,503 (8)   | -  |
|                            | 35,000   | - (2)  | \$ 4.12                                   | 5/30/2024                             | 4,306 (10)   | -  |
|                            | <u>61,875</u>  | <u>15,625</u>  |   |                                       | <u>153,156</u>   | <u>22,500</u>  |

- (1) The option was granted on June 4, 2015 and, assuming continued employment with the Company, the unvested shares become exercisable on January 1, 2019.
- (2) The option was granted on May 30, 2014 and, assuming continued employment with the Company, the unvested shares became vested in full on January 1, 2018.
- (3) The option was granted on November 18, 2013 and the unvested shares vested in full on November 18, 2016.
- (4) The option was granted on November 26, 2018 and, assuming continued employment with the Company, the unvested shares become exercisable in equal installments on November 1 of each of 2019, 2020, 2021 and 2022.
- (5) The option was granted on February 6, 2017 and, assuming continued employment with the Company, the unvested shares vested in full on February 6 of each of 2019, 2020 and 2021.
- (6) The restricted stock units were granted on May 24, 2018 and, assuming continued employment with the Company, the unvested shares become exercisable in equal instalments on January 1, of each of 2019, 2020, 2021 and 2022.

- (7) The restricted stock units were granted on May 25, 2017 and, assuming continued employment with the Company, the unvested shares vest in equal installments on January 1 of each of 2019, 2020 and 2021.
- (8) The restricted stock units were granted on May 6, 2016 and, assuming continued employment with the Company, the unvested shares become exercisable in equal installments on January 1 of each of 2019 and 2020.
- (9) The restricted stock units were granted on November 26, 2018 and, assuming continued employment with the Company, the unvested shares become exercisable in equal installments on January 1 of each of 2019, 2020, 2021 and 2022.
- (10) The restricted stock units were granted on June 4, 2015 and, assuming continued employment with the Company, the unvested shares become exercisable on January 1, 2019.
- (11) These market condition restricted stock units were granted on May 24, 2018 with performance based vesting conditions. The RSUs vest in three equal annual installments on May 24, 2019, May 24, 2020 and May 24, 2021, and are linked to the achievement of a relative total shareholder return of the Issuer's common stock from May 24, 2018 to the earlier of May 24, 2019 or upon a change of control (measured relative to the NASDAQ Biotechnology index and based on the 20-day trading average price before each such date). The target number of these RSUs that may be earned is noted in the table above; the maximum amount is 150% of the number reported.
- (12) The vesting of these options and awards is also subject, in some instances, to acceleration in connection with certain termination events and a change-in-control as described in "Potential Payments Upon Termination or "Change-in-Control."

#### **POTENTIAL PAYMENTS UPON TERMINATION OR CHANGE-IN-CONTROL**

##### ***Chief Executive Officer***

Our employment agreement with Mr. Duchemin provides for certain payments and benefits for the executive if the executive's employment is terminated because of death or disability, by the executive for good reason or by us without cause or in relating to a change-in-control. The events constituting cause, good reason and a change-in-control are specified in the agreement. Following any such termination, the executive is entitled to receive his accrued and unpaid base salary to the date of termination, accrued and unused vacation, and if to the extent required by law, any bonuses or other compensation actually earned for periods ended prior to the termination event.

With respect to termination because of death or disability, all equity awards of the executive shall accelerate and fully vest and we shall also pay a cash lump sum equal to the value of COBRA premiums for a period of eighteen (18) months following the termination that may be used by executive or his spouse and dependents, as applicable, to pay for health insurance coverage that is substantially similar to the coverage executive and his eligible dependents received prior to the termination.

In addition, in the case of a termination by the executive for good reason, or by us without cause, and subject to the terms of the agreement, (i) we shall pay the executive an amount equal to 18 months of his base salary rate in equal installments over the period of one year from the date of termination in accordance with our payroll procedures and (ii) any stock options or other stock based grants which would otherwise vest within 12 months of the date of termination shall become fully vested or non-forfeitable. Further, following any such termination, we shall reasonably determine what annual bonus the executive would have received had he remained employed throughout the fiscal year in which the termination occurs, and if any such annual bonus would have been earned, we shall pay the executive a pro rata portion of such determined annual bonus by a lump-sum cash payment. In addition, following the termination we shall also pay a cash lump sum equal to the value of COBRA premiums for a period of eighteen (18) months following the termination that may be used by executive to pay for health insurance coverage that is substantially similar to the coverage executive and his eligible dependents received prior to the termination. The executive's receipt of payment and benefits in connection with such a termination by the executive for good reason or by us without cause is subject to the executive signing a general release of claims, as provided in the agreement.

In addition, in the event that Mr. Duchemin is terminated within three months prior to, or twelve months after, a change in control (as described in his employment agreement), we shall pay Mr. Duchemin a single lump sum in cash equal to 24 months of his base salary, and all stock options and other stock-based awards granted to Mr. Duchemin shall immediately accelerate and become exercisable or non-forfeitable as of the date of the change in control. Mr. Duchemin shall also receive a pro rata portion of fifty percent (50%) of the maximum annual bonus for the fiscal year in which the termination occurs. In addition, following such termination we shall also pay a cash lump sum equal to the value of COBRA premiums for a period of twenty four (24) months following the termination that may be used by executive to pay for health insurance coverage that is substantially similar to the coverage executive and his eligible dependents received prior to the termination. We believe that it is fair to provide for accelerated vesting because equity grants generally provide a high proportion of the total compensation of our executive officers. Very often, senior management lose their jobs in connection with a change-in-control. By agreeing up front to protect these executive officers from losing their equity in the event of a change-in-control, we believe we can reinforce and encourage the continued attention and dedication of our executive officers to their assigned duties without distraction in the face of an actual or threatened change-in-control. This protection also aligns the interests of such executive officers with that of our stockholders.

#### ***Our Chief Financial Officer***

Our employment agreement with Ms. Unninayar provides for certain payments and benefits for the executive if the executive's employment is terminated because of death or disability, by the executive for good reason or by us without cause or in relating to a change-in-control. The events constituting cause, good reason and a change-in-control are specified in the agreement. Following any such termination, the executive is entitled to receive her accrued and unpaid base salary to the date of termination, accrued and unused vacation, and if to the extent required by law, any bonuses or other compensation actually earned for periods ended prior to the termination event.

With respect to termination because of death or disability, all equity awards of the executive shall accelerate and fully vest and we shall also pay a cash lump sum equal to the value of COBRA premiums for a period of twelve (12) months following the termination that may be used by executive or her spouse and dependents, as applicable, to pay for health insurance coverage that is substantially similar to the coverage executive and her eligible dependents received prior to the termination.

In addition, in the case of a termination by the executive for good reason, or by us without cause, and subject to the terms of the agreement, (i) we shall pay the executive an amount equal to 12 months of her base salary rate in equal installments over the period of one year from the date of termination in accordance with our payroll procedures and (ii) any stock options or other stock based grants which would otherwise vest within 12 months of the date of termination would become fully vested or non-forfeitable. Further, following any such termination, we shall reasonably determine what annual bonus the executive would have received had he remained employed throughout the fiscal year in which the termination occurs, and if any such annual bonus would have been earned, we shall pay the executive a pro rata portion of such determined annual bonus by a lump-sum cash payment. In addition, following the termination we shall also pay a cash lump sum equal to the value of COBRA premiums for a period of twelve (12) months following the termination that may be used by executive to pay for health insurance coverage that is substantially similar to the coverage executive and her eligible dependents received prior to the termination. The executive's receipt of payment and benefits in connection with such a termination by the executive for good reason or by us without cause is subject to the executive signing a general release of claims, as provided in the agreement.

In addition, in the event that Ms. Unninayar is terminated within three months prior to, or twelve months after, a change in control (as described in her employment agreement), we shall pay Ms. Unninayar a single lump sum in cash equal to 18 months of her base salary, and all stock options and other stock-based awards granted to Ms. Unninayar would immediately accelerate and become exercisable or non-forfeitable as of the date of the change in control. In addition, following such termination we shall also pay a cash lump sum equal to the value of COBRA premiums for a period of eighteen (18) months following the termination that may be used by executive to pay for health insurance coverage that is substantially similar to the coverage executive and her eligible dependents received prior to the termination.



### ***Our Former Chief Financial Officer***

Our employment agreement with Mr. Gagnon provided for certain payments and benefits for the executive if the executive's employment is terminated because of death or disability, by the executive for good reason or by us without cause or in relating to a change-in-control. The events constituting cause, good reason and a change-in-control are specified in the agreement. Following any such termination, the executive was entitled to receive his accrued and unpaid base salary to the date of termination, accrued and unused vacation, and if to the extent required by law, any bonuses or other compensation actually earned for periods ended prior to the termination event.

With respect to termination because of death or disability, all equity awards of the executive were to accelerate and fully vest and we shall also pay a cash lump sum equal to the value of COBRA premiums for a period of twelve (12) months following the termination that may be used by executive or his spouse and dependents, as applicable, to pay for health insurance coverage that is substantially similar to the coverage executive and his eligible dependents received prior to the termination.

In addition, in the case of a termination by the executive for good reason, or by us without cause, and subject to the terms of the agreement, (i) we were to pay the executive an amount equal to 12 months of his base salary rate in equal installments over the period of one year from the date of termination in accordance with our payroll procedures and (ii) any stock options or other stock based grants which would otherwise vest within 12 months of the date of termination would become fully vested or non-forfeitable. Further, following any such termination, we were to reasonably determine what annual bonus the executive would have received had he remained employed throughout the fiscal year in which the termination occurs, and if any such annual bonus would have been earned, we would pay the executive a pro rata portion of such determined annual bonus by a lump-sum cash payment. In addition, following the termination we would also pay a cash lump sum equal to the value of COBRA premiums for a period of twelve (12) months following the termination that may be used by executive to pay for health insurance coverage that is substantially similar to the coverage executive and his eligible dependents received prior to the termination. The executive's receipt of payment and benefits in connection with such a termination by the executive for good reason or by us without cause is subject to the executive signing a general release of claims, as provided in the agreement.

In addition, in the event that Mr. Gagnon was terminated within three months prior to, or twelve months after, a change in control (as described in his employment agreement), we were to pay Mr. Gagnon a single lump sum in cash equal to 18 months of his base salary, and all stock options and other stock-based awards granted to Mr. Gagnon would immediately accelerate and become exercisable or non-forfeitable as of the date of the change in control. In addition, following such termination we would also pay a cash lump sum equal to the value of COBRA premiums for a period of eighteen (18) months following the termination that may be used by executive to pay for health insurance coverage that is substantially similar to the coverage executive and his eligible dependents received prior to the termination.

### ***Our Former Vice President and General Manager of Physiology, Cell and Molecular Instruments***

Our employment agreement with Mr. Sun provided for certain payments and benefits for Mr. Sun if Mr. Sun's employment is terminated because of death or disability, by the executive for good reason or by us without cause or in relating to a change-in-control. The events constituting cause, good reason and a change-in-control are specified in the employment agreement. Following any such termination, Mr. Sun was entitled to receive his accrued and unpaid base salary to the date of termination, accrued and unused vacation, and if to the extent required by law, any bonuses or other compensation actually earned for periods ended prior to the termination event.

With respect to termination because of death or disability, all equity awards of Mr. Sun would accelerate and fully vest and we would also pay a cash lump sum equal to the value of COBRA premiums for a period of one (1) year following the termination that may be used by Mr. Sun or his spouse and dependents, as applicable, to pay for health insurance coverage that is substantially similar to the coverage executive and his eligible dependents received prior to the termination.

In addition, in the case of a termination by Mr. Sun for good reason, or by us without cause, and subject to the terms of the agreement, (i) we would pay the executive an amount equal to 6 months of his base salary rate in equal installments over the period of one year from the date of termination in accordance with our payroll procedures and (ii) any stock options or other stock based grants which would otherwise vest within 12 months of the date of termination would become fully vested or non-forfeitable. Further, following any such termination, we would reasonably determine what annual bonus the executive would have received had he remained employed throughout the fiscal year in which the termination occurs, and if any such annual bonus would have been earned, we would pay the executive a pro rata portion of such determined annual bonus by a lump-sum cash payment. In addition, following the termination we would also pay a cash lump sum equal to the value of COBRA premiums for a period of six (6) months following the termination that may be used by executive to pay for health insurance coverage that is substantially similar to the coverage executive and his eligible dependents received prior to the termination. The executive's receipt of payment and benefits in connection with such a termination by the executive for good reason or by us without cause is subject to the executive signing a general release of claims, as provided in the agreement.

In addition, in the event that Mr. Sun was terminated within three months prior to, or twelve months after, a change in control (as described in his employment agreement), all stock options and other stock-based awards granted to Mr. Sun would immediately accelerate and become exercisable or non-forfeitable as of the date of the change in control. Mr. Sun would also receive a cash lump sum equal to 12 months of his base salary rate. In addition, following the termination we would also pay a cash lump sum equal to the value of COBRA premiums for a period of one (1) year following the termination that may be used by executive to pay for health insurance coverage that is substantially similar to the coverage executive and his eligible dependents received prior to the termination.

With respect to the stock options that we awarded to Messrs. Duchemin, Gagnon and Sun, as well as Ms. Unninayar, the respective option agreements provide for the full acceleration of the unvested portion of such options upon a change-in-control of our Company in the event that the option is not continued or assumed by our Company or the acquiring or successor entity or is not substituted for an option of the acquiring or successor entity on substantially equivalent terms to the option. With respect to the market condition RSUs granted to Messrs. Duchemin, and Sun, upon a change-in-control, such awards will accelerate as to Mr. Duchemin, and would have as to Mr. Sun, at the time of such event with the portion vesting determined based on the relative total shareholder return of the Company's Common Stock from the respective grant date to such change of control that is achieved.

Except for Mr. Gagnon as described below, the following tables reflect the estimated amount of payments and benefits that would have been provided by us to each of our current named executive officers upon the termination of such executive's employment with us as of December 31, 2018 in each of the following circumstances: termination by us without cause, termination by the executive for good reason, termination upon death, termination by us upon disability and termination by us without cause or by the executive for good reason following a change-in-control. The tables also reflect the estimated amount of payments and benefits that would have been provided by us to each such named executive officer upon a change-in-control of the Company occurring as of December 31, 2018. The types of events constituting cause, good reason, disability and a change-in-control may differ in some respects among the different arrangements providing for benefits to the named executive officers; however, for consistency in presentation, the tables below have grouped these arrangements together based on these concepts without regard for any such differences.

The amounts described in the tables below do not include payments and benefits to the extent they have been earned prior to the termination of employment or change-in-control or are provided on a non-discriminatory basis to salaried employees upon termination of employment. These include:

- Accrued salary, bonus and vacation pay;
- Distribution of plan balances under our 401(k) plan;
- Life insurance proceeds in the event of death; and
- Disability insurance payouts in the event of disability.

Jeffrey A. Duchemin

The following table shows the estimated payments upon termination or a change-in-control of the Company for Jeffrey A. Duchemin, our Chief Executive Officer.

| <b>Executive Benefits and Payments Upon Separation</b> | <b>Termination Without Cause or For Good Reason</b> | <b>Termination Upon Death</b> | <b>Termination Upon Disability</b> | <b>Termination After Change-in-Control (1)</b> | <b>Change-in-Control</b> |
|--|---|-------------------------------|------------------------------------|--|--------------------------|
| Cash Severance (2)                                     | \$ 1,203,120  | \$ -                          | \$ -                               | \$ 1,531,750                                   | \$ -                     |
| Vesting of Stock Options (3)                           | -   | -                             | -                                  | -  | -                        |
| Vesting of Restricted Stock Units (4)                  | 591,256   | 1,616,976                     | 1,616,976                          | 1,782,158                                      | 1,782,158                |
| Health Care Benefits (5)                               | 23,724  | 23,724                        | 23,724                             | 31,632   | -                        |
| <b>Total</b>   | <b>\$ 1,818,100</b>                                 | <b>\$ 1,640,700</b>           | <b>\$ 1,640,700</b>                | <b>\$ 3,345,540</b>                            | <b>\$ 1,782,158</b>      |

- (1) This column assumes a change-in-control occurs on December 31, 2018 followed immediately thereafter by a termination of the executive's employment on the same date by us without cause or by the executive for good reason.
- (2) Includes bonus amounts attributable to fiscal 2018 pursuant to the terms of Mr. Duchemin's employment agreement.
- (3) Based on the difference between the exercise price of unvested stock options that accelerate upon the relevant event and the closing price of our Common Stock on the NASDAQ Global Market on December 31, 2018, which was \$3.18.
- (4) Value pertains to time-based RSUs and market condition RSUs which would have vested in connection with any such termination events or change-in-control as of December 31, 2018.
- (5) Reflects the amount of future premiums, which would be paid on behalf of the named executive officer under our health and dental plans, based on the premiums in effect as of December 31, 2018.

Kam Unninayar

The following table shows the estimated payments upon termination or a change-in-control of the Company for Kam Unninayar, our Chief Financial Officer.

| <b>Executive Benefits and Payments Upon Separation</b> | <b>Termination Without Cause or For Good Reason</b> | <b>Termination Upon Death</b> | <b>Termination Upon Disability</b> | <b>Termination After Change-in-Control (1)</b> | <b>Change-in-Control</b> |
|--|---|-------------------------------|------------------------------------|--|--------------------------|
| Cash Severance   | \$ 340,000  | \$ -                          | \$ -                               | \$ 510,000                                     | \$ -                     |
| Vesting of Stock Options (2)                           | -   | -                             | -                                  | -  | -                        |
| Vesting of Restricted Stock Units (3)                  | 14,683  | 58,731                        | 58,731                             | 58,731   | 58,731                   |
| Health Care Benefits                                   | -   | -                             | -                                  | -  | -                        |
| <b>Total</b>   | <b>\$ 354,683</b>                                   | <b>\$ 58,731</b>              | <b>\$ 58,731</b>                   | <b>\$ 568,731</b>                              | <b>\$ 58,731</b>         |

- (1) This column assumes a change-in-control occurs on December 31, 2018 followed immediately thereafter by a termination of the executive's employment on the same date by us without cause or by the executive for good reason.
- (2) Based on the difference between the exercise price of unvested stock options that accelerate upon the relevant event and the closing price of our Common Stock on the NASDAQ Global Market on December 31, 2018, which was \$3.18.
- (3) Value pertains entirely to time-based RSUs.

Yong Sun

The following table shows the estimated payments upon termination or a change-in-control of the Company for Yong Sun, our former Vice President and General Manager of Physiology, Cell and Molecular Instruments.

| <b>Executive Benefits and Payments Upon Separation</b> | <b>Termination Without Cause or For Good Reason</b> | <b>Termination Upon Death</b> | <b>Termination Upon Disability</b> | <b>Termination After Change-in-Control (1)</b> | <b>Change-in-Control</b> |
|--|---|-------------------------------|------------------------------------|--|--------------------------|
| Cash Severance   | \$ 128,175  | \$ -                          | \$ -                               | \$ 256,350                                     | \$ -                     |
| Vesting of Stock Options (2)                           | -   | -                             | -                                  | -  | -                        |
| Vesting of Restricted Stock Units (3)                  | 189,098   | 487,036                       | 487,036                            | 526,389  | 526,389                  |
| Health Care Benefits                                   | -   | -                             | -                                  | -  | -                        |
| <b>Total</b>   | <b>\$ 317,273</b>                                   | <b>\$ 487,036</b>             | <b>\$ 487,036</b>                  | <b>\$ 782,739</b>                              | <b>\$ 526,389</b>        |

- (1) This column assumes a change-in-control occurs on December 31, 2018 followed immediately thereafter by a termination of the executive's employment on the same date by us without cause or by the executive for good reason.
- (2) Based on the difference between the exercise price of unvested stock options that accelerate upon the relevant event and the closing price of our Common Stock on the NASDAQ Global Market on December 31, 2018, which was \$3.18.
- (3) Value pertains to time-based RSUs and market condition RSUs which would have vested in connection with any such termination events or change-in-control as of December 31, 2018.

Robert E. Gagnon

In connection with Mr. Gagnon's resignation from the Company as Chief Financial Officer in August 2018, in accordance with the Employment Agreement between Mr. Gagnon and the Company, Mr. Gagnon received his accrued and unpaid base salary through his date of resignation and accrued and unused vacation.

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

The following table sets forth information regarding the beneficial ownership of our outstanding Common Stock as of April 1, 2019 by: (i) all persons known by us to own beneficially more than 5% of our Common Stock; (ii) each of our Directors and nominees for Director; (iii) each of the named executive officers; and (iv) all of our Directors and executive officers as a group.

The number of shares beneficially owned by each stockholder is determined under rules issued by the SEC and includes voting or investment power with respect to securities. Under these rules, beneficial ownership includes any shares as to which the individual or entity has sole or shared voting power or investment power and includes any shares as to which the individual or entity has the right to acquire beneficial ownership within 60 days after April 1, 2019 through the exercise of any warrant, stock option or other right. The inclusion in this Proxy Statement of such shares, however, does not constitute an admission that the named stockholder is a direct or indirect beneficial owner of such shares. Common stock subject to options currently exercisable, or exercisable within 60 days after April 1, 2019, are deemed outstanding for the purpose of computing the percentage ownership of the person holding those options, but are not deemed outstanding for computing the percentage ownership of any other person.

Unless otherwise indicated below, to our knowledge, all persons named in the table have sole voting and investment power with respect to their shares of Common Stock, except to the extent spouses share authority under community property laws.

| <b>Name and Address of Beneficial Owner</b>   | <b>Common Stock Beneficially Owned</b> |                    |
|---|--|--------------------|
|   | <b>Shares</b>                          | <b>Percent (2)</b> |
| <b>Greater Than 5% Holders</b>  |  |                    |
| First Light Asset Management, LLC<br>3300 Edinborough Way, Suite 201<br>Edina, MN 55435 | 7,009,586                              | 18.6%(3)           |
| BlackRock Inc.<br>55 East 52 <sup>nd</sup> Street<br>New York, NY 10055                 | 3,067,176                              | 8.1%(4)            |
| Chane Graziano<br>23610 Peppermill Court<br>Bonita Springs, FL 34134                    | 2,524,403                              | 6.7%(5)            |
| Dimensional Fund Advisors LP<br>6300 Bee Cave Road<br>Austin, TX 78746                  | 1,987,089                              | 5.3%(6)            |
| <b>Non-Employee Directors (1)</b>   |  |                    |
| John F. Kennedy   | 304,277                                | *(7)               |
| James Green   | 227,087                                | *(8)               |
| Bertrand Loy  | 194,650                                | *(9)               |
| Thomas Loewald  | 66,050                                 | *(10)              |
| Katherine Eade  | 65,075                                 | *(11)              |
| <b>Named Executive Officers (1)</b>   |  |                    |
| Jeffrey A. Duchemin   | 1,043,497                              | *(12)              |
| Yong Sun  | 196,613                                | *(13)              |
| Kam Unninayar   | 3,014                                  | *                  |
| All Executive Officers and Directors, as a group (8 persons)                            | 2,100,263                              | 5.4%(14)           |

(1) The address for all non-employee directors and named executive officers is c/o Harvard Bioscience, Inc., 84 October Hill Road, Holliston, Massachusetts 01746.

(2) Based on 37,687,608 shares outstanding on April 1, 2019 together with the applicable options and restricted stock units for each stockholder.

- (3) This information is based solely upon a Schedule 13G/A filed by First Light Asset Management, LLC with the Securities and Exchange Commission on February 14, 2019 reporting beneficial ownership as of December 31, 2018.
- (4) This information is based solely upon a Schedule 13G filed by BlackRock Inc. with the Securities and Exchange Commission on February 8, 2019 reporting beneficial ownership as of December 31, 2018.
- (5) This information is based solely upon ownership information provided to the Company by Chane Graziano.
- (6) This information is based solely upon a Schedule 13G filed by Dimensional Fund Advisors LP with the Securities and Exchange Commission on February 8, 2019 reporting beneficial ownership as of December 31, 2018.
- (7) Includes options to acquire 37,059 shares that are exercisable within 60 days after April 1, 2019 and 18,100 restricted stock units that will fully vest within 60 days after April 1, 2019.
- (8) Includes options to acquire 60,000 shares that are exercisable within 60 days after April 1, 2019, as well as 18,100 restricted stock units that will fully vest within 60 days after April 1, 2019.
- (9) Includes options to acquire 55,300 shares that are exercisable within 60 days after April 1, 2019, as well as 18,100 restricted stock units that will fully vest within 60 days after April 1, 2019.
- (10) Includes options to acquire 29,200 shares that are exercisable within 60 days after April 1, 2019, as well as 18,100 restricted stock units that will fully vest within 60 days after April 1, 2019.
- (11) Includes options to acquire 29,200 shares that are exercisable within 60 days after April 1, 2019, as well as 18,100 restricted stock units that will fully vest within 60 days after April 1, 2019.
- (12) Includes options to acquire 780,000 shares that are exercisable within 60 days after April 1, 2019.
- (13) Includes options to acquire 70,000 shares that are exercisable within 60 days after April 1, 2019.
- (14) Includes options to acquire 1,060,759 shares that are exercisable within 60 days after April 1, 2019, as well 90,500 restricted stock units that will fully vest within 60 days after April 1, 2019.

### EQUITY COMPENSATION PLAN INFORMATION

The following table sets forth information as of December 31, 2018 concerning the number of shares of Common Stock issuable under our existing equity compensation plans.

| Plan Category  | Number of Securities to be Issued Upon Exercise of Outstanding Options, Restricted Stock Units, Warrants and Rights | Weighted Average Exercise Price of Outstanding Options, Warrants, And Rights | Number of Securities Remaining Available For Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected In Column (a)) |
|--|---|--|---|
|  | (a)   | (b)  | (c)   |
| Equity compensation plans approved by security holders (1) | 3,307,438   | \$ 2.51  | 3,427,806(2)  |
| Equity compensation plans not approved by security holders | -   | -  | -   |
| <b>Total</b>   | <b>3,307,438</b>  | <b>\$ 2.51</b>   | <b>3,427,806</b>  |

(1) Consists of the Harvard Apparatus, Inc. 1996 Stock Option and Grant Plan; the Equity Plan; and the Harvard Bioscience, Inc. Employee Stock Purchase Plan (as amended, the "ESPP").

(2) Represents 3,268,568 shares available for future issuance under the Equity Plan and 159,238 shares available for future issuance under the ESPP.

## CEO PAY RATIO

Pursuant to applicable SEC rules, presented below is the ratio of the annual total compensation of our CEO to the median of the annual total compensation of our employees (excluding our CEO). The ratio presented below is a reasonable estimate calculated in a manner consistent with Item 402(u).

In identifying our median employee, we calculated the annual base pay of each employee for the 12 month period that ended on December 31, 2018. Base salary, including overtime pay, was calculated using internal payroll and records.

We selected the median employee from a group of 549 full-time, part-time, temporary and seasonal workers who were employed as of December 31, 2018. We did not include independent contractors or leased workers in our employee population for purposes of making our determination.

As disclosed in the Summary Compensation Table appearing on page 21, the 2018 annual total compensation as determined under Item 402 of Regulation S-K for our CEO was \$1,759,305. The 2018 annual total compensation as determined under Item 402 of Regulation S-K for our median employee was \$56,811. Based on the foregoing, our estimate of the ratio of our CEO's annual total compensation to our median employee's annual total compensation for fiscal year 2018 is 31 to 1. Given the different methodologies that various public companies will use to determine an estimate of their pay ratios, the estimated ratio reported above should not be used as a basis for comparison between companies.

## TRANSACTIONS WITH RELATED PERSONS

The Audit Committee charter sets forth the standards, policies and procedures that we follow for the review, approval or ratification of any related person transaction that we are required to report pursuant to Item 404(a) of Regulation S-K promulgated by the Securities and Exchange Commission. Under the Audit Committee charter, which is in writing, the Audit Committee must conduct an appropriate review of these related person transactions on an ongoing basis, and the approval of the Audit Committee is required for all such transactions. The Audit Committee relies on management to identify related person transactions and bring them to the attention of the Audit Committee. We do not have any formal policies and procedures regarding the identification by management of related person transactions.

During the 2018 fiscal year, we were not a participant in any related person transactions that required disclosure under this heading.

## SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Our executive officers, Directors and beneficial owners of more than 10% of our Common Stock are required under Section 16(a) of the Securities Exchange Act of 1934 to file reports of ownership and changes in ownership with the Securities and Exchange Commission. Copies of those reports must also be furnished to us.

Based solely on a review of the copies of the reports furnished to us, and written representations from certain reporting persons that no other reports were required, we believe that during the year ended December 31, 2018, the reporting persons complied on a timely basis with all Section 16(a) filing requirements applicable to them, other than (i) Mr. Sun, our former Vice President and General Manager of Physiology, Cell and Molecular Instruments, who had two late filings reporting one stock disposition transaction and one deferred stock award acquisition, (ii) Mr. Gagnon, our former Chief Financial Officer, who had two late filings reporting two stock disposition transactions, (iii) Mr. Duchemin, our current Chief Executive Officer and Director, who had one late filing reporting one stock disposition transaction, and (iv) Mr. Uveges, who had two late filings reporting one stock option exercise transaction and two stock disposition transactions.

## EXPENSES OF SOLICITATION

We will pay the entire expense of soliciting proxies for the Annual Meeting. In addition to solicitations by mail, certain of our Directors, officers and employees (who will receive no compensation for their services other than their regular compensation) may solicit proxies by telephone, telegram, personal interview, facsimile, e-mail or other means of electronic communication. Banks, brokerage houses, custodians, nominees and other fiduciaries have been requested to forward proxy materials to the beneficial owners of shares of Common Stock held of record by them as of the Record Date, and such custodians will be reimbursed for their expenses.

## SUBMISSION OF STOCKHOLDER PROPOSALS FOR THE 2019 ANNUAL MEETING

Stockholder proposals intended to be presented at our 2020 annual meeting of stockholders must be received by us on or before December 7, 2019 in order to be considered for inclusion in our proxy statement and form of proxy for that meeting. These proposals must also comply with the rules of the Securities and Exchange Commission governing the form and content of proposals in order to be included in our proxy statement and form of proxy and should be mailed to: Secretary, Harvard Bioscience, Inc., 84 October Hill Road, Holliston, Massachusetts 01746.

Our Bylaws provide that any stockholder of record wishing to have a stockholder proposal that is not included in our proxy statement considered at an annual meeting must provide written notice of such proposal and appropriate supporting documentation, as set forth in the Bylaws, to our Secretary at our principal executive office not less than 90 days or not more than 120 days prior to the first anniversary of the date of the preceding year's annual meeting. In the event, however, that the annual meeting is scheduled to be held more than 30 days before such anniversary date or more than 60 days after such anniversary date, notice must be delivered not earlier than 120 days prior to the date of such meeting and not later than the later of (i) 10 days following the date of public announcement of the date of such meeting or (ii) 90 days prior to the date of such meeting. Proxies solicited by the Board of Directors will confer discretionary voting authority on the proxy holders with respect to these proposals, subject to rules of the Securities and Exchange Commission governing the exercise of this authority.

## SUBMISSION OF SECURITYHOLDER RECOMMENDATIONS FOR DIRECTOR CANDIDATES

All securityholder recommendations for Director candidates must be submitted in writing to our Chief Financial Officer at 84 October Hill Road, Holliston, Massachusetts 01746, who will forward all recommendations to the Governance Committee. All securityholder recommendations for Director candidates must be submitted to us not less than 120 calendar days prior to the anniversary of the date on which our proxy statement was released to securityholders in connection with the previous year's annual meeting. All securityholder recommendations for Director candidates must include:

- the name and address of record of the securityholder,
- a representation that the securityholder is a record holder of our securities, or if the securityholder is not a record holder, evidence of ownership in accordance with Rule 14a-8(b)(2) of the Securities Exchange Act of 1934,
- the name, age, business and residential address, educational background, public company directorships, current principal occupation or employment, and principal occupation or employment for the preceding five full fiscal years of the proposed Director candidate,
- a description of the qualifications and background of the proposed director candidate which addresses the minimum qualifications and other criteria for Board membership approved by the Board of Directors and set forth in the Governance Committee Charter,
- a description of all arrangements or understandings between the securityholder and the proposed Director candidate,
- the consent of the proposed Director candidate to be named in the proxy statement, to have all required information regarding such Director candidate included in the proxy statement, and to serve as a Director if elected, and
- any other information regarding the proposed Director candidate that is required to be included in a proxy statement filed pursuant to the rules of the Securities and Exchange Commission.



## STOCKHOLDER COMMUNICATIONS WITH THE BOARD OF DIRECTORS

Stockholders wishing to communicate with the Board of Directors may do so by sending a written communication to any Director at the following address: Harvard Bioscience, Inc., 84 October Hill Road, Holliston, Massachusetts 01746. The mailing envelope should contain a notation indicating that the enclosed letter is a "Stockholder-Board Communication". All such letters should clearly state whether the intended recipients are all members of the Board of Directors or certain specified individual Directors. Our Secretary or his or her designee will make a copy of any stockholder communication so received and promptly forward it to the Director or Directors to whom it is addressed.

### INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The following table presents fees for professional services provided by Grant Thornton LLP and KPMG LLP for the audits of the Company's annual consolidated financial statements for the last two fiscal years, in each of the following categories as set forth in the table below.

|                | 2018                   |            | 2017                   |              |
|----------------|------------------------|------------|------------------------|--------------|
|                | Grant Thornton<br>Fees | KPMG Fees  | Grant Thornton<br>Fees | Total Fees   |
| Audit Fees (1) | \$ 1,308,776           | \$ 205,244 | \$ 1,084,535           | \$ 1,289,779 |
| Tax Fees (2)   | 162,177                | -          | 136,028                | 136,028      |
| Other (3)      | -                      | 216,534    | 104,580                | 321,114      |
| Total Fees     | \$ 1,470,953           | \$ 421,778 | \$ 1,325,143           | \$ 1,746,921 |

- (1) Audit Fees included fees billed or expected to be billed for professional services associated with the annual audit of our consolidated financial statements and internal controls over financial reporting and the reviews of our quarterly reports on Form 10-Q, and fees related to the registration statements on Form S-3 and S-8.
- (2) Tax Fees included domestic and international tax compliance, tax advice and tax planning.
- (3) All Other Fees consist of fees for products and services other than the services reported above.

All of the services performed in the year ended December 31, 2018 were pre-approved by the Audit Committee. It is the Audit Committee's policy to pre-approve all audit and permitted non-audit services to be provided to us by the independent registered public accounting firm. The Audit Committee's authority to pre-approve non-audit services may be delegated to one or more members of the Audit Committee, who shall present all decisions to pre-approve an activity to the full Audit Committee at its first meeting following such decision. The Audit Committee has delegated this pre-approval authority to its Chairman (currently John Kennedy) for non-audit services with aggregate fees of \$30,000 or less. In addition, the Audit Committee has considered whether the provision of the non-audit services above is compatible with maintaining the independent registered public accounting firm's independence.

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

The Audit Committee of the Board of Directors has appointed Grant Thornton LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2019. Grant Thornton LLP has served as our independent registered public accounting firm since 2017. The Audit Committee is responsible for the appointment, retention, termination, compensation and oversight of the work of our independent registered public accounting firm for the purpose of preparing or issuing an audit report or related work. To execute this responsibility, the Audit Committee engages in a comprehensive annual evaluation of the independent auditor's qualifications, performance and independence and whether the independent registered public accounting firm should be rotated, and considers the advisability and potential impact of selecting a different independent registered public accounting firm.

Although ratification of the appointment of our independent registered public accounting firm is not required by our Bylaws or otherwise, the Board is submitting the appointment of Grant Thornton LLP to our stockholders for ratification because we value the views of our stockholders. In the event that our stockholders fail to ratify the appointment of Grant Thornton LLP, the Audit Committee will reconsider the appointment of Grant Thornton LLP. Even if the appointment is ratified, the ratification is not binding and the Audit Committee may in its discretion select a different independent registered public accounting firm at any time during the year if it determines that such a change would be in the best interests of the Company and our stockholders.

A representative of Grant Thornton LLP is expected to be present at the Annual Meeting. He or she will have an opportunity to make a statement, if he or she desires to do so, and will be available to respond to appropriate questions.

**Vote Required**

The affirmative vote of a majority of the votes cast by holders of shares of Common Stock present or represented by proxy and entitled to vote on the matter at the Annual Meeting is required for the ratification of the appointment of Grant Thornton LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2019.

**OUR BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS A VOTE “FOR” THE RATIFICATION OF THE APPOINTMENT OF GRANT THORNTON LLP AS OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING DECEMBER 31, 2019. PROPERLY AUTHORIZED PROXIES SOLICITED BY THE BOARD OF DIRECTORS WILL BE VOTED “FOR” THE RATIFICATION OF THE APPOINTMENT OF GRANT THORNTON LLP UNLESS INSTRUCTIONS TO THE CONTRARY ARE GIVEN.**

**PROPOSAL 3  
APPROVAL OF AMENDMENT OF THE HARVARD BIOSCIENCE, INC. EMPLOYEE STOCK PURCHASE PLAN**

The Board of Directors is requesting that our stockholders vote in favor of amending the Company’s Employee Stock Purchase Plan (as amended, “ESPP”) to add an additional 350,000 shares under the ESPP to increase the number of authorized shares available for issuance thereunder (the “Amendment”). The primary purpose of the ESPP is to provide employees with the opportunity to acquire an ownership stake in the Company through participation in a payroll deduction-based employee stock purchase plan. While the Company would typically be seeking an increase in the ESPP in another year or two, approval of the Amendment is being sought now due to the increase in the number of employees due to our acquisition of Data Sciences International, Inc. in 2018. The Company believes that by increasing the total number of authorized shares for issuance under the ESPP, it can retain the best employees with a market-competitive benefit. The following summary of the ESPP is qualified in its entirety by reference to the actual text of the ESPP, as set forth on Appendix A. Stockholders are urged to read the actual text of the ESPP, as proposed to be amended, and form of the Amendment, which are respectively set forth as Appendix A and Appendix B to this Proxy Statement and incorporated herein by reference.

|   |           |
|---|-----------|
| Total Shares Authorized to Date Under ESPP                          | 1,050,000 |
| Shares Issued Through December 31, 2018 Under ESPP                  | 890,762   |
| Estimated Shares Available Under the ESPP                           | 159,238   |
| Additional Shares Requested Under this Amendment                    | 350,000   |
| Estimated Total Shares Available for Issuance from 2019             | 509,238   |
| Total Authorization of Shares under the ESPP, as amended, from 2018 | 1,400,000 |

### ***Background on ESPP***

The ESPP was adopted by the Board of Directors on October 26, 2000 and was approved by the Company's stockholders in November, 2000. An amendment to add an additional 250,000 shares of Common Stock to the ESPP was approved by our Board of Directors on February 26, 2013 and our stockholders on May 23, 2013. An amendment to add an additional 300,000 shares of Common Stock to the ESPP was approved by our Board of Directors on March 31, 2017 and our stockholders on May 18, 2017. The Amendment as approved by our Board of Directors on February 26, 2019 is and subject to the approval of our stockholders as provided in this Proposal No. 3. As of December 31, 2018, approximately 368 employees were eligible to participate in the ESPP.

Under the ESPP, participating employees can authorize the Company to withhold a portion of their base pay during consecutive six-month payment periods for the purchase of shares of the Company's Common Stock. At the conclusion of the period, participating employees can purchase shares of the Company's Common Stock at 85% of the lower of the fair market value of the Company's Common Stock at the beginning or end of the period. Shares are issued under the plan for the six-month periods ending June 30 and December 31.

Employees purchased 89,308 shares in 2018 for \$243,872 under the ESPP.

### ***Key Terms***

#### *Enrollment and Participation*

The first offering under the ESPP commenced on January 1, 2001 and ended on June 30, 2001. Subsequent offering periods commenced on each January 1 and July 1 thereafter and will have a duration of six months. Generally, all employees who are customarily employed for more than 20 hours per week as of the first day of the applicable offering period are eligible to participate in the ESPP. Any employee who owns or is deemed to own shares of stock representing in excess of 5% of the combined voting power of all classes of the Company's stock may not participate in the ESPP.

During each offering, an employee may purchase shares under the ESPP by authorizing payroll deductions of up to 10% of his or her base pay during the offering period. Unless the employee has previously withdrawn from the offering, his or her accumulated payroll deductions will be used to purchase shares of the Company's Common Stock on the last business day of the offering period at a price equal to 85% of the fair market value of the Company's Common Stock on the first or last day of the offering period, whichever is lower. In accordance with applicable tax rules, an employee may purchase no more than \$25,000 worth of the Company's Common Stock in any calendar year under the ESPP.

#### *Transferability*

The rights under the ESPP are not transferable by participating employee other than by will or the laws of descent and distribution, and are exercisable during the employee's lifetime only by the employee.

#### *Withdrawal*

An employee may withdraw from participation in the ESPP by delivering a written notice of withdrawal to his or her designated payroll personnel. The employee's withdrawal will be effective as of the next business day. Following an employee's withdrawal, the Company will promptly refund to him or her, the entire account balance under the ESPP. Partial withdrawals are not permitted.

#### *Administration*

The ESPP is administered by the Company's Compensation Committee.

### *Amendment and Termination of the Plan*

The Board of Directors may at any time, and from time to time, amend the ESPP in any respect, except that without the approval, within 12 months of such Board action, by the stockholders, no amendment shall be made increasing the number of shares approved for the ESPP or making any other change that would require stockholder approval in order for the ESPP to qualify as a “employee stock purchase plan” under Section 423(b) of the Internal Revenue Code of 1986.

The Board of Directors may also terminate the ESPP at any time.

### ***U.S. Federal Tax Consequences***

The following summary is intended only as a general guide as to the United States federal income tax consequences under current law of participation in the ESPP and does not attempt to describe all possible federal or other tax consequences of such participation. Furthermore, the tax consequences are complex and subject to change, and a taxpayer’s particular situation may be such that some variation of the described rules is applicable. This summary assumes that the exercise of a purchase right under the ESPP constitutes an exercise pursuant to an “employee stock purchase plan” under Section 423(b) of the Internal Revenue Code of 1986.

*Purchase Rights.* Generally, there are no tax consequences to an employee of either becoming a participant in the ESPP or purchasing shares under the ESPP. The tax consequences of a disposition of shares vary depending on the period such stock is held before its disposition. If a participant disposes of shares within two years of the offering date, or within one year after the transfer of the purchased shares to the ESPP participant (a “disqualifying disposition”), the participant recognizes ordinary income in the year of such disqualifying disposition in an amount equal to the gain on the sale, i.e. the excess of the amount received on the shares over the purchase price. ESPP stock issued at a discount is also taxed as ordinary income on the disposition of the stock.

If the participant disposes of shares more than two years after the granting of the option or more than one year after the transfer of the purchased shares to the participant, or the participant dies while holding shares (whether or not within such periods) the participant recognizes ordinary income in the year of disposition or death in an amount equal to the lesser of (1) the excess of the fair market value of the shares on the date of disposition or death over the purchase price, or (2) the excess of the fair market value of the shares on the offering date over the purchase price. For this purpose, if the purchase price cannot be determined at the date of the option grant, then the purchase price is determined as though the option were exercised when granted. Any additional gain recognized by the participant on the disposition of the shares is a capital gain. If the fair market value of the shares on the date of disposition is less than the purchase price (as so determined), there is no ordinary income and the loss recognized is a capital loss.

If the participant disposes of the shares in a disqualifying disposition, the Company is entitled to a deduction equal to the amount of ordinary income recognized by the participant as a result, subject to the Section 162(m) Deduction Limit discussed below. In all other cases, no deduction is allowed the Company.

*Section 162(m) Deduction Limit.* Section 162(m) of the Internal Revenue Code limits the deduction allowed to a publicly-held employer for the applicable remuneration of a “covered employee” to the extent that the amount of such remuneration for the taxable year for such employee exceeds \$1 million. Employees covered by this limitation are each individual who was at any time during the taxable year either the principal executive officer or the principal financial officer, among the three highest compensated officers for the taxable year (other than the principal executive officer or principal financial officer), or was a “covered employee” for such employer (or any predecessor) in any preceding taxable year beginning after 2016 (each a “Covered Employee”). Income to a Covered Employee resulting from the disqualifying disposition of shares acquired upon exercise of purchase rights under the ESPP is subject to the Deduction Limit under Section 162(m) of the Code.

### New Plan Benefits

No purchases have been made with respect to the additional shares to be reserved for issuance under the ESPP. The number of shares that may be purchased by our executive officers, non-employee directors and non-executive officers under the ESPP is not determinable at this time. The following table provides information with respect to the number of shares purchased under the ESPP for the fiscal year ended December 31, 2018 by our executive officers, non-executive officer directors and employees.

| <b>Name and Position</b>   | <b>Value</b>      | <b>Number of shares purchased</b> |
|--|-------------------|-----------------------------------|
| Jeffrey Duchemin - President and Chief Executive Officer                               | \$ -              | -                                 |
| Kam Unninayar – Chief Financial Officer*   | -                 | -                                 |
| Robert Gagnon – Former Chief Financial Officer   | -                 | -                                 |
| Yong Sun – Former VP and General Manager of Physiology, Cell and Molecular Instruments | -                 | -                                 |
| All executive officers as a group  | -                 | -                                 |
| All non-executive officer directors  | -                 | -                                 |
| Employees as a group (excluding executive officers)                                    | \$ 243,872        | 89,308                            |
| Totals   | <u>\$ 243,872</u> | <u>89,308</u>                     |

\* Ms. Unninayar commenced employment on November 26, 2018 and thus was not eligible to make purchases under the ESPP during fiscal 2018.

Reference is hereby made to the “Equity Compensation Plan Information” table in this Proxy Statement which is incorporated by reference into this Proposal 3 and provides certain details on our current plans.

### Recommendation

**OUR BOARD OF DIRECTORS RECOMMENDS THAT YOU VOTE “FOR” APPROVAL OF THE AMENDMENT OF THE EMPLOYEE STOCK PURCHASE PLAN.**

**PROPOSAL 4**  
**ADVISORY VOTE ON THE COMPENSATION OF**  
**OUR NAMED EXECUTIVE OFFICERS**  
**(“SAY-ON-PAY VOTE”)**

**Background**

The Securities and Exchange Commission adopted final rules on January 26, 2011 to implement Section 951 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (the “Final Rules”) requiring public companies to provide stockholders with periodic advisory votes on executive compensation (“Say-on-Pay Proposal”).

In accordance with the Final Rules, an advisory vote on the frequency of stockholders votes on executive compensation was conducted in connection with our 2018 annual meeting of stockholders. The Board recommended, and our stockholders agreed, that the advisory vote on executive compensation be held on an annual basis. Upon review of the stockholder voting results concerning that proposal, our Board of Directors and Compensation Committee determined that we will hold an annual advisory vote on executive compensation. Accordingly, pursuant to Section 14A of the Securities Exchange Act of 1934, we are seeking an advisory vote from our stockholders to approve our named executive officer compensation, as set forth below. We and the Board of Directors welcome our stockholders’ views on this subject, and will carefully consider the outcome of this vote consistent with the best interests of all stockholders. As an advisory vote, however, the outcome is not binding on us or the Board of Directors.

As described in detail under the heading “Compensation Discussion and Analysis,” our executive compensation program is designed to attract and retain high performing and experienced executives; motivate and reward executives whose knowledge, skills and performance are critical to our success; align the interests of our executives and stockholders by motivating executives to increase stockholder value and rewarding executives when stockholder value increases; foster a shared commitment among executives by coordinating their goals; and motivate our executives to manage our business to meet our short and long-term objectives, and reward them for meeting these objectives. The elements of executive compensation include base salary, annual cash incentive bonuses, employment agreements, long-term equity incentive compensation and broad-based benefits programs. Please read the “Compensation Discussion and Analysis” for additional details about our executive compensation programs, including information about the Fiscal 2018 compensation of our named executive officers. Specifically, we are seeking a vote on the following resolution:

RESOLVED, that the stockholders approve, on a non-binding advisory basis, the compensation of our named executive officers as disclosed in this proxy statement pursuant to the compensation disclosure rules of the Securities and Exchange Commission, including the Compensation Discussion and Analysis, the compensation tables and related narrative discussion.

**Recommendation**

**OUR BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS A VOTE “FOR” THE RESOLUTION ABOVE TO APPROVE EXECUTIVE COMPENSATION.**

**MULTIPLE STOCKHOLDERS SHARING THE SAME ADDRESS**

Owners of Common Stock in street name may receive a notice from their broker or bank stating that only one notice of internet availability of proxy materials, annual report or proxy statement will be delivered to multiple stockholders sharing an address. This practice, known as “householding,” is designed to reduce printing and postage costs. However, if any stockholder residing at such an address wishes to receive a separate notice of internet availability of proxy materials, annual report or proxy statement, we will promptly deliver a separate copy to any stockholder upon written or oral request to our investor relations department at Harvard Bioscience, Inc., 84 October Hill Road, Holliston, Massachusetts 01746-1371 or by telephone at 508-893-8066 or by e-mail at [info@harvardbioscience.com](mailto:info@harvardbioscience.com). In addition, any stockholder who receives multiple copies at the same address can request delivery of a single copy by notifying our investor relations department pursuant to the contact information provided above.

## OTHER MATTERS

The Board of Directors does not know of any matters, other than those described in this Proxy Statement that will be presented for action at the Annual Meeting. If other matters are duly presented, proxies will be voted in accordance with the best judgment of the proxy holders.

**YOUR VOTE IS IMPORTANT. WHETHER OR NOT YOU PLAN TO ATTEND THE ANNUAL MEETING, PLEASE CAST YOUR VOTE ONLINE, BY TELEPHONE OR BY COMPLETING, DATING, SIGNING AND PROMPTLY RETURNING YOUR PROXY CARD OR VOTING INSTRUCTIONS CARD IN THE POSTAGE-PAID ENVELOPE (WHICH WILL BE PROVIDED TO THOSE STOCKHOLDERS WHO REQUEST PAPER COPIES OF THESE MATERIALS BY MAIL) BEFORE THE ANNUAL MEETING SO THAT YOUR SHARES ARE REPRESENTED AT THE ANNUAL MEETING.**

**THIS PROXY STATEMENT IS ACCOMPANIED BY THE COMPANY'S ANNUAL REPORT TO STOCKHOLDERS FOR THE YEAR ENDED DECEMBER 31, 2018. THE COMPANY WILL FURNISH, WITHOUT CHARGE, A COPY OF ITS ANNUAL REPORT ON FORM 10-K FOR THE YEAR ENDED DECEMBER 31, 2018 AND ANY EXHIBITS THERETO TO ANY STOCKHOLDER, UPON WRITTEN REQUEST TO HARVARD BIOSCIENCE, INC., 84 OCTOBER HILL ROAD, HOLLISTON, MASSACHUSETTS 01746-1371. A LIST OF STOCKHOLDERS ENTITLED TO VOTE AT THE ANNUAL MEETING WILL BE AVAILABLE FOR INSPECTION BY STOCKHOLDERS DURING REGULAR BUSINESS HOURS AT OUR OFFICES AND THE OFFICES OF OUR TRANSFER AGENT DURING THE TEN DAYS PRIOR TO THE ANNUAL MEETING AS WELL AS AT THE ANNUAL MEETING.**

HARVARD BIOSCIENCE, INC.  
EMPLOYEE STOCK PURCHASE PLAN

(As Amended)

The purpose of the Harvard Bioscience, Inc. Employee Stock Purchase Plan ("the Plan") is to provide eligible employees of Harvard Bioscience, Inc. (the "Company") and certain of its subsidiaries with opportunities to purchase shares of the Company's common stock, par value \$.01 per share (the "Common Stock"). **One Million Four Hundred Thousand (1,400,000)** ~~One Million Fifty Thousand (1,050,000)~~ shares of Common Stock in the aggregate have been approved and reserved for this purpose. The Plan is intended to constitute an "employee stock purchase plan" within the meaning of Section 423(b) of the Internal Revenue Code of 1986, as amended (the "Code"), and shall be interpreted in accordance with that intent.

1. ADMINISTRATION. The Plan will be administered by the person or persons (the "Administrator") appointed by the Company's Board of Directors (the "Board") for such purpose. The Administrator has authority to make rules and regulations for the administration of the Plan, and its interpretations and decisions with regard thereto shall be final and conclusive. No member of the Board or individual exercising administrative authority with respect to the Plan shall be liable for any action or determination made in good faith with respect to the Plan or any option granted hereunder.

2. OFFERINGS. The Company will make one or more offerings to eligible employees to purchase Common Stock under the Plan ("Offerings"). Unless otherwise determined by the Administrator, the initial Offering will begin on January 1, 2001 and will end on June 30, 2001 (the "Initial Offering"). Thereafter, unless otherwise determined by the Administrator, an Offering will begin on the first business day occurring on or after each January 1 and July 1 and will end on the last business day occurring on or before the following June 30 and December 31, respectively. The Administrator may, in its discretion, designate a different period for any Offering, provided that no Offering shall exceed six months in duration or overlap any other Offering.

3. ELIGIBILITY. All employees of the Company (including employees who are also directors of the Company) and all employees of each Designated Subsidiary (as defined in Section 11) are eligible to participate in any one or more of the Offerings under the Plan, provided that as of the first day of the applicable Offering (the "Offering Date") they are customarily employed by the Company or a Designated Subsidiary for more than 20 hours a week.

4. PARTICIPATION. An employee eligible on any Offering Date may participate in such Offering by submitting an enrollment form to his appropriate payroll location at least 15 business days before the Offering Date (or by such other deadline as shall be established for the Offering). The form will (a) state a whole percentage to be deducted from his Compensation (as defined in Section 11) per pay period, (b) authorize the purchase of Common Stock for him in each Offering in accordance with the terms of the Plan and (c) specify the exact name or names in which shares of Common Stock purchased for him are to be issued pursuant to Section 10. An employee who does not enroll in accordance with these procedures will be deemed to have waived his right to participate. Unless an employee files a new enrollment form or withdraws from the Plan, his deductions and purchases will continue at the same percentage of Compensation for future Offerings, provided he remains eligible.



Notwithstanding the foregoing, participation in the Plan will neither be permitted nor be denied contrary to the requirements of the Code.

5. EMPLOYEE CONTRIBUTIONS. Each eligible employee may authorize payroll deductions at a minimum of one percent (1%) up to a maximum of ten percent (10%) of his Compensation for each pay period. The Company will maintain book accounts showing the amount of payroll deductions made by each participating employee for each Offering. No interest will accrue or be paid on payroll deductions.

6. DEDUCTION CHANGES. Except as may be determined by the Administrator in advance of an Offering, an employee may not increase or decrease his payroll deduction during any Offering, but may increase or decrease his payroll deduction with respect to the next Offering (subject to the limitations of Section 5) by filing a new enrollment form at least 15 business days before the next Offering Date (or by such other deadline as shall be established for the Offering). The Administrator may, in advance of any Offering, establish rules permitting an employee to increase, decrease or terminate his payroll deduction during an Offering.

7. WITHDRAWAL. An employee may withdraw from participation in the Plan by delivering a written notice of withdrawal to his appropriate payroll location. The employee's withdrawal will be effective as of the next business day. Following an employee's withdrawal, the Company will promptly refund to him his entire account balance under the Plan (after payment for any Common Stock purchased before the effective date of withdrawal). Partial withdrawals are not permitted. The employee may not begin participation again during the remainder of the Offering, but may enroll in a subsequent Offering in accordance with Section 4.

8. GRANT OF OPTIONS. On each Offering Date, the Company will grant to each eligible employee who is then a participant in the Plan an option ("Option") to purchase on the last day of such Offering (the "Exercise Date"), at the Option Price hereinafter provided for, (a) a number of shares of Common Stock, which number shall not exceed the number of whole shares which is less than or equal to \$12,500 divided by the closing price per share of Common Stock on the Offering Date, or (b) such other lesser maximum number of shares as shall have been established by the Administrator in advance of the Offering. The purchase price for each share purchased under each Option (the "Option Price") will be 85% of the Fair Market Value of the Common Stock on the Offering Date or the Exercise Date, whichever is less.

Notwithstanding the foregoing, no employee may be granted an option hereunder if such employee, immediately after the option was granted, would be treated as owning stock, possessing five percent (5%) or more of the total combined voting power or value of all classes of stock of the Company or any Parent or Subsidiary (as defined in Section 11). For purposes of the preceding sentence, the attribution rules of Section 424(d) of the Code shall apply in determining the stock ownership of an employee, and all stock which the employee has a contractual right to purchase shall be treated as stock owned by the employee. In addition, no employee may be granted an Option which permits his rights to purchase stock under the Plan, and any other employee stock purchase plan of the Company and its Parents and Subsidiaries, to accrue at a rate which exceeds \$25,000 of the fair market value of such stock (determined on the option grant date or dates) for each calendar year in which the Option is outstanding at any time. The purpose of the limitation in the preceding sentence is to comply with Section 423(b)(8) of the Code.

9. EXERCISE OF OPTION AND PURCHASE OF SHARES. Each employee who continues to be a participant in the Plan on the Exercise Date shall be deemed to have exercised his Option on such date and shall acquire from the Company such number of whole shares of Common Stock reserved for the purpose of the Plan as his accumulated payroll deductions on such date will purchase at the Option Price, subject to any other limitations contained in the Plan. Any amount remaining in an employee's account at the end of an Offering solely by reason of the inability to purchase a fractional share will be carried forward to the next Offering; any other balance remaining in an employee's account at the end of an Offering will be refunded to the employee promptly.

10. ISSUANCE OF CERTIFICATES. Certificates representing shares of Common Stock purchased under the Plan may be issued only in the name of the employee, in the name of the employee and another person of legal age as joint tenants with rights of survivorship, or in the name of a broker authorized by the employee to be his, or their, nominee for such purpose.

11. DEFINITIONS.

The term "Compensation" means the amount of an employee's base pay from the Company prior to any reduction for deferrals made under either Code Section 125 or 401(k), including commissions, but excluding overtime, incentive or bonus awards, allowances and reimbursements for expenses such as relocation allowances or travel expenses, income or gains on the exercise of Company stock options, and similar extraordinary items.

The term "Designated Subsidiary" means any present or future Subsidiary (as defined below) that has been designated by the Board to participate in the Plan. The Board may so designate any Subsidiary, or revoke any such designation, at any time and from time to time, either before or after the Plan is approved by the stockholders.

The term "Fair Market Value of the Common Stock" on any given date means the fair market value of the Common Stock determined in good faith by the Administrator; PROVIDED, HOWEVER, that if the Common Stock is admitted to quotation on the National Association of Securities Dealers Automated Quotation System ("Nasdaq"), Nasdaq National System or national securities exchange, the determination shall be made by reference to market quotations. If there are no market quotations for such date, the determination shall be made by reference to the last date preceding such date for which there are market quotations.

The term "Initial Public Offering" means the consummation of the first fully underwritten, firm commitment public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, other than on Forms S-4 or S-8 or their then equivalents, covering the offer and sale by the Company of its Common Stock.

The term "Parent" means a "parent corporation" with respect to the Company, as defined in Section 424(e) of the Code.

The term "Subsidiary" means a "subsidiary corporation" with respect to the Company, as defined in Section 424(f) of the Code.

12. RIGHTS ON TERMINATION OF EMPLOYMENT. If a participating employee's employment terminates for any reason before the Exercise Date for any Offering, no payroll deduction will be taken from any pay due and owing to the employee and the balance in his account will be paid to him or, in the case of his death, to his designated beneficiary as if he had withdrawn from the Plan under Section 7. An employee will be deemed to have terminated employment, for this purpose, if the corporation that employs him, having been a Designated Subsidiary, ceases to be a Subsidiary, or if the employee is transferred to any corporation other than the Company or a Designated Subsidiary.

13. SPECIAL RULES. Notwithstanding anything herein to the contrary, the Administrator may adopt special rules applicable to the employees of a particular Designated Subsidiary, whenever the Administrator determines that such rules are necessary or appropriate for the implementation of the Plan in a jurisdiction where such Designated Subsidiary has employees; provided that such rules are consistent with the requirements of Section 423(b) of the Code. Such special rules may include (by way of example, but not by way of limitation) the establishment of a method for employees of a given Designated Subsidiary to fund the purchase of shares other than by payroll deduction, if the payroll deduction method is prohibited by local law or is otherwise impracticable. Any special rules established pursuant to this Section 13 shall, to the extent possible, result in the employees subject to such rules having substantially the same rights as other participants in the Plan.

14. OPTIONEES NOT STOCKHOLDERS. Neither the granting of an Option to an employee nor the deductions from his pay shall constitute such employee a holder of the shares of Common Stock covered by an Option under the Plan until such shares have been purchased by and issued to him.

15. RIGHTS NOT TRANSFERABLE. Rights under the Plan are not transferable by a participating employee other than by will or the laws of descent and distribution, and are exercisable during the employee's lifetime only by the employee.

16. APPLICATION OF FUNDS. All funds received or held by the Company under the Plan may be combined with other corporate funds and may be used for any corporate purpose.

17. ADJUSTMENT IN CASE OF CHANGES AFFECTING COMMON STOCK. In the event of a subdivision of outstanding shares of Common Stock, or the payment of a dividend in Common Stock, the number of shares approved for the Plan, and the share limitation set forth in Section 8, shall be increased proportionately, and such other adjustments shall be made as may be deemed equitable by the Administrator. In the event of any other change affecting the Common Stock, such adjustment shall be made as may be deemed equitable by the Administrator to give proper effect to such event.

18. AMENDMENT OF THE PLAN. The Board may at any time, and from time to time, amend the Plan in any respect, except that without the approval, within 12 months of such Board action, by the stockholders, no amendment shall be made increasing the number of shares approved for the Plan or making any other change that would require stockholder approval in order for the Plan, as amended, to qualify as an "employee stock purchase plan" under Section 423(b) of the Code.

19. INSUFFICIENT SHARES. If the total number of shares of Common Stock that would otherwise be purchased on any Exercise Date plus the number of shares purchased under previous Offerings under the Plan exceeds the maximum number of shares issuable under the Plan, the shares then available shall be apportioned among participants in proportion to the amount of payroll deductions accumulated on behalf of each participant that would otherwise be used to purchase Common Stock on such Exercise Date.

20. TERMINATION OF THE PLAN. The Plan may be terminated at any time by the Board. Upon termination of the Plan, all amounts in the accounts of participating employees shall be promptly refunded.

21. GOVERNMENTAL REGULATIONS. The Company's obligation to sell and deliver Common Stock under the Plan is subject to obtaining all governmental approvals required in connection with the authorization, issuance, or sale of such stock.

The Plan shall be governed by Delaware law except to the extent that such law is preempted by federal law.

22. ISSUANCE OF SHARES. Shares may be issued upon exercise of an Option from authorized but unissued Common Stock, from shares held in the treasury of the Company, or from any other proper source.

23. TAX WITHHOLDING. Participation in the Plan is subject to any minimum required tax withholding on income of the participant in connection with the Plan. Each employee agrees, by entering the Plan, that the Company and its Subsidiaries shall have the right to deduct any such taxes from any payment of any kind otherwise due to the employee, including shares issuable under the Plan.

24. NOTIFICATION UPON SALE OF SHARES. Each employee agrees, by entering the Plan, to give the Company prompt notice of any disposition of shares purchased under the Plan where such disposition occurs within two years after the date of grant of the Option pursuant to which such shares were purchased.

25. EFFECTIVE DATE AND APPROVAL OF SHAREHOLDERS. The Plan shall take effect on the first day of the Company's Initial Public Offering, subject to approval by the holders of a majority of the votes cast at a meeting of stockholders at which a quorum is present or by written consent of the stockholders.

DATE AMENDMENT NO. 1 TO PLAN APPROVED BY BOARD OF DIRECTORS: AUGUST 2, 2011.

DATE AMENDMENT NO. 2 TO PLAN APPROVED BY BOARD OF DIRECTORS: FEBRUARY 26, 2013.

DATE AMENDMENT NO. 2 TO PLAN APPROVED BY STOCKHOLDERS: MAY 23, 2013.

DATE AMENDMENT NO. 3 TO PLAN APPROVED BY BOARD OF DIRECTORS: MARCH 31, 2017.

DATE AMENDMENT NO. 3 TO PLAN APPROVED BY STOCKHOLDERS: MAY 18, 2017.

**DATE AMENDMENT NO. 4 TO PLAN APPROVED BY BOARD OF DIRECTORS: FEBRUARY 26, 2019.**

**DATE AMENDMENT NO. 4 TO PLAN APPROVED BY STOCKHOLDERS: MAY 16, 2019.**

**AMENDMENT NO. 4 TO HARVARD BIOSCIENCE, INC. EMPLOYEE STOCK PURCHASE PLAN**

This Amendment No. 4 to the Harvard Bioscience, Inc. Employee Stock Purchase Plan (the "Plan") is effective as of May 16, 2019 (the "Effective Date").

In accordance with Section 18 of the Plan, as approved by the stockholders of Harvard Bioscience, Inc. on the Effective Date, in order to increase the number of shares of common stock reserved for issuance under the Plan to One Million Four Hundred Thousand (1,400,000), the Plan is hereby amended as follows, effective as of the Effective Date:

1. The reference to "One Million Fifty Thousand (1,050,000)" in the initial paragraph of the Plan is hereby deleted and replaced with "One Million Four Hundred Thousand (1,400,000)".
2. The following is added to the end of the Plan:

"DATE AMENDMENT NO. 4 TO PLAN APPROVED BY BOARD OF DIRECTORS: FEBRUARY 26, 2019.  
DATE AMENDMENT NO. 4 TO PLAN APPROVED BY STOCKHOLDERS: MAY 16, 2019."

3. Except as expressly amended hereby, the Plan shall remain in full force and effect.

IN WITNESS WHEREOF, the Harvard Bioscience, Inc. has duly executed this amendment to be effective as the date first above written.

**HARVARD BIOSCIENCE, INC.**

By: \_\_\_\_\_  
Name: Kamalam Unninayar  
Title: Chief Financial Officer

**HARVARD BIOSCIENCE, INC.**  
**84 OCTOBER HILL ROAD**  
**HOLLISTON, MA 01746-1371**



**SCAN TO**  
**VIEW MATERIALS & VOTE**

**VOTE BY INTERNET** - [www.proxyvote.com](http://www.proxyvote.com) or scan the QR Barcode above  
 Use the Internet to transmit your voting instructions and for electronic delivery of information up until 11:59 PM Eastern Time the day before the cut-off date or meeting date. Follow the instructions to obtain your records and to create an electronic voting instruction form.

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

**VOTE BY PHONE - 1-800-690-6903**  
 Use any touch-tone telephone to transmit your voting instructions up until 11:59 PM Eastern Time the day before the cut-off date or meeting date. Have your proxy card in hand when you call and then follow the instructions.

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

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

E73923-P20424

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

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

**HARVARD BIOSCIENCE, INC.**

The Board of Directors recommends you vote FOR the following:

1. Election of Directors

For All  Withhold All  For All Except

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.

**Nominees:**

- 01) James W. Green
- 02) Bertrand Loy

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

- 2. To ratify the appointment of Grant Thornton LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2019.
- 3. To amend the Harvard Bioscience, Inc. Employee Stock Purchase Plan to increase the number of shares available for issuance by 350,000 shares.
- 4. Approval, by a non-binding advisory vote, of the compensation of the Company's named executive officers.

For Against Abstain

**NOTE:** Such other business as may properly come before the Annual Meeting and any adjournments or postponements thereof.

For address changes and/or comments, please check this box and write them on the back where indicated.

Please indicate if you plan to attend this meeting.  Yes  No

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

**Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting:**

The Notice & Proxy Statement and Annual Report are available at [www.proxyvote.com](http://www.proxyvote.com).

E73924-P20424

**HARVARD BIOSCIENCE, INC.  
Annual Meeting of Stockholders  
May 16, 2019 at 11:00 AM EDT  
This proxy is solicited by the Board of Directors**

The stockholder(s) hereby appoint(s) Jeffrey A. Duchemin and Kam Unninayar, or any of them, as proxies, each with the power to appoint his or her substitute, and hereby authorize(s) them to represent and to vote, as designated on the reverse side of this ballot, all of the shares of Common Stock of Harvard Bioscience, Inc. that the stockholder(s) is/are entitled to vote at the Annual Meeting of Stockholders to be held at 11:00 AM, EDT on May 16, 2019 at the offices of Burns & Levinson LLP, 125 Summer Street, Boston, Massachusetts 02110, and any adjournment or postponement thereof.

**This proxy, when properly executed, will be voted in the manner directed herein. If no such direction is made, this proxy will be voted in accordance with the Board of Directors' recommendations.**

Address Changes/Comments: \_\_\_\_\_  
\_\_\_\_\_

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

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