

---

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

---

**Harvard Bioscience, Inc.**

---

Payment of Filing Fee (Check the appropriate box):

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

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

---

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

---

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

---

(4) Proposed maximum aggregate value of transaction:

---

(5) Total fee paid:

---

---

Fee paid previously with preliminary materials:

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

(1) Amount previously paid:

---

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

---

(3) Filing Party:

---

(4) Date Filed:

---

---



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

April 6, 2018

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 17, 2018 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 6, 2018. The Proxy Statement and 2017 Annual Report to Stockholders, which includes the Annual Report on Form 10-K for the year ended December 31, 2017, 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 2017 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 2017 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 22, 2018 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**

---

**NOTICE OF ANNUAL MEETING OF STOCKHOLDERS**  
**To Be Held on Thursday, May 17, 2018**

---

NOTICE IS HEREBY GIVEN that the Annual Meeting of Stockholders of Harvard Bioscience, Inc. (the “Company”) will be held on Thursday, May 17, 2018, 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 one Class III Director, nominated by the Board of Directors, for a three-year term, such term to continue until the annual meeting of stockholders in 2021 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, 2018;
3. Approval of an amendment to the Harvard Bioscience, Inc. Third Amended and Restated 2000 Stock Option and Incentive Plan to increase the number of authorized shares of Common Stock available for issuance by 3,400,000 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 22, 2018 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.

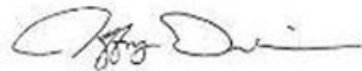
In the event there are not sufficient shares to be voted in favor of any of the foregoing proposals at the time of the Annual Meeting, the Annual Meeting may be adjourned in order to permit further solicitation of proxies.

The Board of Directors of Harvard Bioscience, Inc. recommends that you vote “FOR” the election of the nominee of the Board of Directors as Director 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. Third Amended and Restated 2000 Stock Option and Incentive Plan to increase the number of authorized shares of Common Stock available for issuance thereunder by 3,400,000 shares, and “FOR” the proposal to approve, by a non-binding advisory vote, of the compensation of our named executive officers.

---

**Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting to be Held on Thursday, May 17, 2018: The Proxy Statement and 2017 Annual Report to Stockholders, which includes the Annual Report on Form 10-K for the year ended December 31, 2017, 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 6, 2018

**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.**

---

**Harvard Bioscience, Inc.**  
**Notice of 2018 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	7
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	18
Compensation Committee Report	18
Compensation Committee Interlocks and Insider Participation	19
Summary Compensation Table	19
Grants of Plan-Based Awards- 2017	20
Outstanding Equity Awards at Fiscal Year-End- 2017	21
Potential Payments Upon Termination or Change-in-Control	24
Security Ownership of Certain Beneficial Owners and Management	28
Equity Compensation Plan Information	29
Transactions With Related Persons	30
Section 16(a) Beneficial Ownership Reporting Compliance	30
Expenses of Solicitation	30
Submission of Stockholder Proposals for the 2019 Annual Meeting	30
Submission of Securityholder Recommendations for Director Candidates	32
Stockholder Communications with the Board of Directors	32
Independent Registered Public Accounting Firm	32
Proposal 2: Ratification of Appointment of Independent Registered Public Accounting Firm	33
Proposal 3: Approval of an Amendment to the Harvard Bioscience, Inc. Third Amended and Restated 2000 Stock Option and Incentive Plan	34
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	40
Appendix A: Harvard Bioscience, Inc. Third Amended and Restated 2000 Stock Option and Incentive Plan, as amended	A-1
Appendix B: Form of Plan Amendment to the Harvard Bioscience, Inc. Third Amended and Restated 2000 Stock Option and Incentive Plan	B-1

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

---

**PROXY STATEMENT**

---

**Annual Meeting of Stockholders to Be Held on Thursday, May 17, 2018**

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 17, 2018, 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 one Class III Director, 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 2021 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, 2018;
3. Approval of an amendment to the Harvard Bioscience, Inc. Third Amended and Restated 2000 Stock Option and Incentive Plan to increase the number of authorized shares of Common Stock available for issuance thereunder by 3,400,000 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 6, 2018, in connection with the solicitation of proxies for the Annual Meeting. The Board of Directors has fixed the close of business on March 22, 2018 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 35,603,297 shares of Common Stock outstanding and entitled to vote at the Annual Meeting and approximately 116 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 one Class III Director in Proposal No. 1, such Director is elected by a plurality of the votes cast if a quorum is present. Votes may be cast for or withheld from the 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 person receiving the highest number of “FOR” votes will be elected as Director.

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, 2018, approval of an amendment to our Third Amended and Restated 2000 Stock Option and Incentive 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 Director, 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 nominee 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 17, 2018: The Proxy Statement and 2018 Annual Report to Stockholders, which includes the Annual Report on Form 10-K for the year ended December 31, 2017, 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 eight members and is divided into three classes of Directors, with two Directors in Class I, three Directors in Class II and three Directors in Class III. Earl Lewis and George Uveges will not stand for re-election at the Annual Meeting. The Board of Directors has approved a reduction in the size of the Board of Directors from eight members to six members, to become effective immediately prior to the Annual Meeting at the end of Messrs. Lewis' and Uveges' current terms. At such time, there will be 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. The 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, one Class III Director, nominated by the Board of Directors, will stand for re-election to serve until the 2021 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. Jeffrey A. Duchemin for election as the Class III Director 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. Jeffrey A. Duchemin. The nominee has 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 nominee as a Class III Director of the Company.

**OUR BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS A VOTE "FOR" THE ELECTION OF THE FOLLOWING NOMINEE OF THE BOARD OF DIRECTORS: JEFFREY A. DUCHEMIN. PROPERLY AUTHORIZED PROXIES SOLICITED BY THE BOARD OF DIRECTORS WILL BE VOTED "FOR" THE NOMINEE 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 III Director who has 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, 2018, 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</b>			
<i>James W. Green</i> (CC)(GC)	59	Chairman	2015
<i>Bertrand Loy</i> (AC)(GC)	52	Director	2014
<b>Class II Directors—Term expires 2020</b>			
<i>John F. Kennedy</i> (AC)(CC)	69	Director	2000
<i>Thomas W. Loewald</i> (CC)	55	Director	2017
<i>Katherine A. Eade</i> (GC)	44	Director	2017
<b>Class III Director—Term expires 2018; Nominated to Serve a Term Expiring 2021</b>			
<i>Jeffrey A. Duchemin</i> *	52	Chief Executive Officer and Director	2013
<b>Class III Directors—Term expires 2018</b>			
<i>Earl R. Lewis</i>	74	Director	2000
<i>George Uveges</i> (AC)	70	Director	2006

\* Nominee for election.

(AC) Member of the Audit Committee

(CC) Member of the Compensation Committee

(GC) Member of the Governance Committee

#### *Incumbent Class I Directors—Terms Expiring in 2019*

*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—Nominated to Serve Term Expiring 2020*

*John F. Kennedy* has served as a Director of the Company since October 2000. Mr. Kennedy currently serves as Chairman of the Compensation Committee and is a member of the Audit 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 a member 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. 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.

*Nominee for Election as 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 Coming Life Sciences. Mr. Duchemin was a Global Business Director for Coming 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.

*Incumbent Class III Directors – Terms Expiring 2018*

*Earl R. Lewis* has served as a Director of the Company since October 2000, Lead Director from November 2008 to July 2013 and was Chairman from July 2013 to June 2017. Mr. Lewis served as the Chairman, Chief Executive Officer and President of FLIR Systems, Inc., a designer, manufacturer and marketer of thermal imaging and infrared camera systems from November 2000 until his retirement as Chief Executive Officer and President in May 2013. Mr. Lewis previously served in various capacities with Thermo Instrument Systems, Inc. (now merged into Thermo Fisher Corporation, a developer, manufacturer and marketer of measuring and controlling devices) beginning in 1986 and was named President in 1997 and Chief Executive Officer in 1998. Thermo Fisher Corporation develops, manufactures and markets measuring and controlling devices. Mr. Lewis formerly was Chairman of Thermo BioAnalysis Corporation, Thermo Vision Corporation, Thermo Optek Corporation, ThermoQuest Corporation, each of which is a developer of laboratory analytical instruments, and ONIX Systems, Inc., a developer of measuring and controlling devices. Mr. Lewis currently serves on the Board of Directors of NxStage Medical Inc. and FLIR Systems, Inc.. Mr. Lewis also serves on the Board of Trustees of Clarkson University and New Hampton School. Mr. Lewis holds a B.S. from Clarkson College of Technology and has attended post-graduate programs at the University of Buffalo, Northeastern University and Harvard University. Mr. Lewis has a Professional Director Certification, earned through an extended series of director education programs sponsored by the Corporate Directors Group, an accredited organization of RiskMetrics ISS. We believe Mr. Lewis's qualifications to sit on our Board of Directors include his experience in the laboratory products and analytical instruments industry, his executive leadership experience from serving as Chairman, Chief Executive Officer and President of FLIR Systems, Inc. and his knowledge and understanding of our Company that he has acquired over seventeen years of service on our Board.

*George Uveges* has served as a Director of the Company since March 2006 and is Chairman of the Audit Committee. Mr. Uveges is the founder and principal of the Tallwood Group, an angel-investing firm that provides financial and management advisory services in addition to investment capital. From 2001 to 2004, Mr. Uveges served as the President and Chief Executive Officer of TranXenoGen, Inc., a development stage biotechnology company that was listed on the Alternative Investment Market of the London Stock Exchange during that period. He was also a Director of that company from 2001 to 2005. Mr. Uveges was, from 2000 to 2001, the Chief Operating Officer of BioSource International, Inc., a publicly held company engaged in developing a broad-based offering of life science tools. Mr. Uveges also practiced as a public accountant at Ernst & Young for thirteen years. Mr. Uveges served as a Director from 2005 to 2011 and Chairman of the Board of Directors of Microfluidics International Corporation from 2010 to 2011. Mr. Uveges, a CPA, is a member of the American Institute of Certified Public Accountants, Financial Executives International and the National Association of Corporate Directors. Mr. Uveges holds a B.B.A. from Cleveland State University and an M.B.A. from Baldwin Wallace College. We believe Mr. Uveges' qualifications to sit on our Board of Directors include his operating, accounting and financial management expertise, approximately eighteen years of experience in the life science industry in a variety of senior executive positions and his knowledge and understanding of our Company that he has acquired over twelve years of service on our Board.

## INFORMATION REGARDING THE BOARD OF DIRECTORS AND ITS COMMITTEES

During the year ended December 31, 2017, our Board of Directors held seven meetings. Each of the Directors attended at least 80% 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. Except for Mr. Lewis, all of the Directors in office at the time attended, in person or by telephone, the 2017 Annual Meeting of Stockholders held on May 18, 2017. 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. Loy, Kennedy and Uveges. Mr. Uveges 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 nine times during 2017.

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;
- 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. Loy, Kennedy and Uveges 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. Loy, Kennedy and Uveges 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. Kennedy 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 nine times during 2017.

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 2017 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 six times during 2017.

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. 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, 2017 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, 2017.
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, 2017 for filing with the Securities and Exchange Commission.

Submitted by the Audit Committee:

George Uveges, Chairman  
John F. Kennedy  
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.



Each non-employee director will be entitled to receive a non-qualified stock option having an aggregate Black-Scholes cash value of \$120,000, 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 Company). Such option shall be for the purchase of Common Stock and shall vest annually over three years and be granted on the fifth business day following his or her initial election to the Board.

The annual retainers described herein shall each be satisfied by the issuance of deferred stock awards of restricted stock units (each a "Retainer Award"). Each non-employee director will be entitled to receive an annual retainer valued at \$31,500. The Chairman will also be entitled to receive an additional annual retainer valued at \$31,500. Each non-employee director member of the Audit Committee will be entitled to receive an additional annual retainer valued at \$8,100. Each non-employee director member of the Compensation Committee will be entitled to receive an additional annual retainer valued at \$5,400. Each non-employee member of the Governance Committee will be entitled to receive an additional annual retainer valued at \$4,500. The Committee Chairman of the Audit Committee will be entitled to receive an additional annual retainer valued at \$16,200. The Committee Chairman of the Compensation Committee will be entitled to receive an additional annual retainer valued at \$10,800. The Committee Chairman of the Governance Committee will be entitled to receive an additional annual retainer valued at \$4,500. The retainer awards for individuals that are non-employee directors of the Company as of the first trading day of January of the corresponding year, are 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, provided that 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 and subject to continued service as a non-employee director on the applicable vesting dates. 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 an additional retainer award, in relation to such additional roles and respective retainer amounts pro-rated for the remainder of such year, 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, provided that 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 (i.e. if the additional retainer award is granted on September 1, one half would vest on September 30 and the remaining half would vest on December 31). 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).

Each non-employee director will also be entitled to receive an equity award having an aggregate cash value of \$72,000, rounded to the nearest 100 shares, vesting fully on the earlier to occur of (i) the date of the Company'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 Company's Annual Meeting of Stockholders, with such award to be evidenced by a grant of deferred stock awards of restricted stock units. In addition, non-employee directors shall be reimbursed for their expenses incurred in connection with attending Board and Committee meetings.

Non-employee Directors continue to 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, 2017.

Name (1)	Fees Earned or Paid as Part of Retainer Award	Option Awards (2), (3)	Restricted Stock Awards (4)	Total
<i>David Green</i>	\$ 7,875	\$ -	\$ -	\$ 7,875
<i>James Green</i>	57,171	-	71,990	129,161
<i>John F. Kennedy</i>	55,800	-	71,990	127,790
<i>Earl R. Lewis</i>	54,500	-	71,990	126,490
<i>Bertrand Loy</i>	46,405	-	71,990	118,395
<i>George Uveges</i>	55,800	-	71,990	127,790
<i>Katherine Eade</i>	6,725	120,012	-	126,737
<i>Thomas Loewald</i>	6,893	120,012	-	126,905

- (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 19 to the Company's audited financial statements for the fiscal year ended December 31, 2017 included in the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 16, 2018.
- (3) The aggregate number of option awards outstanding at December 31, 2017, and held by the non-employee Directors were as follows: 0 options for Mr. David Green; 60,000 options for Mr. James Green; 37,059 options for Mr. Kennedy; 0 options for Mr. Lewis; 55,300 options for Mr. Loy; 45,309 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, 2017, and held by the non-employee Directors were as follows: 0 awards for Mr. David Green; 31,300 awards for Mr. James Green; 31,300 awards for Mr. Kennedy; 31,300 awards for Mr. Lewis; 31,300 awards for Mr. Loy; 31,300 awards for Mr. Uveges; 0 awards for Ms. Eade; and 0 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; Robert E. Gagnon, Chief Financial Officer and Treasurer; and Yong Sun, Vice President, Commercial Operations.

#### **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 2017, 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. In April 2017, the Compensation Committee confirmed, with the assistance of Gallagher, the peer group for 2017, which included Abaxis, Inc., Albany Molecular Research Inc., Cardiovascular Systems Inc., Cutera Inc., Digirad Corporation, Enzo Biochem, Inc., Exactech Inc., Fluidigm Corporation, Fonar Corporation, iCAD, Inc., IRIDEX Corporation, Landauer, Inc., Lemaitre Vascular Inc., Luminex Corporation, NanoString Technologies, Inc., Neogenomics Inc., Pacific Biosciences of California, Inc., Quidel Corporation, Sequenom, Inc. and Symmetry Surgical Inc.

In the first quarter of 2017, 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, 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 2017, for the period from January 1 to March 31, the base salaries for the named executive officers were as follows: \$521,000 per year for Mr. Duchemin, \$329,000 per year for Mr. Gagnon and \$244,000 per year for Mr. Sun. For the period from March 31 to December 31 during 2017, the base salaries for the named executive officers were based on the following increased amounts established by the Compensation Committee taking into consideration the analysis and recommendations of Gallagher: \$528,815 per year for Mr. Duchemin, \$335,580 per year for Mr. Gagnon and \$236,436 per year for Mr. Sun. 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 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 2017, the Compensation Committee of our Board established performance targets with respect to the annual cash incentive bonuses for the named executive officers in 2017, including Messrs. Duchemin, Gagnon and Sun. For 2017, the target objectives were to achieve \$0.17 of non-GAAP earnings per diluted share, subject to foreign currency fluctuation impact, and \$102 million of revenue. In determining whether and to what extent to award any annual cash incentive bonus for 2017, 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 2017, 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 in the event the target was exceeded, 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 2017, based on the executive's performance and other considerations of the Compensation Committee, the Compensation Committee awarded bonuses to Mr. Duchemin and Mr. Gagnon in the amounts of \$158,085 and \$69,969 respectively, and our Chief Executive Officer awarded a bonus to Mr. Sun in the amount of \$24,880. These bonuses were based on the achievement of the revenue target objectives described above, as well as discretionary bonuses awarded by the Compensation Committee. A portion of the cash bonus was paid in May 2017, and as to Mr. Duchemin and Mr. Gagnon, the remainder was paid in 2018. The non-GAAP earnings per diluted share target objective described above was not achieved, and therefore no bonuses were awarded to Mr. Duchemin, Mr. Gagnon or Mr. Sun based on that target objective. In lieu of the cash bonus for fiscal 2017 in relation to the revenue achievement for fiscal 2017, and in part based on the performance of the Physiology, Cellular, Molecular and Instrumentation (PCMI) product family in fiscal 2017, Mr. Sun was awarded a bonus of 8,888 shares of unrestricted stock. This stock award was granted in the first quarter of 2018.

#### ***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 April 2017, 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 to our named executive officers, including a cliff based RSU award to Mr. Gagnon as described below. These 2017 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 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 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, in fiscal 2017 the long term incentive grants to our named executive officers were granted on the fifth business day following the annual meeting of stockholders in 2017, except for the stock options granted to Mr. Sun on February 6, 2017 in connection with an inducement grant for taking on additional corporate responsibility. 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 2017, we granted time based RSUs and stock options to our current named executive officers as follows:

	<b>Stock Option Awards (#) (1)</b>	<b>Time Based RSUs (2)</b>
Jeffrey A. Duchemin	-	357,609
Robert E. Gagnon	-	217,392
Yong Sun	10,000	109,130
	<u>10,000</u>	<u>684,131</u>

- (1) These options were granted on February 6, 2017, vest in four equal installments on each of February 6, 2018, 2019, 2020 and 2021, and have a term of ten years from the date of grant.
- (2) These time based RSUs were granted on May 25, 2017, vest in four equal installments on each of January 1, 2018, 2019, 2020 and 2021, provided that one half of Mr. Gagnon's RSU, or 108,696 units, was a two year cliff based grant that fully vests on May 25, 2019.

As noted above, reports provided by Gallagher in 2017 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 and Chief Financial Officer***

We have entered into employment agreements with Mr. Duchemin, dated August 26, 2013, and Mr. Gagnon, dated October 2, 2013. Each of these agreements, as amended, provides for a term ending August 26, 2016, 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 (which was initially \$350,000 following execution of his agreement in 2013), a bonus for the portion of fiscal 2013 following his hiring in the amount of \$150,000, as well as eligibility to receive cash incentive compensation on an annual basis of up to a one hundred fifty percent (150%) (which was initially 200% following execution of his agreement in 2013) 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. As amended, Mr. Gagnon's employment agreement provides for an annual base salary (which was initially \$290,000 following execution of his agreement in 2013) 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, including as described above. On May 26, 2016, we entered into amendments to our employment agreements with Mr. Duchemin and Mr. Gagnon that among other things, increased the amount of severance payment that is due if Mr. Duchemin or Mr. Gagnon are terminated by us without cause, by the executives for good reason, or upon a change of control, and added customary best net/modified economic cutback 280G provisions, as recommended by Gallagher. Under the respective employment agreements, the base salary amounts are subject to review annually by our Board of Directors and Compensation Committee. Mr. Duchemin and Mr. Gagnon are 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 their hiring, each of Mr. Duchemin and Mr. Gagnon also received an inducement stock option grant of 500,000 options and 150,000 options, respectively.

The employment agreements with Messrs. Duchemin and Gagnon also require us to provide certain payments and benefits to these executives 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 agreements with Messrs. Duchemin and Gagnon also provide change-in-control benefits. See "Potential Payments Upon Termination or Change-in-Control" for a summary of these termination related provisions.

### ***Vice President***

We have also entered into an employment agreement, dated May 26, 2016 with Mr. Sun. The employment agreement entitles Mr. Sun to an annual base salary (which was initially \$225,000 following execution of his offer letter in 2013). Furthermore, Mr. Sun is 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 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. Mr. Sun's employment agreement also contains provisions regarding the provision of customary additional benefits such as medical, dental, vacation, signing bonus and life insurance. Additionally, Mr. Sun's employment agreement requires 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. Mr. Sun's employment agreement also includes a customary best net/modified economic cutback 280G provision, as recommended by Gallagher. Mr. Sun also received an inducement stock option grant of 100,000 options following execution of his offer letter in 2013.

### ***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 and Shareholder Outreach***

Following some of the disappointing results of the advisory stockholder vote obtained at our 2015 and 2014 Annual Meetings of Stockholders, in 2016, the Compensation Committee undertook a comprehensive review of our executive compensation program with the assistance of its independent compensation consultant. The goal of this review was to ensure that the Company's compensation programs appropriately ties executive pay to Company performance. The comprehensive review included the following:

- discussions with many of our institutional stockholders,
- examination of reports and analyses issued by the principal proxy advisory services,
- analysis of compensation practices at peer companies, and
- solicitation of advice from the Compensation Committee's compensation consultant

Based on the results of the review and analysis, the Compensation Committee and the Board of Directors implemented equity ownership guidelines described below with respect to our named executive officers. While the Compensation Committee and Board of Directors are also considering the implementation of a clawback policy with respect to our executive officers, they have elected at this time to not implement any such policy at least until final disclosure rules are established by the SEC with respect thereto.

At our 2017 Annual Meeting of Stockholders held on May 18, 2017, approximately 80% of the votes cast were cast in favor of the executive compensation of our named executive officers.

### ***Equity Ownership Guidelines***

At the recommendation of our Compensation Committee, our Board of Directors has implemented equity ownership guidelines with respect to our named executive officers. Such ownership guidelines require, within five years from May 9, 2016 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 Chief Executive Officer to own our Common Stock with a market value equal to at least three times his annual base salary, and our other named executive officers to own, at a minimum, our Common Stock with a market value equal to one time their annual base salary. With respect to satisfying such guidelines, unvested time-based RSUs are included in the calculation while stock options and unvested performance based RSUs are excluded.

### *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, 2017.

Compensation Committee:

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



## COMPENSATION COMMITTEE INTERLOCKS AND INSIDER PARTICIPATION

During the 2017 fiscal year, the Compensation Committee consisted of Messrs. James W. Green, Kennedy and Lewis from January 1 to May 18. On May 18, 2017, Mr. Lewis resigned from his position as a member of the Compensation Committee, which thereafter consisted of Messrs. James W. Green and Kennedy from May 18 to October 24. On October 24, 2017, Mr. Thomas W. Loewald was appointed to the Compensation Committee, which thereafter consisted of Messrs. James W. Green, Kennedy and Loewald from October 24 to December 31. None of these Directors has served as an officer or employee of the Company or any of its subsidiaries. During the 2017 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 Vice President, Commercial Operations during 2017, all during the fiscal years ended December 31, 2017, 2016 and 2015.

<u>Name and Principal Position</u>	<u>Year</u>	<u>Salary (\$)</u>	<u>Bonus (\$)</u>	<u>Option Awards (\$)(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> President and Chief Executive Officer	2017	\$526,536	\$158,085	\$ -	\$822,501	\$ -	\$ 24,109(2)	\$1,531,231
	2016	505,804	-	-	822,501	-	24,109(3)	1,352,414
	2015	489,667	-	273,000	383,084	345,108	26,509(4)	1,517,368
<i>Robert E. Gagnon</i> Chief Financial Officer and Treasurer	2017	\$333,661	\$ 69,969	\$ -	\$500,002	\$ -	\$ 11,269(5)	\$ 914,901
	2016	324,202	-	-	499,997	-	11,269(6)	835,468
	2015	321,333	-	105,000	147,340	135,243	13,656(7)	722,572
<i>Yong Sun</i> Vice President Commercial Operations	2017	\$247,457	\$ 24,880	\$ 12,700	\$250,999	\$ -	\$ 49,898(8)	\$ 545,938
	2016	240,442	-	-	251,000	-	9,610(9)	501,052
	2015	240,000	-	68,250	95,771	67,619	9,699(10)	481,339

- (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 19 to the Company’s audited financial statements for the fiscal year ended December 31, 2017, included in the Company’s Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 16, 2018.
- (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), \$13,000 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 \$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.
- (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 \$12,987 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 \$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.
- (9) Includes \$9,610 in matching contributions made by the Company to Mr. Sun's tax-qualified 401(k) Savings Plan account.
- (10) Includes \$9,699 in matching contributions made by the Company to Mr. Sun's tax-qualified 401(k) Savings Plan account.

#### GRANTS OF PLAN-BASED AWARDS—2017

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, 2017. These awards identified in the table below are also reported in the Outstanding Equity Awards at Fiscal Year-End—2017 included within the proxy statement.

Name	Award Type	Grant Date	Number of Shares of Stock or Units (#)	Grant Date Fair Value of Stock and Option Awards (\$)
<b>Jeffrey A. Duchemin</b>	Time Based RSU	5/25/2017	357,609(1)	822,501(3)
<b>Robert E. Gagnon</b>	Time Based RSU	5/25/2017	217,392(1)	500,002(3)
<b>Yong Sun</b>	Time Based RSU	5/25/2017	109,130(1)	250,099(3)
<b>Yong Sun</b>	Option Awards	2/6/2017	10,000(2)	12,700(4)

- (1) These restricted stock units were granted on May 7, 2017 and vest in four equal installments on each of the first four anniversaries of January 1, 2017, provided that one half of Mr. Gagnon's RSU, or 108,696 units, was a two year cliff based grant that fully vests on May 25, 2019. 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) Based on the aggregate grant date fair value computed in accordance with the provisions of FASB ASC 718, "*Compensation—Stock Compensation*", excluding the impact of estimated forfeitures. Assumptions used in the calculation of this amount are set forth in Note 19 to the Company's audited financial statements for the fiscal year ended December 31, 2017, included in the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 16, 2018.
- (3) 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.
- (4) 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 19 to the Company's audited financial statements for the fiscal year ended December 31, 2017, included in the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 16, 2018.

### ***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 2017, the Compensation Committee awarded annual cash bonuses to Mr. Duchemin, Mr. Gagnon and Mr. Sun in the amounts of \$158,085, \$69,969, and \$24,880 respectively. In addition, in lieu of the cash bonus for fiscal 2017 in relation to the revenue achievement for fiscal 2017, and in part based on the performance of the PCMI product family in fiscal 2017, Mr. Sun was awarded a bonus of 8,888 shares of unrestricted stock. This stock award was granted in the first quarter of 2018.

#### ***2017 Equity Awards***

In 2017, 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—2017**

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, 2017.

	Option Awards (12)				Time Based Restricted Stock Units (12)	Market Condition Restricted Stock Units (12)
	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price (\$)	Option Expiration Date	Number of Securities Underlying Unexercised Time Based RSUs	Number of Securities Underlying Unexercised Market Condition RSUs
<i>Jeffrey A. Duchemin</i>	-	-	-	-	357,609 (5)	-
	65,500	65,000 (1)	\$ 5.56	6/4/2025	218,751 (6)	71,748 (8)
	225,000	75,000 (2)	\$ 4.12	5/30/2024	34,450 (7)	-
	500,000	- (3)	\$ 4.31	11/18/2023	-	-
	<u>790,000</u>	<u>140,000</u>			<u>610,810</u>	<u>71,748</u>
<i>Robert E. Gagnon</i>	-	-	-	-	217,392(11)	-
	25,000	25,500 (1)	\$ 5.56	6/4/2025	155,141 (9)	28,117 (8)
	75,000	25,000 (2)	\$ 4.12	5/30/2024	13,250 (7)	-
	150,000	- (4)	\$ 4.31	11/18/2023	-	-
	<u>250,000</u>	<u>50,000</u>			<u>385,783</u>	<u>28,117</u>
<i>Yong Sun</i>	-	10,000(10)	\$ 3.25	2/6/2027	109,130 (5)	-
	16,250	16,250 (1)	\$ 5.56	6/4/2025	66,756 (6)	14,058 (8)
	26,250	8,750 (2)	\$ 4.12	5/30/2024	8,612 (7)	-
	100,000	- (4)	\$ 4.31	11/18/2023	-	-
	<u>100,625</u>	<u>35,000</u>			<u>184,498</u>	<u>14,058</u>

- (1) The option was granted on June 4, 2015 and, assuming continued employment with the Company, the unvested shares become exercisable in equal installments on January 1 of each of 2018 and 2019.
- (2) The option was granted on May 30, 2014 and, assuming continued employment with the Company, the unvested shares become exercisable 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 18, 2013 and, assuming continued employment with the Company, the unvested shares vested in full on November 18, 2017.
- (5) The time based restricted stock units were granted on May 25, 2017 and, assuming continued employment with the Company, vest in four equal installments on January 1 of each of 2018, 2019, 2020, and 2021.
- (6) The restricted stock units were granted on May 6, 2016 and, assuming continued employment with the Company, the unvested shares become exercisable in equal instalments on January 1, of each of 2018, 2019, 2020 and 2021.
- (7) The time based restricted stock units were granted on June 4, 2015 and, assuming continued employment with the Company, the unvested shares vest in equal installments on January 1 of each of 2018 and 2019.
- (8) The market condition restricted stock units were granted on August 3, 2015. The vesting of these Market Condition RSU's is cliff-based and assumes continued employment with the Company. The vesting is also linked to the achievement of a relative total shareholder return of the Company's Common Stock from August 3, 2015 to the earlier of (i) August 3, 2018 or (ii) upon a change of control (measured relative to the Russell 3000 index and based on the 20-day trading average price before each such date).
- (9) The restricted stock units were granted on May 6, 2016 and, assuming continued employment with the Company, 88,652 of the unvested shares become exercisable in equal installments on January 1 of each of 2018, 2019 and 2020 and 88,652 become exercisable on May 6, 2018.

- (10) The option was granted on February 6, 2017 and, assuming continued employment with the Company, the unvested shares become exercisable in equal installments on February 6 of each of 2018, 2019, 2020 and 2021.
- (11) The restricted stock units were granted on May 25, 2017 and, assuming continued employment with the Company, 108,696 of the unvested shares become exercisable in equal installments on January 1 of each of 2018, 2019, 2020 and 2021 and 108,696 become exercisable on May 25, 2019.
- (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 and Chief Financial Officer*

Our employment agreements with Mr. Duchemin and Mr. Gagnon provide 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 each agreement. Following any such termination, the executives are entitled to receive their 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 terminations 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 the event that Mr. Gagnon 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. Gagnon a single lump sum in cash equal to 12 months of his base salary, and all stock options and other stock-based awards granted to Mr. Gagnon shall immediately accelerate and become exercisable or non-forfeitable as of the date of the change in control. 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.

### *Vice President*

Our employment agreement with Mr. Sun provides 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 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 terminations because of death or disability, all equity awards of Mr. Sun 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 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 shall 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 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 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 is 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 shall immediately accelerate and become exercisable or non-forfeitable as of the date of the change in control. Mr. Sun shall also receive a cash lump sum equal to 12 months of his base salary rate. In addition, following the termination we shall 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. 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.

With respect to the stock options that we awarded to Messrs. Duchemin, Gagnon and Sun, 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, Gagnon and Sun, upon a change-in-control, such awards will accelerate 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 August 3, 2015 to such change of control that is achieved.

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, 2017 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, 2017. 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)	\$ 793,223	\$ -	\$ -	\$ 1,097,291	\$ -
Vesting of Stock Options (3)	-	-	-	-	-
Vesting of Restricted Stock Units (4)	1,007,837	2,015,673	2,015,673	2,015,673	2,015,673
Health Care Benefits (5)	19,365	19,365	19,365	19,365	-
<b>Total</b>	<b>1,820,424</b>	<b>2,035,038</b>	<b>2,035,038</b>	<b>2,106,442</b>	<b>2,015,673</b>

- (1) This column assumes a change-in-control occurs on December 31, 2017 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 2017 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, 2017, which was \$3.30.
- (4) Value pertains entirely to time-based RSUs, as no portion of the market condition RSUs would have vested in connection with any such termination events or change-in-control as of December 31, 2017.
- (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, 2017.

*Robert E. Gagnon*

The following table shows the estimated payments upon termination or a change-in-control of the Company for Robert E. Gagnon, 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 (2)	\$ 503,370	\$ -	\$ -	\$ 335,580	\$ -
Vesting of Stock Options (3)	-	-	-	-	-
Vesting of Restricted Stock Units (4)	318,271	1,273,084	1,273,084	1,273,084	1,273,084
Health Care Benefits (5)	19,365	19,365	19,365	19,365	-
<b>Total</b>	<b>841,006</b>	<b>1,292,449</b>	<b>1,292,449</b>	<b>1,628,029</b>	<b>1,273,084</b>

- (1) This column assumes a change-in-control occurs on December 31, 2017 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 2017 pursuant to the terms of Mr. Gagnon'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, 2017, which was \$3.30.
- (4) Value pertains entirely to time-based RSUs, as no portion of the market condition RSUs would have vested in connection with any such termination events or change-in-control as of December 31, 2017.
- (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, 2017.

*Yong Sun*

The following table shows the estimated payments upon termination or a change-in-control of the Company for Yong Sun, our Vice President, Commercial Operations.

<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	\$ 124,440	\$ -	\$ -	\$ 248,880	\$ -
Vesting of Stock Options (2)	125	500	500	500	500
Vesting of Restricted Stock Units (3)	152,211	608,843	608,843	608,843	608,843
Health Care Benefits	-	-	-	-	-
<b>Total</b>	<b>276,776</b>	<b>609,343</b>	<b>609,343</b>	<b>858,223</b>	<b>609,343</b>

- (1) This column assumes a change-in-control occurs on December 31, 2017 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, 2017, which was \$3.30.
- (3) Value pertains entirely to time-based RSUs, as no portion of the market condition RSUs would have vested in connection with any such termination events or change-in-control as of December 31, 2017.

## 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, 2018 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, 2018 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, 2018, 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><i>Greater Than 5% Holders</i></b>		
First Light Asset Management, LLC 3300 Edinborough Way, Suite 201 Edina, MN 55435	4,638,651	13.0%(3)
Chane Graziano 23610 Peppermill Court Bonita Springs, FL	3,005,150	8.4%(4)
Dimensional Fund Advisors, Inc. 6300 Bee Cave Road Austin, TX 78746	1,765,170	5.0%(5)
<b><i>Non-Employee Directors (1)</i></b>		
Earl R Lewis	469,775	*(6)
John F. Kennedy	315,789	*(7)
George Uveges	168,508	*(8)
James Green	184,337	*(9)
Bertrand Loy	161,800	*(10)
Thomas Loewald	5,150	
Katherine Eade	5,075	
<b><i>Named Executive Officers (1)</i></b>		
Jeffrey A. Duchemin	1,036,342	*(11)
Robert E. Gagnon	287,500	*(12)
Yong Sun	222,019	*(13)
All Executive Officers and Directors, as a group (10 persons)	2,856,295	7.6%(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 35,663,850 shares outstanding on March 31, 2018 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, 2018 reporting beneficial ownership as of December 31, 2017.
- (4) This information is based solely upon a Schedule 13G/A filed by Chane Graziano with the Securities and Exchange Commission on February 13, 2014 reporting beneficial ownership as of December 31, 2013.
- (5) This information is based solely upon a Schedule 13G filed by Dimensional Fund Advisors, Inc. with the Securities and Exchange Commission on February 9, 2018 reporting beneficial ownership as of December 31, 2017.
- (6) Includes 31,300 restricted stock units that will fully vest within 60 days after April 1, 2018.
- (7) Includes options to acquire 37,059 shares that are exercisable within 60 days after April 1, 2018 and 31,300 restricted stock units that will fully vest within 60 days after April 1, 2018.
- (8) Includes options to acquire 38,723 shares that are exercisable within 60 days after April 1, 2018, as well as 31,300 restricted stock units that will fully vest within 60 days after April 1, 2018.
- (9) Includes options to acquire 60,000 shares that are exercisable within 60 days after April 1, 2018, as well as 31,300 restricted stock units that will fully vest within 60 days after April 1, 2018.
- (10) Includes options to acquire 55,300 shares that are exercisable within 60 days after April 1, 2018, as well as 31,300 restricted stock units that will fully vest within 60 days after April 1, 2018.
- (11) Includes options to acquire 897,500 shares that are exercisable within 60 days after April 1, 2018.
- (12) Includes options to acquire 287,500 shares that are exercisable within 60 days after April 1, 2018.
- (13) Includes options to acquire 161,875 shares that are exercisable within 60 days after April 1, 2018.
- (14) Includes options to acquire 1,537,957 shares that are exercisable within 60 days after April 1, 2018, as well 156,500 restricted stock units that will fully vest within 60 days after April 1, 2018.

### EQUITY COMPENSATION PLAN INFORMATION

The following table sets forth information as of December 31, 2017 concerning the number of shares of Common Stock issuable under our existing equity compensation plans.

<b>Plan Category</b>	<b>Number of Securities to be Issued Upon Exercise of Outstanding Options, Restricted Stock Units, Warrants and Rights</b>	<b>Weighted Average Exercise Price of Outstanding Options, Warrants, And Rights</b>	<b>Number of Securities Remaining Available For Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected In Column (a))</b>
	<b>(a)</b>	<b>(b)</b>	<b>(c)</b>
Equity compensation plans approved by security holders (1)	5,741,298	\$ 2.60	535,171(2)
Equity compensation plans not approved by security holders	-	-	-
<b>Total</b>	<b>5,741,298</b>	<b>\$ 2.60</b>	<b>535,171</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 286,625 shares available for future issuance under the Equity Plan and 248,546 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, 2017. Base salary, including overtime pay, was calculated using internal payroll and records.

We selected the median employee from a group of 379 full-time, part-time, temporary and seasonal workers who were employed as of December 31, 2017. We did not include independent contractors or leased workers in our employee population for purposes of making our determination. We also excluded 180 employees who joined our company through our acquisition of Data Sciences International, Inc., and 55 employees who left our company through our divestiture of Denville Scientific, Inc., both of which occurred during fiscal 2018.

As disclosed in the Summary Compensation Table appearing on page 19, the 2017 annual total compensation as determined under Item 402 of Regulation S-K for our CEO was \$1,531,231. The 2017 annual total compensation as determined under Item 402 of Regulation S-K for our median employee was \$53,953. 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 2017 is 28 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 2017 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, 2017, the reporting persons complied on a timely basis with all Section 16(a) filing requirements applicable to them.

## 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 2019 annual meeting of stockholders must be received by us on or before December 5, 2018 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 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.

	2017			2016
	KPMG Fees	Grant Thornton Fees	Total Fees	KPMG Fees
Audit Fees (1)	\$ 205,244	\$ 1,084,535	\$ 1,289,779	\$ 1,830,828
Tax Fees (2)	-	136,028	136,028	112,657
Other	216,534	104,580	321,114	-
Total Fees (3)	\$ 421,778	\$ 1,325,143	\$ 1,746,921	\$ 1,943,485

- 
- (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.
  - (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, 2017 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 George Uveges) 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, 2018. 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, 2018.

**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, 2018. 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. THIRD AMENDED AND RESTATED 2000 STOCK OPTION AND INCENTIVE PLAN**

We are proposing that our stockholders approve an amendment to the Harvard Bioscience, Inc. Third Amended and Restated 2000 Stock Option and Incentive Plan (as amended before the Plan Amendment, the “Equity Plan” and such amendment, the “Plan Amendment”) to increase by 3,400,000 shares the number of authorized shares of Common Stock available for issuance under the Equity Plan from 17,508,929 shares to 20,908,929 shares. The Equity Plan is designed to attract, motivate and retain employees, directors and consultants of the Company and to further the growth and financial success of the Company by aligning the interests of such persons through ownership with the interests of our stockholders.

The Equity Plan currently authorizes the grant of stock options and other stock-based awards to officers, employees, non-employee directors and other key persons of the Company and its subsidiaries. Currently, 17,508,929 shares of Common Stock are reserved for issuance pursuant to awards granted under the Equity Plan. As of March 31, 2018, just 210,429 shares remained available for issuance under the Equity Plan. On April 2, 2018, the Board of Directors approved the Plan Amendment, subject to stockholder approval. The Board’s approval was also recommended by the Compensation Committee which engaged Arthur J. Gallagher & Co., or Gallagher, to provide analysis and recommendations pertaining to the Plan Amendment. In providing its report to the Compensation Committee, Gallagher considered multiple factors, including stock overhang, burn rate, shareholder value transfer and plan features.

Our Board of Directors believes that the Plan Amendment is in the best interests of, and will provide long-term advantages to, us and our stockholders and recommends its approval by our stockholders. With just 210,429 shares remaining available for issuance under the Equity Plan, our Board of Directors believes that the Plan Amendment will enable us to achieve our compensation objectives. These objectives include using 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 addition, the Plan Amendment will enable us to attract, retain and motivate top quality employees and non-employee members of our Board of Directors which is material to our success. In particular, without the Plan Amendment, we would not have sufficient shares available under the Equity Plan to issue our long term incentive grants to our executives and other employees for fiscal 2018 and thereafter, which such employee base has been increased following our acquisition of Data Sciences International, Inc., or DSI, earlier this year. Accordingly, we are seeking stockholder approval of the Plan Amendment. In the event that the Plan Amendment is not approved by stockholders, the Equity Plan will continue in effect without the Plan Amendment but would have just 210,429 shares remaining available for issuance thereunder, without giving effect to any expiration or forfeiture of any awards currently outstanding under the Equity Plan.

Based solely on the closing price of our Common Stock as reported on the NASDAQ Global Market on March 31, 2018, the maximum aggregate market value of the 3,400,000 additional shares that could potentially be issued under the Equity Plan, as amended, is approximately \$17.0 million. Such calculation assumes that all the 3,400,000 additional shares were issued as options or other non-full value awards. Based on the fungible share provision in the Equity Plan, if all 3,400,000 additional shares were allocated to full value awards (which would result in the lesser amount of approximately 1,900,000 shares being issued), the maximum aggregate market value of such 1,900,000 additional shares based on such closing price is approximately \$9.5 million. The shares issued by us under the 2000 Plan will be authorized but unissued shares.

As of March 31, 2018: (i) 210,429 shares of our Common Stock remained available for future awards under our Equity Plan; (ii) 1,563,875 shares of our Common Stock were subject to unvested deferred stock awards of restricted stock units under our Equity Plan; and (iii) 3,363,816 shares of our Common Stock were subject to outstanding options under our Equity Plan (with the outstanding options having a weighted average exercise price of \$3.99 per share and a weighted average term to maturity of 5.5 years). During fiscal 2017, our Board of Directors approved the grant of 1,298,371 shares of restricted stock and restricted stock units and options to purchase 237,700 shares of Common Stock under our Equity Plan. With respect to burn rate, our three-year average burn rate was high relative to peers and benchmarks due in part to the impact of our low stock price during fiscal 2017 which resulted in the share amounts of long term incentive grants being higher than anticipated when issuing awards. We expect that our three year average burn rate will reduce based on the impact of our increased stock price, due in part to our acquisition of DSI, thus reducing the requisite shares underlying award values approved by our Compensation Committee. We anticipate that based on current valuations of our Common Stock, the Plan Amendment, if approved by the stockholders, would provide sufficient availability to grant stock options and other stock-based awards for 2018, as described in the New Plan Benefits table below, as well as for an additional two years.

A summary of the material terms of the Equity Plan, reflecting the changes pertaining to the Plan Amendment, is included below. Stockholders are urged to read the actual text of the Equity Plan, as proposed to be amended (with the provisions being amended provided with ***bold underlined italics***), and form of the Plan Amendment, which are respectively set forth as Appendix A and Appendix B to this Proxy Statement and incorporated herein by reference.



## Vote Required

The proposal to amend to the Equity Plan to increase the number of authorized shares of Common Stock available for issuance thereunder will be approved upon the affirmative vote of a majority of the votes properly cast for and against such matter. Abstentions and broker non-votes are not included in the number of votes cast for and against a matter and therefore have no effect on the vote on such matter.

**THE BOARD OF DIRECTORS OF THE COMPANY UNANIMOUSLY RECOMMENDS THAT YOU VOTE FOR THE PROPOSAL TO APPROVE THE AMENDMENT TO THE HARVARD BIOSCIENCE, INC. THIRD AMENDED AND RESTATED 2000 STOCK OPTION AND INCENTIVE PLAN. PROXIES SOLICITED BY THE BOARD OF DIRECTORS WILL BE VOTED FOR THE APPROVAL OF THE AMENDMENT TO THE HARVARD BIOSCIENCE, INC. THIRD AMENDED AND RESTATED 2000 STOCK OPTION AND INCENTIVE PLAN UNLESS INSTRUCTIONS TO THE CONTRARY ARE GIVEN.**

## Summary of the Equity Plan, as amended by the Plan Amendment

The following description of certain features of the Equity Plan, as amended by the Plan Amendment, is intended to be a summary only. The summary is qualified in its entirety by the full text of the Equity Plan, as proposed to be amended, that is attached hereto as Appendix A.

*Shares Available.* The maximum number of shares authorized proposed for issuance under the Equity Plan, as amended by the Plan Amendment, is 20,908,929 shares of Common Stock, which is an increase of 3,400,000 shares from the number of shares currently authorized for issuance under the Equity Plan. The shares underlying any awards that are forfeited, canceled or are otherwise terminated (other than by exercise) under the Equity Plan will be added back to the shares authorized for issuance under the Equity Plan, provided that each share underlying a full-value award issued on or after May 25, 2011 that is surrendered or forfeited will count as 1.79 shares available for subsequent issuance under our Equity Plan. Shares tendered or held back upon exercise of an option or settlement of an award to cover the exercise price or tax withholding are not available for future issuance under the Equity Plan. In addition, upon exercise of stock appreciation rights, the gross number of shares exercised shall be deducted from the total number of shares remaining available for issuance under the Equity Plan. Any shares underlying full-value awards granted on or after May 25, 2011 will be counted against the foregoing authorized reserve of shares under the Equity Plan as 1.79 shares.

*Types of Awards.* The Equity Plan permits us to make grants of incentive stock options, non-qualified stock options, stock appreciation rights, deferred stock awards, restricted stock awards, unrestricted stock awards, performance share awards, cash-based awards and dividend equivalent rights.

*Plan Administration.* The Equity Plan will be administered by the Compensation Committee of the board of directors. The administrator of the Equity Plan has full power and authority to select the participants to whom awards will be granted, to make any combination of awards to participants, to accelerate the exercisability or vesting of any award, subject to limitations, and to determine the specific terms and conditions of each award, subject to the provisions of the Equity Plan. The administrator may delegate to the Chief Executive Officer the authority to grant awards to employees, other than our executive officers, provided that the administrator includes a limitation as to the number of shares that may be awarded and provides specific guidelines regarding such awards.

*Eligibility and Limitations on Grants.* All full-time and part-time officers, employees, non-employee directors and other key persons are eligible to participate in the Equity Plan, subject to the discretion of the administrator. Approximately, 565 individuals are currently eligible to participate in the Equity Plan.

*Performance-Based Compensation.* To ensure that certain awards granted under the Equity Plan, including awards of restricted stock, deferred stock, cash-based awards or performance shares to a "Covered Employee" (as defined in the Code) qualified as "performance-based compensation" under Section 162(m) of the Code (as in effect prior to the enactment of the Tax Cuts and Jobs Act of 2017), the Equity Plan provides that the Compensation Committee may require that the vesting of such awards be conditioned on the satisfaction of performance criteria including: (1) return on equity, assets, capital or investment; (2) pre-tax or after-tax profit levels; (3) cash flow, funds from operations or similar measure; (4) total shareholder return; (5) changes in the market price of the Stock; (6) revenues, sales or market share; (7) net income (loss) or earnings per share; (8) expense margins or operating efficiency (including budgeted spending limits) or (9) project development milestones, any of which may be measured either in absolute terms or as compared to any incremental increase or as compared to results of a peer group and, for financial measures, may be based on numbers calculated in accordance with U.S. generally accepted accounting principles or on an as adjusted basis. These performance criteria may be expressed in terms of overall Company performance or the performance of a division, business unit, or an individual. The Compensation Committee will select the particular performance criteria within 90 days following the commencement of a performance cycle, and each performance cycle must be at least three months long. Subject to adjustments for stock splits and similar events, the maximum award of restricted stock or deferred stock or performance shares (or combination thereof) granted to any one individual that is intended to qualify as "performance-based compensation" under Section 162(m) of the Code will not exceed 1,000,000 shares, or \$2,000,000 in the case of a performance-based award that is a cash-based award for any performance cycle, and options or stock appreciation rights with respect to no more than 1,000,000 shares may be granted to any one individual during any calendar year period. In 2017, the Tax Cuts and Jobs Act of 2017 was enacted which, subject to a transition rule for agreements in effect on November 2, 2017, eliminated the exception under Code Section 162(m) for qualified performance-based compensation and commissions, so that all compensation paid to a covered employee in excess of \$1 million, including performance-based compensation and commissions, is nondeductible.

*Stock Options.* The exercise price of stock options awarded under the Equity Plan may not be less than the fair market value of the Common Stock on the date of the option grant. The term of each stock option may not exceed 10 years from the date of grant. The administrator will determine at what time or times each option may be exercised and, subject to the provisions of the Equity Plan, the period of time, if any, after retirement, death, disability or termination of employment during which options may be exercised.

To qualify as incentive stock options, stock options must meet additional federal tax requirements, including a \$100,000 limit on the value of shares subject to incentive stock options which first become exercisable in any one calendar year, and a shorter term and higher minimum exercise price in the case of certain large stockholders.

*Automatic Grants to Non-Employee Directors.* The Equity Plan provides for the automatic grant of a non-qualified stock option to purchase 25,000 shares of Common Stock to non-employee directors on the fifth day after being initially elected to the Board. The exercise price of the automatically granted stock options is equal to 100% of the fair market value of the Common Stock on the date of grant and, unless otherwise provided by the administrator, one-third of any such stock option grant becomes exercisable on each of the first through third anniversaries of the date of grant. The automatically granted stock options expire ten years after the date of grant.

*Stock Appreciation Rights.* The administrator may award a stock appreciation right independently of a stock option. The administrator may award stock appreciation rights subject to such conditions and restrictions as the administrator may determine, provided that the exercise price may not be less than the fair market value of the Common Stock on the date of grant and no stock appreciation right may be exercisable more than 10 years after the date of grant. Additionally, during the participant's lifetime, all stock appreciation rights are exercisable only by the participant or the participant's legal representative.

*Restricted Stock.* The administrator may award shares to participants subject to such conditions and restrictions as the administrator may determine. These conditions and restrictions may include the achievement of certain performance goals and/or continued employment with the Company through a specified restricted period. However, in the event these awards to employees have a performance-based goal, the restriction period will be at least one year, and in the event these awards to employees have a time-based restriction, the restriction period will be at least three years.

*Deferred Stock.* The administrator may award phantom stock units to participants subject to such conditions and restrictions as the Administrator may determine. These conditions and restrictions may include the achievement of certain performance goals and/or continued employment with the Company through a specified restricted period. However, in the event these awards to employees have a performance-based goal, the restriction period will be at least one year, and in the event these awards to employees have a time-based restriction, the restriction period will be at least three years. At the end of the deferral period, the participants shall be paid, to the extent vested, in shares.

*Unrestricted Stock.* The administrator may grant shares (at par value or for a purchase price determined by the administrator) that are free from any restrictions under the Equity Plan. Unrestricted stock may be issued to participants in recognition of past services or other valid consideration, and may be issued in lieu of cash compensation to be paid to such individuals.

*Performance Shares.* The administrator may grant performance share awards that entitle the recipient to acquire shares of Common Stock upon the attainment of specified performance goals. The administrator determines the performance goals, performance periods and other terms of any such awards. However, performance share awards to employees will have a restriction period of at least one year.

*Cash-Based Awards.* Each cash-based award shall specify a cash-denominated payment amount, formula or payment ranges as determined by the administrator. Payment, if any, with respect to a cash-based award may be made in cash or in shares of Common Stock, as the administrator determines.

*Dividend Equivalent Rights.* The administrator may award dividend equivalent rights under the Equity Plan subject to such conditions and restrictions as the administrator may determine, provided that dividend equivalent rights may only be granted in tandem with restricted stock awards, deferred stock awards, performance share awards or unrestricted stock awards. Dividend equivalents credited to the holder may be paid currently or may be deemed to be reinvested in additional shares of stock, which may thereafter accrue additional equivalents.

*Tax Withholding.* Participants in the Equity Plan are responsible for the payment of any federal, state or local taxes that we are required by law to withhold upon any option exercise or vesting of other awards. Subject to approval by the administrator, participants may elect to have the minimum tax withholding obligations satisfied either by authorizing us to withhold shares to be issued pursuant to an option exercise or other award, or by transferring to us shares having a value equal to the amount of such taxes.

*Change of Control Provisions.* In the event of a merger, sale or dissolution of the Company, or a similar “sale event” (as defined in the Equity Plan) and upon a “change in control” (as defined in the Equity Plan) all outstanding awards under the Equity Plan, unless otherwise provided for in a particular award agreement, all stock options and stock appreciation rights will automatically become fully exercisable and all other awards with conditions and restrictions relating solely to the passage of time will become fully vested and non-forfeitable as of the effective time of the sale event or change in control, except as may be otherwise provided in the relevant award agreement. In addition, upon a sale event, all outstanding awards under the Equity Plan will terminate unless the parties to the transaction, in their discretion, provide for assumption, continuation or appropriate substitutions or adjustments of such awards. In the event of such termination in connection with a sale event, each holder of an option or a stock appreciation right will be permitted to exercise such award for a specified period prior to the consummation of the sale event. The administrator may also provide for a cash payment with respect to outstanding options and stock appreciation rights in exchange for the cancellation of such awards.

*Term.* No awards of incentive stock options may be granted under the Equity Plan after April 13, 2021, being the 10-year anniversary of the date that the Equity Plan was approved by the Board of Directors. No other awards may be granted under the Equity Plan after May 25, 2021, being the 10-year anniversary of the date that the Equity Plan was approved by stockholders.

*Amendments.* Stockholder approval will be required to amend the Equity Plan if the administrator determines that this approval is required to ensure that incentive stock options qualify as such under the Code, or that compensation earned under awards qualifies as performance-based compensation under the Code or as required under the applicable securities exchange or market system rules. Otherwise, the Board of Directors may amend or discontinue the Equity Plan at any time, and the administrator may amend or cancel any outstanding award for the purpose of satisfying changes in law or for any other lawful purpose, provided that no such amendment may adversely affect the rights under any outstanding award without the holder’s consent.

*Repricing.* Other than in the event of a necessary adjustment in connection with a change in our stock or a merger or similar transaction, the administrator may not “reprice” or otherwise reduce the exercise price of outstanding stock options or stock appreciation rights without stockholder approval.

*Effective Date of the Equity Plan.* On April 13, 2011, the Board of Directors approved the Equity Plan, which was approved by the Company’s stockholders on May 25, 2011, at the Company’s 2011 annual meeting.

#### **Tax Aspects Under the Code**

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

*Incentive Options.* No taxable income is generally realized by the optionee upon the grant or exercise of an incentive option. If shares issued to an optionee pursuant to the exercise of an incentive option are sold or transferred after two years from the date of grant and after one year from the date of exercise, then (1) upon sale of such shares, any amount realized in excess of the option price (the amount paid for the shares) will be taxed to the optionee as a long-term capital gain, and any loss sustained will be a long-term capital loss, and (2) there will be no deduction for us for federal income tax purposes. The exercise of an incentive option will give rise to an item of tax preference that may result in alternative minimum tax liability for the optionee.

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

If an incentive option is exercised at a time when it no longer qualifies for the tax treatment described above (e.g., if the holding periods described above are not satisfied), the option is treated as a non-qualified option. In addition, an incentive option will not be eligible for the tax treatment described above if it is exercised more than three months following termination of employment (or one year in the case of termination of employment by reason of disability). In the case of termination of employment by reason of death, the three-month rule does not apply.

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

*Stock Appreciation Rights.* The recipient of a grant of stock appreciation rights will not realize taxable income and we will not be entitled to a deduction with respect to such grant on the date of such grant. Upon the exercise of an stock appreciation rights, the recipient will realize ordinary income equal to the amount of cash (including the amount of any taxes withheld) and the fair market value of any shares received at the time of exercise. In general, we will be entitled to a corresponding deduction, equal to the amount of income realized, subject to the limitations of Section 162(m) of the Code for covered employees..

*Restricted Stock.* A participant who receives a grant of restricted stock will not recognize any taxable income at the time of the award, provided the shares are subject to restrictions (that is, they are nontransferable and subject to a substantial risk of forfeiture). A participant's rights in restricted stock awarded under the plan are subject to a substantial risk of forfeiture if the rights to full enjoyment of the shares are conditioned, directly or indirectly, upon the future performance of substantial services by the participant. However, the participant may elect under Section 83(b) of the Internal Revenue Code to recognize compensation income in the year of the award in an amount equal to the fair market value of the shares on the date of the award, determined without regard to the restrictions. If the participant does not make a Section 83(b) election within 30 days of receipt of the restricted shares, the fair market value of the shares on the date the restrictions lapse, less any amount paid by the participant for such shares, will be treated as compensation income to the participant and will be taxable in the year the restrictions lapse. We generally will be entitled to a compensation deduction for the amount of compensation income the participant recognizes.

*Restricted Stock Units.* A participant will not recognize income, and our Company is not entitled to a deduction, upon a grant of restricted stock units. Upon the delivery to a participant of Common Stock or cash in respect of restricted stock units, a participant generally recognizes ordinary compensation income equal to the fair market value of the shares as of the date of delivery or the cash amount less the purchase price (if any) paid by the participant. When the participant recognizes ordinary income, generally we will be entitled to a tax deduction in the same amount. Upon disposition of any shares acquired through a restricted stock unit award, the participant will recognize long-term or short-term capital gain or loss depending upon the sale price and holding period of the shares.

*Performance Share Awards.* A participant will not recognize income, and our Company is not entitled to a deduction, upon a grant of a performance share award. At the time a performance share award is settled, following the determination that the performance targets have been achieved, the fair market value of the stock delivered on that date, plus any cash that is received, constitutes ordinary income, and generally we will be entitled to a deduction for that amount, subject to the limitations of Section 162(m) of the Code for covered employees. Upon disposition of any shares acquired through a performance share award, the participant will recognize long-term or short-term capital gain or loss depending upon the sale price and holding period of the shares.

*Other Types of Awards.* With respect to other awards under the Equity Plan generally when the participant receives payment with respect to an award, the amount of cash and fair market value the stock or of any other property received will be ordinary income to the participant, and the Company generally will be entitled to a tax deduction in the same amount.

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

*Limitation on the Company's Deductions.* As a result of Section 162(m) of the Code (as amended by the Tax Cuts and Jobs Act of 2017), our deduction for certain awards under the Equity Plan may be limited to the extent that any covered employee, including the Chief Executive Officer or other executive officer whose compensation is required to be reported in the summary compensation table, receives compensation in an applicable year excess of \$1 million a year, including performance-based compensation.

## New Plan Benefits

No grants have been issued with respect to the additional shares to be reserved for issuance under the Equity Plan, as amended by the Plan Amendment, provided however, that the grants described in the table below have been approved by the Compensation Committee subject to stockholder approval of the Plan Amendment. Such grants include the annual long term incentive grants for our named executive officers and other employees that ordinarily would have been granted following the public issuance of our earnings release for fiscal 2017, but were not granted due to the insufficient shares available for issuance under the Equity Plan. The following table provides information with respect to the number of shares underlying awards to be granted to our executive officers, directors who are not executive officers, and employees, under the Equity Plan following approval of the Plan Amendment. Aside from the grants described in the table below, the number of shares that may be granted to our Chief Executive Officer, executive officers, non-employee directors (other than the automatically granted awards) and non-executive officers under the Equity Plan, as amended by the Plan Amendment, is not determinable at this time, as such grants are subject to the discretion of the Compensation Committee. Information about the non-qualified stock options automatically granted to non-employee directors can be found herein under the heading “Automatic Grants to Non-Employee Directors.”

### Harvard Bioscience, Inc. Third Amended and Restated 2000 Stock Option and Incentive Plan

<u>Name and Position</u>	<u>Number of Shares Underlying Option Awards</u>	<u>Number of Time Based RSUs Underlying Awards</u>	<u>Number of Market Condition RSUs Underlying Awards</u>	<u>Total Number of Shares Underlying Awards</u>
Jeffrey A. Duchemin - President and Chief Executive Officer	-	94,444	94,444	188,888
Robert E. Gagnon - Chief Financial Officer and Treasurer	-	40,000	40,000	80,000
Yong Sun - Vice President Commercial Operations	-	22,500	22,500	45,000
All executive officers as a group	-	156,944	156,944	313,888
All directors who are not executive officers, as a group	-	72,000(1)	-	72,000
Employees as a group (excluding executive officers)	35,000	195,000	-	230,000
Totals	<u>35,000</u>	<u>423,944</u>	<u>156,944</u>	<u>615,888</u>

Reference is hereby made to the “Equity Compensation Plan Information” table on page 29 of this Proxy Statement which is incorporated by reference into this Proposal 2 and provides certain details on our current plans.

- (1) As disclosed under Director Compensation on page 11, each non-employee director will be entitled to receive an equity award having an aggregate cash value of \$72,000, rounded to the nearest 100 shares, vesting fully on the earlier to occur of (i) the date of the Company’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 Company’s Annual Meeting of Stockholders, with such award to be evidenced by a grant of deferred stock awards of restricted stock units. The awards reflected in the table above was calculated using the closing stock price on March 31, 2018, and is subject to change based on the closing stock price on the date of grant.

**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 2017 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 2017 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, 2017. THE COMPANY WILL FURNISH, WITHOUT CHARGE, A COPY OF ITS ANNUAL REPORT ON FORM 10-K FOR THE YEAR ENDED DECEMBER 31, 2017 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.**  
THIRD AMENDED AND RESTATED  
2000 STOCK OPTION AND INCENTIVE PLAN  
(as amended)

1) *GENERAL PURPOSE OF THE PLAN; DEFINITIONS*

The name of the plan is the Harvard Bioscience, Inc. Third Amended and Restated 2000 Stock Option and Incentive Plan (the “Plan”). The purpose of the Plan is to encourage and enable the officers, employees, Independent Directors and other key persons (including consultants) of Harvard Bioscience, Inc. (the “Company”) and its Subsidiaries upon whose judgment, initiative and efforts the Company largely depends for the successful conduct of its business to acquire a proprietary interest in the Company. It is anticipated that providing such persons with a direct stake in the Company’s welfare will assure a closer identification of their interests with those of the Company, thereby stimulating their efforts on the Company’s behalf and strengthening their desire to remain with the Company.

The following terms shall be defined as set forth below:

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

“*Administrator*” is defined in Section 2(a).

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

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

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

“*Change of Control*” is defined in Section 19.

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

“*Committee*” means the Compensation Committee of the Board or a similar committee performing the functions of the Compensation Committee and that is comprised of not less than two Independent Directors.

“*Covered Employee*” means an employee who is a “Covered Employee” within the meaning of Section 162(m) of the Code.

“*Deferred Stock Award*” means Awards granted pursuant to Section 8.

“*Dividend Equivalent Right*” means Awards granted pursuant to Section 13.

“*Effective Date*” means the date on which the Plan is approved by stockholders as set forth in Section 21.



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

“*Fair Market Value*” of the Stock on any given date means the fair market value of the Stock determined in good faith by the Administrator; provided, however, that if the Stock is traded on a national securities exchange the Fair Market Value of the Stock will equal the closing sales price as reported on the principal exchange or market for the Stock on such date. If there is no trading on such date, the determination shall be made by reference to the last date preceding such date for which there was trading.

“*Full Value Award*” means any Deferred Stock Award, Restricted Stock Awards, Unrestricted Stock Awards, Performance Share Awards or other Award that results in the Company transferring the full value of any underlying share granted pursuant to such Award, but shall not include Stock Options, Non-Qualified Stock Options, Stock Appreciation Rights.

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

“*Independent Director*” means a member of the Board who is not also an employee of the Company or any Subsidiary and who is independent.

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

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

“*Performance Share Award*” means Awards granted pursuant to Section 11.

“*Performance Cycle*” means one or more periods of time, which may be of varying and overlapping durations, as the Administrator may select, over which the attainment of one or more performance criteria will be measured for the purpose of determining a grantee’s right to and the payment of a Performance Share Award, Restricted Stock Award or Deferred Stock Award. Each such period shall not be less than three months.

“*Restricted Stock Award*” means Awards granted pursuant to Section 7.

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

“*Stock*” means the Common Stock, par value \$.01 per share, of the Company, subject to adjustments pursuant to Section 3.

“*Stock Appreciation Right*” means any Award granted pursuant to Section 6.

“*Subsidiary*” means any corporation or other entity (other than the Company) in any unbroken chain of corporations or other entities beginning with the Company if each of the corporations or entities (other than the last corporation or entity in the unbroken chain) owns stock or other interests possessing 50 percent or more of the economic interest or the total combined voting power of all classes of stock or other interests in one of the other corporations or entities in the chain.

“*Unrestricted Stock Award*” means any Award granted pursuant to Section 9.

2) *ADMINISTRATION OF PLAN; ADMINISTRATOR AUTHORITY TO SELECT GRANTEES AND DETERMINE AWARDS*

a) *Committee*. The Plan shall be administered by either the Board or a committee of not less than two Independent Directors (in either case, the “Administrator”).

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

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

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

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

iv) to determine and modify from time to time the terms and conditions, including restrictions, not inconsistent with the terms of the Plan, of any Award, which terms and conditions may differ among individual Awards and grantees, and to approve the form of written instruments evidencing the Awards;

v) to accelerate at any time the exercisability or vesting of all or any portion of any Award, provided that, other than by reason of, or in connection with, any death, disability, retirement, employment termination (without cause or by the employee for good reason), Sale Event or Change of Control, the Administrator shall not accelerate or waive any restriction period applicable to any outstanding Restricted Stock Award, Deferred Stock Award or Performance Share Award granted to an employee beyond the minimum restriction periods set forth in Section 7(d), Section 8(a) and Section 11(a), respectively, or accelerate the exercisability or vesting of unvested Stock Options which in the aggregate, when combined with the aggregate number of shares of Stock issued pursuant to Section 9, exceed ten percent (10%) of the maximum number of shares of stock reserved and available for issuance under the Plan pursuant to Section 3(a);

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

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

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

c) *Delegation of Authority to Grant Awards*. The Administrator, in its discretion, may delegate to the Chief Executive Officer of the Company all or part of the Administrator’s authority and duties with respect to the granting of Awards at Fair Market Value, to individuals who are not subject to the reporting and other provisions of Section 16 of the Exchange Act or “covered employees” within the meaning of Section 162(m) of the Code. Any such delegation by the Administrator shall include a limitation as to the amount of Awards that may be granted during the period of the delegation and shall contain guidelines as to the determination of the exercise price of any Stock Option or Stock Appreciation Right, the conversion ratio or price of other Awards and the vesting criteria. The Administrator may revoke or amend the terms of a delegation at any time but such action shall not invalidate any prior actions of the Administrator’s delegate or delegates that were consistent with the terms of the Plan.

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

3) *STOCK ISSUABLE UNDER THE PLAN; MERGERS; SUBSTITUTION*

a) *Stock Issuable.* Subject to adjustment as provided in Section 3(b), the maximum number of shares of Stock reserved and available for issuance under the Plan shall be 20,908,929 shares of Stock which number reflects the total of 3,750,000 shares originally reserved, plus the effect of an evergreen provision through December 31, 2005, plus an additional 2,000,000 shares added to the Plan in 2006, plus an additional 2,500,000 shares added to the Plan in 2008 plus an additional 3,700,000 shares added to the Plan in 2011 plus an additional 1,941,254 shares to account for the adjustment required by Section 3(b) pertaining to the Awards issued in connection with the spin-off of Harvard Apparatus Regenerative Technology, Inc. by Harvard Bioscience, Inc. plus an additional 2,500,000 shares added to the Plan in 2015, **plus an additional 3,400,000 shares added to the Plan in 2018**. To the extent an Award expires or terminates or is surrendered or forfeited (other than by exercise), in whole or in part, the shares subject to such Award or portion thereof so forfeited, expired, terminated or surrendered again will become available for future grant or sale under the Plan. Should the exercise price of an Option be paid with shares underlying such Option, then the authorized reserve of shares under the Plan shall be reduced by the gross number of shares for which that Option is exercised, and not by the net number of shares issued under the exercised Option. If shares otherwise issuable under the Plan are withheld by the Company in satisfaction of the withholding taxes incurred in connection with an Award, then the number of shares available for issuance under the Plan shall be reduced by the gross number of shares issuable under the Award, calculated in each instance prior to any such share withholding and, to the extent such shares are issued pursuant to a Full-Value Award issued on or after May 25, 2011, after giving effect to the last sentence of this Section 3(a). In addition, upon exercise of Stock Appreciation Rights, the gross number of shares exercised shall be deducted from the total number of shares remaining available for issuance under the Plan. Shares of Stock may be issued up to such maximum number pursuant to any type or types of Award; provided, however, that Stock Options or Stock Appreciation Rights with respect to no more than 1,000,000 shares of Stock may be granted to any one individual grantee during any one calendar year period. The shares available for issuance under the Plan may be authorized but unissued shares of Stock or shares of Stock reacquired by the Company and held in its treasury. Any shares underlying Full-Value Awards granted on or after May 25, 2011 will be counted against the foregoing authorized reserve of shares under the Plan as 1.79 shares.

b) *Changes in Stock.* Subject to Section 3(c) hereof, if, as a result of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Company's capital stock, the outstanding shares of Stock are increased or decreased or are exchanged for a different number or kind of shares or other securities of the Company, or additional shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such shares of Stock or other securities, or, if, as a result of any merger or consolidation, sale of all or substantially all of the assets of the Company, the outstanding shares of Stock are converted into or exchanged for a different number or kind of securities of the Company or any successor entity (or a parent or subsidiary thereof), the Administrator shall make an appropriate or proportionate adjustment in (i) the maximum number of shares reserved for issuance under the Plan, including the maximum number of shares that may be issued in the form of Unrestricted Stock Awards, Restricted Stock Awards or Performance Share Awards, (ii) the number of Stock Options or Stock Appreciation Rights that can be granted to any one individual grantee and the maximum number of shares that may be granted under a Performance-based Award, (iii) the number and kind of shares or other securities subject to any then outstanding Awards under the Plan, (iv) the repurchase price per share subject to each outstanding Restricted Stock Award, and (v) the price for each share subject to any then outstanding Stock Options and Stock Appreciation Rights under the Plan, without changing the aggregate exercise price (i.e., the exercise price multiplied by the number of Stock Options and Stock Appreciation Rights) as to which such Stock Options and Stock Appreciation Rights remain exercisable in a manner that will trigger tax under Section 409A. The adjustment by the Administrator shall be final, binding and conclusive. No fractional shares of Stock shall be issued under the Plan resulting from any such adjustment, but the Administrator in its discretion may make a cash payment in lieu of fractional shares.

The Administrator shall also adjust the number of shares subject to outstanding Awards and the exercise price and the terms of outstanding Awards to take into consideration material changes in accounting practices or principles, extraordinary dividends, acquisitions or dispositions of stock or property or any other event if it is determined by the Administrator that such adjustment is appropriate to avoid distortion in the operation of the Plan, provided that no such adjustment shall be made in the case of an Incentive Stock Option, without the consent of the grantee, if it would constitute a modification, extension or renewal of the Option within the meaning of Section 424(h) of the Code.

c) *Mergers and Other Transactions.* In the case of and subject to the consummation of (i) the dissolution or liquidation of the Company, (ii) the sale of all or substantially all of the assets of the Company on a consolidated basis to an unrelated person or entity, (iii) a merger, reorganization or consolidation in which the outstanding shares of Stock are converted into or exchanged for a different kind of securities of the successor entity and the holders of the Company's outstanding voting power immediately prior to such transaction do not own a majority of the outstanding voting power of the successor entity immediately upon completion of such transaction, or (iv) the sale of all of the Stock of the Company to an unrelated person or entity (in each case, a "Sale Event"), all Options and Stock Appreciation Rights that are not exercisable immediately prior to the effective time of the Sale Event shall become fully exercisable as of the effective time of the Sale Event and all other Awards with conditions and restrictions relating solely to the passage of time and continued employment shall become fully vested and nonforfeitable as of the effective time of the Sale Event, except as the Administrator may otherwise specify with respect to particular Awards. Upon the effective time of the Sale Event, the Plan and all outstanding Awards granted hereunder shall terminate, unless provision is made in connection with the Sale Event in the sole discretion of the parties thereto for the assumption or continuation of Awards theretofore granted by the successor entity, or the substitution of such Awards with new Awards of the successor entity or parent thereof, with appropriate adjustment as to the number and kind of shares and, if appropriate, the per share exercise prices, as such parties shall agree (after taking into account any acceleration hereunder). In the event of such termination, each grantee shall be permitted, within a specified period of time prior to the consummation of the Sale Event as determined by the Administrator, to exercise all outstanding Options and Stock Appreciation Rights held by such grantee, including those that will become exercisable upon the consummation of the Sale Event; provided, however, that the exercise of Options and Stock Appreciation Rights not exercisable prior to the Sale Event shall be subject to the consummation of the Sale Event.

Notwithstanding anything to the contrary in this Section 3.2(c), in the event of a Sale Event pursuant to which holders of the Stock of the Company will receive upon consummation thereof a cash payment for each share surrendered in the Sale Event, the Company shall have the right, but not the obligation, to make or provide for a cash payment to the grantees holding Options and Stock Appreciation Rights, in exchange for the cancellation thereof, in an amount equal to the difference between (A) the value as determined by the Administrator of the consideration payable per share of Stock pursuant to the Sale Event (the "Sale Price") times the number of shares of Stock subject to outstanding Options and Stock Appreciation Rights (to the extent then exercisable at prices not in excess of the Sale Price) and (B) the aggregate exercise price of all such outstanding Options and Stock Appreciation Rights.

d) *Substitute Awards.* The Administrator may grant Awards under the Plan in substitution for stock and stock based awards held by employees, directors or other key persons of another corporation in connection with the merger or consolidation of the employing corporation with the Company or a Subsidiary or the acquisition by the Company or a Subsidiary of property or stock of the employing corporation. The Administrator may direct that the substitute awards be granted on such terms and conditions as the Administrator considers appropriate in the circumstances. Any substitute Awards granted under the Plan shall not count against the share limitation set forth in Section 3(a).

#### 4) *ELIGIBILITY*

Grantees under the Plan will be such full or part-time officers and other employees, Independent Directors and key persons (including consultants and prospective employees) of the Company and its Subsidiaries as are selected from time to time by the Administrator in its sole discretion.

With respect to the Awards (“Adjustment Awards”) modified or issued in connection with any equitable adjustment by the Company, in accordance herewith and with the formulas and provisions set forth in the Separate and Distribution Agreement that may be entered into by and between the Company and Harvard Apparatus Regenerative Technology, Inc. (“HART”), of certain Awards previously granted by the Company, notwithstanding any other provision of the Plan or Award to the contrary, for purposes of exercisability, vesting and the post-termination exercise periods applicable to any Awards, continued employment with, or service to, the Company (or its subsidiaries) or HART (or its subsidiaries) is considered to be continued employment with, and service to, the other, provided that the failure to exercise Incentive Stock Options within the applicable deadline following any separation from service from the Company shall cause such options to be treated thereafter as Non-Qualified Stock Options

5) *STOCK OPTIONS*

Any Stock Option granted under the Plan shall be in such form as the Administrator may from time to time approve.

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

a) *Stock Options Granted to Employees and Key Persons.* The Administrator in its discretion may grant Stock Options to eligible employees and key persons of the Company or any Subsidiary. Stock Options granted pursuant to this Section 5(a) shall be subject to the following terms and conditions and shall contain such additional terms and conditions, not inconsistent with the terms of the Plan, as the Administrator shall deem desirable. If the Administrator so determines, Stock Options may be granted in lieu of cash compensation at the optionee’s election, subject to such terms and conditions as the Administrator may establish.

i) *Exercise Price.* The exercise price per share for the Stock covered by a Stock Option granted pursuant to this Section 5(a) shall be determined by the Administrator at the time of grant but shall not be less than 100 percent of the Fair Market Value on the date of grant. If an employee owns or is deemed to own (by reason of the attribution rules of Section 424(d) of the Code) more than 10 percent of the combined voting power of all classes of stock of the Company or any parent or subsidiary corporation and an Incentive Stock Option is granted to such employee, the option price of such Incentive Stock Option shall be not less than 110 percent of the Fair Market Value on the grant date.

ii) *Option Term.* The term of each Stock Option shall be fixed by the Administrator, but no Stock Option shall be exercisable more than 10 years after the date the Stock Option is granted. If an employee owns or is deemed to own (by reason of the attribution rules of Section 424(d) of the Code) more than 10 percent of the combined voting power of all classes of stock of the Company or any parent or subsidiary corporation and an Incentive Stock Option is granted to such employee, the term of such Stock Option shall be no more than five years from the date of grant.

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

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

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

(2) Through the delivery (or attestation to the ownership) of shares of Stock that have been purchased by the optionee on the open market or that have been beneficially owned by the optionee for at least six months and are not then subject to restrictions under any Company plan. Such surrendered shares shall be valued at Fair Market Value on the exercise date; or

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

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

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

b) *Stock Options Granted to Independent Directors.*

i) *Automatic Grant of Options.*

- (1) Each Independent Director who is first elected to serve as a Director shall be granted, on the fifth business day after his election, a Non-Qualified Stock Option to acquire 25,000 shares of Stock.
- (2) The exercise price per share for the Stock covered by a Stock Option granted under this Section 5(b) shall be equal to the Fair Market Value of the Stock on the date the Stock Option is granted.
- (3) The Administrator, in its discretion, may grant additional Non-Qualified Stock Options to Independent Directors. Any such grant may vary among individual Independent Directors.

ii) *Exercise; Termination.*

(1) Unless otherwise determined by the Administrator, an Option granted under Section 5(b) shall be exercisable as to one-third of the shares of Stock covered thereby as of the first anniversary of the grant date, as to a second one-third of the shares of Stock covered thereby as of the second anniversary of the grant date, and as to the remaining one-third of the shares of Stock covered thereby as of the third anniversary of the grant date. An Option issued under this Section 5(b) shall not be exercisable after the expiration of ten years from the date of grant.

(2) Options granted under this Section 5(b) may be exercised only by written notice to the Company specifying the number of shares to be purchased. Payment of the full purchase price of the shares to be purchased may be made by one or more of the methods specified in Section 5(a)(iv). An optionee shall have the rights of a stockholder only as to shares acquired upon the exercise of a Stock Option and not as to unexercised Stock Options.

c) *Non-transferability of Options.* No Stock Option shall be transferable by the optionee otherwise than by will or by the laws of descent and distribution and all Stock Options shall be exercisable, during the optionee's lifetime, only by the optionee, or by the optionee's legal representative or guardian in the event of the optionee's incapacity. Notwithstanding the foregoing, the Administrator, in its sole discretion, may provide in the Award agreement regarding a given Option that the optionee may transfer his Non-Qualified Stock Options to members of his immediate family, to trusts for the benefit of such family members, or to partnerships in which such family members are the only partners, provided that the transferee agrees in writing with the Company to be bound by all of the terms and conditions of this Plan and the applicable Option.

6) *STOCK APPRECIATION RIGHTS.*

a) *Nature of Stock Appreciation Rights.* A Stock Appreciation Right is an Award entitling the recipient to receive shares of Stock having a value equal to the excess of the Fair Market Value of the Stock on the date of exercise over the exercise price Stock Appreciation Right, which price shall not be less than 100 percent of the Fair Market Value of the Stock on the date of grant multiplied by the number of shares of Stock with respect to which the Stock Appreciation Right shall have been exercised.

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

c) *Terms and Conditions of Stock Appreciation Rights.* Stock Appreciation Rights shall be subject to such terms and conditions as shall be determined from time to time by the Administrator, provided that during the grantee's lifetime all Stock Appreciation Rights shall be exercisable only by the grantee or the grantee's legal representative.

(d) *Stock Appreciation Rights Term.* The term of each Stock Appreciation Right shall be fixed by the Administrator, but no Stock Appreciation Right shall be exercisable more than ten years after the date the Stock Appreciation Right is granted.

7) *RESTRICTED STOCK AWARDS*

a) *Nature of Restricted Stock Awards.* A Restricted Stock Award is an Award entitling the recipient to acquire, at such purchase price as determined by the Administrator, shares of Stock subject to such restrictions and conditions as the Administrator may determine at the time of grant ("Restricted Stock"). Conditions may be based on continuing employment (or other service relationship) and/or achievement of pre-established performance goals and objectives. The grant of a Restricted Stock Award is contingent on the grantee executing the Restricted Stock Award agreement. The terms and conditions of each such agreement shall be determined by the Administrator, and such terms and conditions may differ among individual Awards and grantees.

b) *Rights as a Stockholder.* Upon execution of a written instrument setting forth the Restricted Stock Award and payment of any applicable purchase price, a grantee shall have the rights of a stockholder with respect to the voting of the Restricted Stock, subject to such conditions contained in the written instrument evidencing the Restricted Stock Award. Unless the Administrator shall otherwise determine, (i) uncertificated Restricted Stock shall be accompanied by a notation on the records of the Company or the transfer agent to the effect that they are subject to forfeiture until such Restricted Stock are vested as provided in Section 7(d) below, and (ii) certificated Restricted Stock shall remain in the possession of the Company until such Restricted Stock is vested as provided in Section 7(d) below, and the grantee shall be required, as a condition of the grant, to deliver to the Company a stock power endorsed in blank.

c) *Restrictions*. Restricted Stock may not be sold, assigned, transferred, pledged or otherwise encumbered or disposed of except as specifically provided herein or in the Restricted Stock Award agreement. If a grantee's employment (or other service relationship) with the Company and its Subsidiaries terminates for any reason, any Restricted Stock that has not vested at the time of termination shall automatically and without any requirement of notice to such grantee from or other action by or on behalf of, the Company be deemed to have been reacquired by the Company at its original purchase price (if any) from such grantee or such grantee's legal representative simultaneously with such termination of employment (or other service relationship), and thereafter shall cease to represent any ownership of the Company by the grantee or rights of the grantee as a stockholder. Following such deemed reacquisition of unvested Restricted Stock that are represented by physical certificates, a grantee shall surrender such certificates to the Company upon request without consideration.

d) *Vesting of Restricted Stock*. The Administrator at the time of grant shall specify the date or dates and/or the attainment of pre-established performance goals, objectives and other conditions on which the non-transferability of the Restricted Stock and the Company's right of repurchase or forfeiture shall lapse. Notwithstanding the foregoing, in the event that any such Restricted Stock granted to an employee shall have a performance-based goal, the restriction period with respect to such shares shall not be less than one year, and in the event any such Restricted Stock granted to an employee shall have a time-based restriction, the restriction period with respect to such shares shall not be less than three years; provided, however, that Restricted Stock with a time-based restriction may become vested incrementally over such three-year period. The minimum vesting requirements set forth in the foregoing sentence will not apply to Restricted Stock granted to an Independent Director. Subsequent to such date or dates and/or the attainment of such pre-established performance goals, objectives and other conditions, the shares on which all restrictions have lapsed shall no longer be Restricted Stock and shall be deemed "vested." Except as may otherwise be provided by the Administrator either in the Award agreement or, subject to Section 17 below, in writing after the Award agreement is issued, a grantee's rights in any shares of Restricted Stock that have not vested shall automatically terminate upon the grantee's termination of employment (or other service relationship) with the Company and its Subsidiaries and such shares shall be subject to the Company's right of repurchase as provided in Section 7(c) above.

e) *Waiver, Deferral and Reinvestment of Dividends*. The Restricted Stock Award agreement may require or permit the immediate payment, waiver, deferral or investment of dividends paid on the Restricted Stock.

8) *DEFERRED STOCK AWARDS*

a) *Nature of Deferred Stock Awards*. A Deferred Stock Award is an Award of phantom stock units to a grantee, subject to restrictions and conditions as the Administrator may determine at the time of grant. Conditions may be based on continuing employment (or other service relationship) and/or achievement of pre-established performance goals and objectives. The grant of a Deferred Stock Award is contingent on the grantee executing the Deferred Stock Award agreement. The terms and conditions of each such agreement shall be determined by the Administrator, and such terms and conditions may differ among individual Awards and grantees. Notwithstanding the foregoing, in the event that any such Deferred Stock Award granted to an employee shall have a performance-based goal, the restriction period with respect to such award shall not be less than one year, and in the event any such Deferred Stock Award granted to an employee shall have a time-based restriction, the restriction period with respect to such award shall not be less than three years; provided, however, that any such Deferred Stock Award with a time-based restriction may become vested incrementally over such three-year period. The minimum vesting requirements set forth in the foregoing sentence will not apply to Deferred Stock Awards granted to Independent Directors. At the end of the deferral period, the Deferred Stock Award, to the extent vested, shall be paid to the grantee in the form of shares of Stock. To the extent that a Deferred Stock Award is subject to Section 409A, it may contain such additional terms and conditions as the Administrator shall determine in its sole discretion in order for such Award to comply with the requirements of Section 409A.



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

c) *Rights as a Stockholder.* During the deferral period, a grantee shall have no rights as a stockholder; provided, however, that the grantee may be credited with Dividend Equivalent Rights with respect to the phantom stock units underlying his Deferred Stock Award, subject to such terms and conditions as the Administrator may determine.

d) *Restrictions.* A Deferred Stock Award may not be sold, assigned, transferred, pledged or otherwise encumbered or disposed of during the deferral period.

e) *Termination.* Except as may otherwise be provided by the Administrator either in the Award agreement or, subject to Section 17 below, in writing after the Award agreement is issued, a grantee's right in all Deferred Stock Awards that have not vested shall automatically terminate upon the grantee's termination of employment (or cessation of service relationship) with the Company and its Subsidiaries for any reason.

#### 9) *UNRESTRICTED STOCK AWARDS*

The Administrator may, in its sole discretion, grant (or sell at par value or such higher purchase price determined by the Administrator) an Unrestricted Stock Award to any grantee pursuant to which such grantee may receive shares of Stock free of any restrictions ("Unrestricted Stock") under the Plan. Unrestricted Stock Awards may be granted in respect of past services or other valid consideration, or in lieu of cash compensation due to such grantee. The aggregate number of shares of Stock issuable pursuant to this Section 9, when combined with the number of shares of underlying unvested Stock Options accelerated pursuant to Section 2(b)(v) other than by reason of, or in connection with, any death, disability, retirement, employment termination (without cause or by the employee for good reason), Sale Event or Change of Control, is limited to ten percent (10%) of the maximum number of shares of Stock reserved and available for issuance under the Plan pursuant to Section 3(a).

#### 10) *CASH-BASED AWARDS*

The Administrator may, in its sole discretion, grant Cash-Based Awards to any grantee in such number or amount and upon such terms, and subject to such conditions, as the Administrator shall determine at the time of grant. The Administrator shall determine the maximum duration of the Cash-Based Award, the amount of cash to which the Cash-Based Award pertains, the conditions upon which the Cash-Based Award shall become vested or payable, and such other provisions as the Administrator shall determine. Each Cash-Based Award shall specify a cash-denominated payment amount, formula or payment ranges as determined by the Administrator. Payment, if any, with respect to a Cash-Based Award shall be made in accordance with the terms of the Award and may be made in cash or in shares of Stock, as the Administrator determines.

#### 11) *PERFORMANCE SHARE AWARDS*

a) *Nature of Performance Share Awards.* A Performance Share Award is an Award entitling the recipient to acquire shares of Stock upon the attainment of specified performance goals. The Administrator may make Performance Share Awards independent of or in connection with the granting of any other Award under the Plan. The Administrator in its sole discretion shall determine whether and to whom Performance Share Awards shall be made, the performance goals, the periods during which performance is to be measured, and all other limitations and conditions. Notwithstanding the foregoing, any Performance Share Award granted to an employee shall have a restriction period of not less than one year. The minimum vesting requirements set forth in the foregoing sentence will not apply to Performance Share Awards granted to Independent Directors.

b) *Rights as a Stockholder.* A grantee receiving a Performance Share Award shall have the rights of a stockholder only as to shares actually received by the grantee under the Plan and not with respect to shares subject to the Award but not actually received by the grantee. A grantee shall be entitled to receive a stock certificate evidencing the acquisition of shares of Stock under a Performance Share Award only upon satisfaction of all conditions specified in the Performance Share Award agreement (or in a performance plan adopted by the Administrator).

c) *Termination.* Except as may otherwise be provided by the Administrator either in the Award agreement or, subject to Section 17 below, in writing after the Award agreement is issued, a grantee's rights in all Performance Share Awards shall automatically terminate upon the grantee's termination of employment (or cessation of service relationship) with the Company and its Subsidiaries for any reason.

#### 12) *PERFORMANCE-BASED AWARDS TO COVERED EMPLOYEES*

Notwithstanding anything to the contrary contained herein, if any Restricted Stock Award, Deferred Stock Award, Cash-Based Award or Performance Share Award granted to a Covered Employee is intended to qualify as "Performance-based Compensation" under Section 162(m) of the Code and the regulations promulgated thereunder (a "Performance-based Award"), such Award shall comply with the provisions set forth below:

a) *Performance Criteria.* The Administrator shall define in an objective fashion the manner of calculating the Performance Criteria it selects to use for any Performance Cycle. Depending on the Performance Criteria used to establish such Performance Goals, the Performance Goals may be expressed in terms of overall Company performance or the performance of a division, business unit, or an individual. The Administrator, in its discretion, may adjust or modify the calculation of Performance Goals for such Performance Cycle in order to prevent dilution or enlargement of the rights of an individual (x) in the event of, or in anticipation of, any unusual or extraordinary corporate item, transaction, event or development, (y) in recognition of, or in anticipation of, any either unusual or nonrecurring events affecting the Company, or the financial statements of the Company, or (z) in response to, or in anticipation of, changes in applicable laws, regulations, accounting principles, or business conditions provided however, that the Administrator may not exercise such discretion in a manner that would increase the Performance-Based Award granted to a Covered Employee. The performance criteria used in performance goals governing Performance-based Awards granted to Covered Employees may include any or all of the following: (i) return on equity, assets, capital or investment; (ii) pre-tax or after-tax profit levels; (iii) cash flow, funds from operations or similar measure; (iv) total shareholder return; (v) changes in the market price of the Stock; (vi) revenues, sales or market share; (vii) net income (loss) or earnings per share; (viii) expense margins or operating efficiency (including budgeted spending limits) or (ix) project development milestones, any of which may be measured either in absolute terms or as compared to any incremental increase or as compared to results of a peer group and, for financial measures, may be based on numbers calculated in accordance with U.S. generally accepted accounting principles or on an as adjusted basis.

b) *Grant of Performance-based Awards.* With respect to each Performance-based Award granted to a Covered Employee, the Committee shall select, within the first 90 days of a Performance Cycle (or, if shorter, within the maximum period allowed under Section 162(m) of the Code) the performance criteria for such grant, and the achievement targets with respect to each performance criterion (including a threshold level of performance below which no amount will become payable with respect to such Award). Each Performance-based Award will specify the amount payable, or the formula for determining the amount payable, upon achievement of the various applicable performance targets. The performance criteria established by the Committee may be (but need not be) different for each Performance Cycle and different goals may be applicable to Performance-based Awards to different Covered Employees.

c) *Payment of Performance-based Awards.* Following the completion of a Performance Cycle, the Committee shall meet to review and certify in writing whether, and to what extent, the performance criteria for the Performance Cycle have been achieved and, if so, to also calculate and certify in writing the amount of the Performance-based Awards earned for the Performance Cycle. The Committee shall then determine the actual size of each Covered Employee's Performance-based Award, and, in doing so, may reduce or eliminate the amount of the Performance-based Award for a Covered Employee if, in its sole judgment, such reduction or elimination is appropriate.

d) *Maximum Award Payable.* The maximum Performance-based Award payable to any one Covered Employee under the Plan for a Performance Cycle is 1,000,000 Shares (subject to adjustment as provided in Section 3(b) hereof) or \$2,000,000 in the case of a Performance-based Award that is a Cash-Based Award; provided, however, that such limits shall not otherwise limit the Administrator's ability to grant awards not intended to qualify as Performance-based Awards.

### 13) *DIVIDEND EQUIVALENT RIGHTS*

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

b) *Interest Equivalents.* Any Award under this Plan that is settled in whole or in part in cash on a deferred basis may provide in the grant for interest equivalents to be credited with respect to such cash payment. Interest equivalents may be compounded and shall be paid upon such terms and conditions as may be specified by the grant.

c) *Termination.* Except as may otherwise be provided by the Administrator either in the Award agreement or, subject to Section 17 below, in writing after the Award agreement is issued, a grantee's rights in all Dividend Equivalent Rights or interest equivalents shall automatically terminate upon the grantee's termination of employment (or cessation of service relationship) with the Company and its Subsidiaries for any reason.

### 14) *TAX WITHHOLDING*

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

b) *Payment in Stock.* Subject to approval by the Administrator, a grantee may elect to have the Company's minimum required tax withholding obligation satisfied, in whole or in part, by (i) authorizing the Company to withhold from shares of Stock to be issued pursuant to any Award a number of shares with an aggregate Fair Market Value (as of the date the withholding is effected) that would satisfy the withholding amount due, or (ii) transferring to the Company shares of Stock owned by the grantee with an aggregate Fair Market Value (as of the date the withholding is effected) that would satisfy the withholding amount due.

15) *SECTION 409A AWARDS.*

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

16) *TRANSFER, LEAVE OF ABSENCE, ETC.*

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

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

17) *AMENDMENTS AND TERMINATION*

The Board may, at any time, amend or discontinue the Plan and the Administrator may, at any time, amend or cancel any outstanding Award for the purpose of satisfying changes in law or for any other lawful purpose, but no such action shall adversely affect rights under any outstanding Award without the holder’s consent. Except as provided in Section 3(b) or 3(c), in no event may the Administrator exercise its discretion to reduce the exercise price of outstanding Stock Options or Stock Appreciation Rights or effect repricing through cancellation and regrants or by exchanging a Stock Option or Stock Appreciation Right for any other Award, without stockholder approval. If and to the extent determined by the Administrator to be required by the Code to ensure that Incentive Stock Options granted under the Plan are qualified under Section 422 of the Code or to ensure that compensation earned under Awards qualifies as performance-based compensation under Section 162(m) of the Code, if and to the extent intended to so qualify, and to the extent required under the applicable rules of Nasdaq, or such other securities exchange or market system on which the Stock is then principally listed, Plan amendments shall be subject to approval by the Company stockholders entitled to vote at a meeting of stockholders. Nothing in this Section 17 shall limit the Administrator’s authority to take any action permitted pursuant to Section 3(c).

18) *STATUS OF PLAN*

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

19) *CHANGE OF CONTROL PROVISIONS*

Upon the occurrence of a Change of Control as defined in this Section 19:

a) Except as otherwise provided in the applicable Award agreement, each outstanding Stock Option and Stock Appreciation Right shall automatically become fully exercisable.

b) Except as otherwise provided in the applicable Award Agreement, conditions and restrictions on each outstanding Restricted Stock Award, Deferred Stock Award and Performance Share Award which relate solely to the passage of time and continued employment will be removed. Performance or other conditions (other than conditions and restrictions relating solely to the passage of time and continued employment) will continue to apply unless otherwise provided in the applicable Award agreement.

c) "Change of Control" shall mean the occurrence of any one of the following events:

i) any "Person," as such term is used in Sections 13(d) and 14(d) of the Act (other than the Company, any of its Subsidiaries, or any trustee, fiduciary or other person or entity holding securities under any employee benefit plan or trust of the Company or any of its Subsidiaries), together with all "affiliates" and "associates" (as such terms are defined in Rule 12b-2 under the Exchange Act) of such person, shall become the "beneficial owner" (as such term is defined in Rule 13d-3 under the Exchange Act), directly or indirectly, of securities of the Company representing 25 percent or more of the combined voting power of the Company's then outstanding securities having the right to vote in an election of the Company's Board of Directors ("Voting Securities") (in such case other than as a result of an acquisition of securities directly from the Company); or

ii) persons who, as of the Effective Date, constitute the Company's Board of Directors (the "Incumbent Directors") cease for any reason, including, without limitation, as a result of a tender offer, proxy contest, merger or similar transaction, to constitute at least a majority of the Board, provided that any person becoming a director of the Company subsequent to the Effective Date shall be considered an Incumbent Director if such person's election was approved by or such person was nominated for election by either (A) a vote of at least a majority of the Incumbent Directors or (B) a vote of at least a majority of the Incumbent Directors who are members of a nominating committee comprised, in the majority, of Incumbent Directors; but provided further, that any such person whose initial assumption of office is in connection with an actual or threatened election contest relating to the election of members of the Board of Directors or other actual or threatened solicitation of proxies or consents by or on behalf of a Person other than the Board, including by reason of agreement intended to avoid or settle any such actual or threatened contest or solicitation, shall not be considered an Incumbent Director; or

iii) the consummation of a consolidation, merger or consolidation or sale or other disposition of all or substantially all of the assets of the Company (a "Corporate Transaction"); excluding, however, a Corporate Transaction in which the stockholders of the Company immediately prior to the Corporate Transaction, would, immediately after the Corporate Transaction, beneficially own (as such term is defined in Rule 13d-3 under the Act), directly or indirectly, shares representing in the aggregate more than 50 percent of the voting shares of the corporation issuing cash or securities in the Corporate Transaction (or of its ultimate parent corporation, if any); or

iv) the approval by the stockholders of any plan or proposal for the liquidation or dissolution of the Company.

Notwithstanding the foregoing, a "Change of Control" shall not be deemed to have occurred for purposes of the foregoing clause (i) solely as the result of an acquisition of securities by the Company which, by reducing the number of shares of Voting Securities outstanding, increases the proportionate number of shares of Voting Securities beneficially owned by any person to 25 percent or more of the combined voting power of all then outstanding Voting Securities; *provided, however*, that if any person referred to in this sentence shall thereafter become the beneficial owner of any additional shares of Voting Securities (other than pursuant to a stock split, stock dividend, or similar transaction or as a result of an acquisition of securities directly from the Company) and immediately thereafter beneficially owns 25 percent or more of the combined voting power of all then outstanding Voting Securities, then a "Change of Control" shall be deemed to have occurred for purposes of the foregoing clause (i).

20) GENERAL PROVISIONS

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

No shares of Stock shall be issued pursuant to an Award until all applicable securities law and other legal and stock exchange or similar requirements have been satisfied. The Administrator may require the placing of such stop-orders and restrictive legends on certificates for Stock and Awards as it deems appropriate.

b) *Delivery of Stock Certificates.* Stock certificates to grantees under this Plan shall be deemed delivered for all purposes when the Company or a stock transfer agent of the Company shall have mailed such certificates in the United States mail, addressed to the grantee, at the grantee's last known address on file with the Company. Uncertificated Stock shall be deemed delivered for all purposes when the Company or a Stock transfer agent of the Company shall have given to the grantee by electronic mail (with proof of receipt) or by United States mail, addressed to the grantee, at the grantee's last known address on file with the Company, notice of issuance and recorded the issuance in its records (which may include electronic "book entry" records). Notwithstanding anything herein to the contrary, the Company shall not be required to issue or deliver any certificates evidencing shares of Stock pursuant to the exercise of any Award, unless and until the Administrator has determined, with advice of counsel (to the extent the Administrator deems such advice necessary or advisable), that the issuance and delivery of such certificates is in compliance with all applicable laws, regulations of governmental authorities and, if applicable, the requirements of any exchange on which the shares of Stock are listed, quoted or traded. All Stock certificates delivered pursuant to the Plan shall be subject to any stop-transfer orders and other restrictions as the Administrator deems necessary or advisable to comply with federal, state or foreign jurisdiction, securities or other laws, rules and quotation system on which the Stock is listed, quoted or traded. The Administrator may place legends on any Stock certificate to reference restrictions applicable to the Stock. In addition to the terms and conditions provided herein, the Administrator may require that an individual make such reasonable covenants, agreements, and representations as the Administrator, in its discretion, deems necessary or advisable in order to comply with any such laws, regulations, or requirements. The Administrator shall have the right to require any individual to comply with any timing or other restrictions with respect to the settlement or exercise of any Award, including a window-period limitation, as may be imposed in the discretion of the Administrator.

c) *Stockholder Rights.* Until Stock is deemed delivered in accordance with Section 20(b), no right to vote or receive dividends or any other rights of a stockholder will exist with respect to shares of Stock to be issued in connection with an Award, notwithstanding the exercise of a Stock Option or any other action by the grantee with respect to an Award.

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

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

f) *Forfeiture of Awards under Sarbanes-Oxley Act.* If the Company is required to prepare an accounting restatement due to the material noncompliance of the Company, as a result of misconduct, with any financial reporting requirement under the securities laws, then, to the extent required by law, any grantee who is one of the individuals subject to automatic forfeiture under Section 304 of the Sarbanes-Oxley Act of 2002 shall reimburse the Company for the amount of any Award received by such individual under the Plan during the 12-month period following the first public issuance or filing with the United States Securities and Exchange Commission, as the case may be, of the financial document embodying such financial reporting requirement.

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

21) *EFFECTIVE DATE OF PLAN*

This Plan shall become effective upon approval by the holders of a majority of the votes cast at a meeting of stockholders at which a quorum is present. Subject to such approval by the stockholders and to the requirement that no Stock may be issued hereunder prior to such approval, Stock Options and other Awards may be granted hereunder on and after adoption of this Plan by the Board. No Incentive Stock Options may be granted under the Plan after the 10-year anniversary of the most recent prior date on which the Plan was approved by the Board of Directors (provided that the Plan was approved by stockholders within one year of such date) and no other Award may be granted under the Plan after the 10-year anniversary of the most recent prior date on which the Plan was approved by stockholders.

22) *GOVERNING LAW*

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

DATE APPROVED BY BOARD OF DIRECTORS: October 26, 2000

DATE APPROVED BY STOCKHOLDERS: November 29, 2000

DATE AMENDMENT AND RESTATEMENT APPROVED BY BOARD OF DIRECTORS: April 5, 2006

DATE AMENDMENT AND RESTATEMENT APPROVED BY STOCKHOLDERS: May 18, 2006

DATE SECOND AMENDMENT AND RESTATEMENT APPROVED BY BOARD OF DIRECTORS: April 10, 2008

DATE SECOND AMENDMENT AND RESTATEMENT APPROVED BY STOCKHOLDERS: May 15, 2008

DATE FIRST AMENDMENT TO SECOND AMENDED AND RESTATED 2000 STOCK OPTION AND INCENTIVE PLAN APPROVED BY BOARD OF DIRECTORS: February 24, 2009

DATE THIRD AMENDMENT AND RESTATEMENT APPROVED BY BOARD OF DIRECTORS: April 13, 2011

DATE THIRD AMENDMENT AND RESTATEMENT APPROVED BY STOCKHOLDERS: May 25, 2011

DATE FIRST AMENDMENT TO HARVARD BIOSCIENCE, INC. THIRD AMENDED AND RESTATED 2000 STOCK OPTION AND INCENTIVE PLAN APPROVED BY BOARD OF DIRECTORS: March 9, 2013.

DATE SECOND AMENDMENT TO HARVARD BIOSCIENCE, INC. THIRD AMENDED AND RESTATED 2000 STOCK OPTION AND INCENTIVE PLAN APPROVED BY BOARD OF DIRECTORS: APRIL 3, 2015.

DATE SECOND AMENDMENT TO HARVARD BIOSCIENCE, INC. THIRD AMENDED AND RESTATED 2000 STOCK OPTION AND INCENTIVE PLAN APPROVED BY STOCKHOLDERS: MAY 28, 2015.

**DATE THIRD AMENDMENT TO HARVARD BIOSCIENCE, INC. THIRD AMENDED AND RESTATED 2000 STOCK OPTION AND INCENTIVE PLAN APPROVED BY BOARD OF DIRECTORS: APRIL 2, 2018.**

**DATE THIRD AMENDMENT TO HARVARD BIOSCIENCE, INC. THIRD AMENDED AND RESTATED 2000 STOCK OPTION AND INCENTIVE PLAN APPROVED BY STOCKHOLDERS: MAY 17, 2018.**



**THIRD AMENDMENT TO  
HARVARD BIOSCIENCE, INC.  
THIRD AMENDED AND RESTATED 2000 STOCK OPTION AND INCENTIVE PLAN**

This Third Amendment to the Harvard Bioscience, Inc. Third Amended and Restated 2000 Stock Option and Incentive Plan (the "Plan") is effective as of May 17, 2018 (the "Effective Date").

Pursuant to the authorization and approval of the Board of Directors and stockholders of Harvard Bioscience, Inc. in accordance with Section 17 of the Plan, the Plan is hereby amended as follows, effective as of the Effective Date:

1. Section 3(a): The first sentence in Section 3(a) is hereby deleted in its entirety and replaced with the following in its stead:

“a) *Stock Issuable*. Subject to adjustment as provided in Section 3(b), the maximum number of shares of Stock reserved and available for issuance under the Plan shall be 20,908,929 shares of Stock which number reflects the total of 3,750,000 shares originally reserved, plus the effect of an evergreen provision through December 31, 2005, plus an additional 2,000,000 shares added to the Plan in 2006, plus an additional 2,500,000 shares added to the Plan in 2008, plus an additional 3,700,000 shares added to the Plan in 2011, plus an additional 1,941,254 shares to account for the adjustment required by Section 3(b) pertaining to the Awards issued in connection with the spin-off of Harvard Apparatus Regenerative Technology, Inc. by Harvard Bioscience, Inc., plus an additional 2,500,000 shares added to the Plan in 2015, plus an additional 3,400,000 shares added to the Plan in 2018.”

2. The following is added to the end of the Plan:

“DATE THIRD AMENDMENT TO HARVARD BIOSCIENCE, INC. THIRD AMENDED AND RESTATED 2000 STOCK OPTION AND INCENTIVE PLAN APPROVED BY BOARD OF DIRECTORS: APRIL 2, 2018.

DATE THIRD AMENDMENT TO HARVARD BIOSCIENCE, INC. THIRD AMENDED AND RESTATED 2000 STOCK OPTION AND INCENTIVE PLAN APPROVED BY STOCKHOLDERS: MAY 17, 2018.”

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

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

**HARVARD BIOSCIENCE, INC.**

By:

\_\_\_\_\_  
Name: Jeffrey A. Duchemin  
Title: Chief Executive Officer

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



**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:

E42727-P04080

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

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

<b>HARVARD BIOSCIENCE, INC.</b>		<b>For All</b>	<b>Withhold All</b>	<b>For All Except</b>	To withhold authority to vote for any individual nominee(s), mark "For All Except" and write the number(s) of the nominee(s) on the line below.
<b>The Board of Directors recommends you vote FOR the following:</b>					
1.	Election of Director	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Nominee:</b>					
01) Jeffery A. Duchemin					
<b>The Board of Directors recommends you vote FOR proposals 2, 3 and 4:</b>					
		<b>For</b>	<b>Against</b>	<b>Abstain</b>	
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, 2018.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	To amend the Harvard Bioscience, Inc. Third Amended and Restated Stock Option and Incentive Plan to increase the number of authorized shares of common stock available for issuance thereunder by 3,400,000 shares.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Approval, by a non-binding advisory vote, of the compensation of our named executive officers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>NOTE:</b> 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. <input type="checkbox"/>					
Please indicate if you plan to attend this meeting. <input type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b>					
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.					
<input type="text"/>		<input type="text"/>		<input type="text"/>	
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).

E42728-P04080

**HARVARD BIOSCIENCE, INC.  
Annual Meeting of Shareholders  
May 17, 2018 at 11:00 AM EDT  
This proxy is solicited by the Board of Directors**

The shareholder(s) hereby appoint(s) Jeffrey A. Duchemin and Robert Gagnon, or any of them, as proxies, each with the power to appoint his 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 shareholder(s) is/are entitled to vote at the Annual Meeting of Shareholders to be held at 11:00 AM, EDT on May 17, 2018 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**