

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.

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(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 28, 2020

Dear Stockholder:

You are cordially invited to attend the 2020 Annual Meeting of Stockholders of Harvard Bioscience, Inc. (the "Annual Meeting") to be held on Thursday, June 11, 2020 at 11:00 a.m. EDT. Due to the emerging public health impact of the coronavirus outbreak (COVID-19) and to support the health and well-being of our stockholders, the Annual Meeting will be held by virtual meeting only. You will not be able to attend the Annual Meeting in person. To be admitted to the Annual Meeting at www.virtualshareholdermeeting.com/HBIO2020, you must enter the control number found on your proxy card, voting instruction form or notice you previously received. You may vote during the Annual Meeting by following the instructions available on the meeting website during the meeting. At the meeting, we will be voting on the matters described in the accompanying 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 28, 2020. The proxy statement and our Annual Report on Form 10-K for the year ended December 31, 2019, are available at www.proxyvote.com.

The Notice of Internet Availability of Proxy Materials contains instructions for our stockholders' use of this process, including how to access or receive copies of our proxy statement and 2019 Annual Report and how to vote by Internet or mail. To the extent you receive a proxy card, such proxy card will also contain instructions on how to vote, including the option to vote by telephone.

If you are unable to attend the meeting virtually, 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 virtually may vote through the meeting website, even if he or she has already voted through the Internet, by telephone or by mail.

The Board of Directors has fixed the close of business on April 17, 2020 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. OUR ANNUAL MEETING WILL BE HELD AS A VIRTUAL MEETING. WHETHER OR NOT YOU PLAN TO ATTEND THE ANNUAL MEETING VIRTUALLY, PLEASE CAST YOUR VOTE ONLINE, BY TELEPHONE OR BY COMPLETING, DATING, SIGNING AND PROMPTLY RETURNING YOUR PROXY CARD OR VOTING INSTRUCTION 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.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Green', with a long horizontal flourish extending to the right.

James Green
Chairman of the Board, 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, June 11, 2020

NOTICE IS HEREBY GIVEN that the 2020 Annual Meeting of Stockholders (the “Annual Meeting”) of Harvard Bioscience, Inc. (the “Company”) will be held on Thursday, June 11, 2020, at 11:00 a.m. EDT. Due to the emerging public health impact of the coronavirus outbreak (COVID-19) and to support the health and well-being of our stockholders, the Annual Meeting will be held by virtual meeting only. You will not be able to attend the Annual Meeting in person. To be admitted to the Annual Meeting at www.virtualshareholdermeeting.com/HBIO2020, you must enter the control number found on your proxy card, voting instruction form or notice you previously received. You may vote during the Annual Meeting by following the instructions available on the meeting website during the meeting. The Annual Meeting will be held for the following purposes:

1. The election of two Class II Directors named in the accompanying proxy statement, each nominated by the Board of Directors for a three-year term, such term to continue until the annual meeting of stockholders in 2023 and until such Director’s successor is duly elected and qualified or until his or her 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, 2020;
3. Approval of the Harvard Bioscience, Inc. Fourth Amended and Restated 2000 Stock Option and Incentive Plan to, among other things, increase the number of authorized shares of Common Stock available for issuance thereunder by 3,700,000 and to reduce the fungible share ratio thereunder;
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 April 17, 2020 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.

The Board of Directors of Harvard Bioscience, Inc. recommends that you vote “FOR” the election of the nominees of the Board of Directors as Directors of Harvard Bioscience, Inc., “FOR” the proposal to ratify the appointment of Grant Thornton LLP as the Company’s independent registered public accounting firm, “FOR” the proposal to approve the Harvard Bioscience, Inc. Fourth Amended and Restated 2000 Stock Option and Incentive Plan to, among other things, increase the number of authorized shares of Common Stock available for issuance thereunder by 3,700,000 and to reduce the fungible share ratio thereunder , 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 June 11, 2020: The proxy statement and the Annual Report on Form 10-K for the year ended December 31, 2019 are available at www.proxyvote.com. The Annual Report, however, is not part of the proxy solicitation material.

By Order of the Board of Directors,

A handwritten signature in black ink, appearing to read 'J. Green', written over a horizontal line.

James Green
Chairman of the Board, President and Chief Executive Officer

Holliston, Massachusetts
April 28, 2020

YOUR VOTE IS IMPORTANT. OUR ANNUAL MEETING WILL BE HELD AS A VIRTUAL MEETING. WHETHER OR NOT YOU PLAN TO ATTEND THE ANNUAL MEETING VIRTUALLY, 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.
Proxy Statement**

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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, June 11, 2020

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 2020 Annual Meeting of Stockholders of the Company (the “Annual Meeting”) to be held on Thursday, June 11, 2020, at 11:00 a.m. EDT, and any adjournments or postponements thereof. Due to the emerging public health impact of the coronavirus outbreak (COVID-19) and to support the health and well-being of our stockholders, the Annual Meeting will be held by virtual meeting only. You will not be able to attend the Annual Meeting in person. To be admitted to the Annual Meeting at www.virtualshareholdermeeting.com/HBIO2020, you must enter the control number found on your proxy card, voting instruction form or notice you previously received. You may vote during the Annual Meeting by following the instructions available on the meeting website during the meeting.

At the Annual Meeting, the stockholders of the Company will be asked to consider and vote upon:

1. The election of two Class II Directors named in this proxy statement, each nominated by the Board of Directors (or the “Board”) for a three-year term, such term to continue until the annual meeting of stockholders in 2023 and until such Director’s successor is duly elected and qualified or until his or her 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, 2020;
3. Approval of the Harvard Bioscience, Inc. Fourth Amended and Restated 2000 Stock Option and Incentive Plan to, among other things, increase the number of authorized shares of Common Stock available for issuance thereunder by 3,700,000 and to reduce the fungible share ratio thereunder;
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 furnishing proxy materials, which include our proxy statement and our Annual Report on Form 10-K for the year ended December 31, 2019 (the “Annual Report”), to our stockholders over the Internet, and providing a Notice of Internet Availability of Proxy Materials (the “Notice”) 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 is first being mailed to stockholders of the Company on or about April 28, 2020, in connection with the solicitation of proxies for the Annual Meeting. The Board of Directors has fixed the close of business on April 17, 2020 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 38,375,133 shares of Common Stock outstanding and entitled to vote at the Annual Meeting and approximately 104 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, virtually online 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 virtually 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. If the beneficial owner does not provide voting instructions, the broker or nominee can still vote the shares with respect to matters that are considered to be “routine,” but not with respect to “non-routine” matters. Proposal No. 2, the ratification of the appointment of Grant Thornton LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2020, is considered “routine” under applicable rules. A broker or other nominee may generally vote on routine matters without voting instructions from beneficial owners, and therefore no broker non-votes are expected to exist in connection with Proposal 2. The remaining proposals are considered “non-routine” under applicable rules. A broker or other nominee cannot vote without instructions on non-routine matters, and therefore there may be broker non-votes on those proposals. Accordingly, if you own shares in street name through a broker, bank or other nominee, please be sure to provide voting instructions to your nominee to ensure that your vote is counted on each of the proposals.

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

Approval of Proposal Nos. 2, 3 and 4 require the affirmative vote of a majority of the votes cast at the Annual Meeting virtually online or by proxy.

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

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. Instead, the Notice will instruct you how you may access and review all of the important information contained in the proxy materials. The Notice 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 (in addition to voting by Internet or mail). If you received a Notice 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.

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 broker or nominee, 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 virtually online or to attend the Annual Meeting virtually. Any record holder as of the Record Date may attend the Annual Meeting virtually and may revoke a previously provided proxy at any time by: (i) submitting a new vote on the Internet or by telephone or submitting a properly completed proxy card with a later date; (ii) sending written notice that you are revoking your proxy to the corporate secretary at Harvard Bioscience, Inc., 84 October Hill Road, Holliston, Massachusetts 01746-1371, with such notice received by June 9, 2020; or (iii) attend the Annual Meeting virtually online and vote through the Annual Meeting website. Attendance at the Annual Meeting will not, by itself, revoke a proxy. If your shares are held by your broker or nominee, you should follow the instructions provided by such broker or nominee to revoke an earlier vote.

Beneficial holders who wish to attend the Annual Meeting virtually and vote through the Annual Meeting website 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 through the Annual Meeting website.

You will be able to participate in the Annual Meeting online and submit your questions during the meeting by visiting www.virtualshareholdermeeting.com/HBIO2020. To be admitted to the Annual Meeting, you must enter the control number found on your proxy card, voting instruction form or notice you received. You also will be able to vote your shares electronically prior to or during the Annual Meeting.

If you want to submit a question during the Annual Meeting, log into www.virtualshareholdermeeting.com/HBIO2020, type your question into the “Ask a Question” field, and click “Submit.” Questions pertinent to meeting matters will be read and answered during the meeting, subject to time constraints.

If you encounter any difficulties accessing the virtual meeting during the check-in or meeting time, please call the technical support number that will be posted on the Virtual Shareholder Meeting log in page.

Our Board of Directors recommends a vote “FOR” the nominees of the Board of Directors with respect to Proposal No. 1, and “FOR” 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 submit a properly executed proxy but 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.**

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. Additionally, the Company has retained Okapi Partners LLC to assist in the solicitation of proxies on behalf of the Board for a fee not to exceed \$60,000, plus reimbursement of reasonable expenses. 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.

Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting to be Held on Thursday, June 11, 2020: The proxy statement and Annual Report, are available at 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 seven members and is divided into three classes of Directors, with two Directors in Class I, two Directors in Class II and three Directors in Class III.

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

At the Annual Meeting, two Class II Directors, each nominated by the Board of Directors, will stand for election to serve until the 2023 annual meeting of stockholders. At the recommendation of the Governance Committee, the Board of Directors has nominated Mr. Thomas Loewald and Ms. Katherine A. Eade for election as the Class II Directors of the Company. The nominees have each agreed to stand for election and, if elected, to serve as Director. However, if any person nominated by the Board of Directors is unable to serve or will not serve, the proxies will be voted for the election of such other person or persons as the Governance Committee and the Board of Directors may recommend.

Vote Required

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

OUR BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS A VOTE “FOR” THE ELECTION OF THE FOLLOWING NOMINEES OF THE BOARD OF DIRECTORS: THOMAS LOEWALD AND KATHERINE A. EADE.

INFORMATION REGARDING DIRECTORS

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

Independence

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

Recent Changes on the Board

On July 8, 2019, the Board of Directors appointed James Green as the President and Chief Executive Officer of the Company to succeed our former President and Chief Executive Officer in such roles. While Mr. Green continues to serve as Chairman of the Board of Directors, as a non-independent Director he no longer serves on any of the Board's standing committees. At the time of Mr. Green's appointment as President and Chief Executive Officer, the Board of Directors appointed Bertrand Loy, an existing Director, as Lead Independent Director of the Board of Directors.

On September 3, 2019, the Board of Directors elected Mr. Alan Edrick as an additional Class III Director of the Company. In addition on such date, in order to ensure that each class of the Board of Directors as nearly equal in number of directors as reasonably possible as required by the Company's Certificate of Incorporation, Mr. John Kennedy resigned from his position as a Class II Director and the remaining members of the Board of Directors unanimously re-elected Mr. Kennedy as a Class III Director. Mr. Kennedy's resignation and re-election were effected solely to ensure that each class of directors would consist as nearly equal in number of directors as reasonably possible as required by our Certificate of Incorporation. For all other purposes, Mr. Kennedy's service on the Board is deemed to have continued uninterrupted without any break in service since he first joined the Board.

On April 6, 2020, the Board of Directors elected Susan Steele as an additional Class III Director of the Company. Ms. Steele will also be appointed as a member of the Compensation Committee of the Board, to become effective following the 2020 annual meeting.

Directors of Harvard Bioscience, Inc.

<u>Name</u>	<u>Age</u>	<u>Principal Occupation</u>	<u>Director Since</u>
Class I Directors—Term expires 2022			
<i>James W. Green</i>	61	Chairman, Chief Executive Officer and Chairman of the Board of Directors of the Company	2015
<i>Bertrand Loy (AC)(GC)</i>	54	President, CEO and a Director of Entegris Inc., Lead Independent Director of the Board of the Directors of the Company	2014
Class II Directors—Term expires 2020; Nominated to Serve a Term Expiring 2023			
<i>Thomas W. Loewald (CC)(GC)</i>	57	President of the Flexible Packaging Division of ProAmpac	2017
<i>Katherine A. Eade (AC)(GC)</i>	46	Vice President, Strategic Commercial Affairs at Align Technology	2017
Class III Director—Term expires 2021			
<i>John F. Kennedy (AC)(CC)</i>	71	Retired President and Chief Financial Officer of Nova Ventures Corporation	2000
<i>Alan Edrick (AC)</i>	52	Executive Vice President and Chief Financial Officer of OSI Systems, Inc.	2019
<i>Susan Steele</i>	67	Chief Executive Officer of Steele & Partners LLC	2020

(AC) Member of the Audit Committee
(CC) Member of the Compensation Committee
(GC) Member of the Governance Committee

James W. Green has served as a Director of the Company since April 2015 and was appointed Chairman on June 5, 2017. Mr. Green was appointed President and Chief Executive Officer on July 8, 2019. Immediately prior to becoming our President and Chief Executive Officer, Mr. Green served as President of Spacelabs Healthcare, a manufacturer of medical equipment, beginning in April 2018. Prior to that position, Mr. Green was General Partner of Grantchester Group, a private equity investment firm with experience in healthcare and technology. Mr. Green also previously 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. 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 the Lead Independent Director and is a member of the Governance Committee and 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. Since November 2012, Mr. Loy has served as the Chairman of SEMI, a global industry association representing the electronics manufacturing supply chain. 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.

Nominees for Election as Class II Directors— Nominated to Serve Terms Expiring 2023

Thomas W. Loewald has served as a Director of the Company since October 2017. Mr. Loewald currently serves as Chair of the Compensation Committee and is a member of the Governance Committee. Since September 2017, Mr. Loewald has served as President of the Flexible Packaging 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 broad global business experience in a wide range of industries from commodity to high growth, his strong strategic management and leadership skills, and his extensive record of success in leading business growth and excellence.

Katherine A. Eade has served as a Director of the Company since October 2017. Ms. Eade currently serves as Chair of the Governance Committee and is a member of the Audit Committee. Ms. Eade is Vice President, Strategic Commercial Affairs at Align Technology, a position she has held since 2019, and prior to that was Deputy General Counsel of La-Z-Boy Incorporated from 2018 to 2019. Ms. Eade has more than 18 years of experience advising public companies on M&A and other significant corporate transactions, governance matters and capital markets. 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.

John F. Kennedy has served as a Director of the Company since October 2000. Mr. Kennedy currently serves as Chair of the Audit Committee and is a member of the Compensation Committee. From June 2006 until his retirement in October 2008, Mr. Kennedy served as President and Chief Financial Officer of Nova Ventures Corporation, the management company providing executive management services to the operating companies of Nova Holdings LLC, Nova Analytics Corporation and Nova Technologies Corporation. From July 2002 to June 2006, Mr. Kennedy served as the President and Chief Financial Officer of Nova Analytics Corporation, a worldwide supplier and integrator of analytical instruments. From August 1999 to April 2002, Mr. Kennedy served as the Senior Vice President, Finance, Chief Financial Officer and Treasurer of RSA Security Inc., an e-business security company. Prior to joining RSA Security, Mr. Kennedy was Chief Financial Officer of Decalog, NV, a developer of enterprise investment management software, from 1998 to 1999. From 1993 to 1998, Mr. Kennedy served as Vice President of Finance, Chief Financial Officer and Treasurer of Natural MicroSystems Corporation, a telecommunications company. Mr. Kennedy, a former CPA, also practiced as a public accountant at KPMG for 6 years. Mr. Kennedy 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.

Alan Edrick has served as a Director of the Company since September 2019. Mr. Edrick currently serves as a member of the Audit Committee. Mr. Edrick has over 25 years of financial management and public accounting experience, including mergers and acquisitions, capital markets, financial planning and analysis, and regulatory compliance. Mr. Edrick has been the Executive Vice President and Chief Financial Officer of OSI Systems, Inc., a publicly traded multinational company with leading market positions in homeland security, patient monitoring and optoelectronics, since 2006. Between 2004 and 2006, Mr. Edrick served as Executive Vice President and Chief Financial Officer of BioSource International, Inc. until its sale to Invitrogen Corporation. Between 1998 and 2004, Mr. Edrick served as Senior Vice President and Chief Financial Officer of North American Scientific, Inc., a medical device and specialty pharmaceutical company. Between 1989 and 1998, Mr. Edrick was employed by Price Waterhouse LLP in various positions including Senior Manager, Capital Markets. Mr. Edrick earned a Bachelor of Arts in economics/business from the University of California, Los Angeles (UCLA) and a Master of Business Administration from UCLA's Anderson School of Management. We believe Mr. Edrick's qualifications to sit on our Board of Directors include his executive leadership experience as a Chief Financial Officer, as well as his significant operating, accounting and financial management expertise, including in the life sciences industry.

Susan Steele has served as a Director of the Company since April 2020. Ms. Steele is the Chief Executive Officer of Steele & Partners LLC, a consulting firm specializing in program management and supply chain performance, and sits on the Board of Hill International (NYSE: HIL). Previously, Ms. Steele served as Senior Vice President of Global Supply Management at Jacobs Engineering, where she was responsible for the company's worldwide supply chain. Prior to that, she worked for CH2M as Vice President of Business Development for Manufacturing and Life Sciences. She also served as the Program Director for the MASDAR development program in the UAE. Ms. Steele holds a Masters of Business Administration from the University of Miami, FL, and a Bachelor of Science from Auburn University, AL. Ms. Steele has held leadership roles with the Construction Industry Institute (CII) Board of Advisors and Executive Committee, the EPC Procurement Executives Group, and the Society for Maintenance & Reliability. We believe Ms. Steele's qualifications to sit on our Board of Directors include her corporate governance expertise and her background in supply chain management.

INFORMATION REGARDING THE BOARD OF DIRECTORS AND ITS COMMITTEES

During the year ended December 31, 2019, our Board of Directors held thirteen meetings. Each of the Directors attended at least 75% of the total number of meetings of the Board of Directors held while he or she was a Director and of the committees of which he or she was a member. The Board of Directors generally 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 light of the unique circumstances related to COVID-19, the Board of Directors encourages Directors to participate virtually for the 2020 Annual Meeting. 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. Aside from Mr. Kennedy, all of the Directors in office at the time attended, in person or by telephone, the 2019 Annual Meeting of Stockholders held on May 16, 2019. The non-employee Directors meet regularly in executive sessions outside the presence of management.

CEO Transition

As previously disclosed, in July 2019 the Company transitioned from its former President and Chief Executive Officer, Jeffrey A. Duchemin, to Mr. Green. Prior to such transition, the Board of Directors discussed critically necessary attributes for the incoming Chief Executive Officer. The Board determined that key attributes of the incoming Chief Executive Officer included:

- Significant public company chief executive officer experience;
- Track record of turning around underperforming businesses;
- Demonstrated ability to drive organic growth and operational improvements within a global, middle market life science manufacturing business;
- Experience leading technology and product development, manufacturing, sales and marketing; and
- In-depth knowledge of global healthcare and life science markets.

The decision was made by the Board of Directors (with Mr. Green recused) to appoint Mr. Green as President and Chief Executive Officer, effective July 8, 2019. His background and turnaround experience was considered an excellent match to the attributes listed.

Board Leadership Structure

Our Board leadership structure consists of a Chairman of the Board who is also our Chief Executive Officer. Prior to Mr. Green being appointed Chief Executive Officer, the roles of Chairman of the Board of Directors and Chief Executive Officer were separate. 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 of Directors 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 of Directors will evaluate whether the roles of Chief Executive Officer and Chairman of the Board should be combined or separated. Both the Chairman and Chief Executive Officer positions are currently held by Mr. Green and as noted above, Mr. Loy has been appointed and currently serves as the Lead Independent Director.

The Lead Independent Director has broad responsibility and authority, including to:

- Preside at all meetings of the Board at which the Chairman is not present, including executive sessions of the independent Directors.
- Call meetings of independent Directors.
- Serves as the principal liaison between the Chairman and the independent Directors.

- Approve all information sent to the Board, including the quality, quantity, appropriateness and timeliness of such information.
- Approve meeting agendas for the Board.
- Approve the frequency of Board meetings and meeting schedules, assuring there is sufficient time for discussion of all agenda items.
- Recommend to the Governance Committee and to the Chairman, selection for the membership and chairman position for each Board committee.
- Interview along with the chair of the Governance Committee, all Director candidates and make recommendations to the Governance Committee.
- Be available, when appropriate, for consultation and direct communication with stockholders.
- Retain outside advisors and consultants who report directly to the Board on Board-wide issues.
- On an annual basis, in consultation with the independent directors, the Lead Independent Director will review his responsibility and authority and recommend to the Board for approval any modifications or changes.

Our Board of Directors has determined that its current structure, with combined Chairman and Chief Executive Officer roles and a Lead Independent Director is in the best interests of our Company and its stockholders at this time.

A number of factors support the leadership structure chosen by the Board, including, among others:

- Our Chief Executive Officer has extensive knowledge of all aspects of our company and its business and risks, its industry and its customers.
- Our Chief Executive Officer is intimately involved in the day-to-day operations of our company and is best positioned to elevate the most critical business issues for consideration by the Board.
- The Board believes having our Chief Executive Officer serve in both capacities allows him to more effectively execute our company's strategic initiatives and business plans and confront its challenges.
- A combined Chairman and Chief Executive Officer structure provides our company with decisive and effective leadership with clearer accountability to our stockholders and customers, especially within the context of an aggressive turnaround situation in which rapid decision making is a critical success factor.
- This structure allows one person to speak for and lead the company and the Board.
- The combined role is both counterbalanced and enhanced by the effective oversight and independence of our Board and the independent leadership provided by our Lead Independent Director and independent committee chairs.
- The Board believes that the appointment of a strong Lead Independent Director and the use of regular executive sessions of the non-management Directors, along with the Board's strong committee system and all Directors being independent except for Chief Executive Officer, allow it to maintain effective oversight of management.
- In our view, splitting the roles would potentially make our management and governance processes less effective through undesirable duplication of work and possibly lead to a blurring of clear lines of accountability and responsibility.

Board Committees

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”). The charters of each of our committees are available on the Corporate Governance page in the Investor Relations section of our website at 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.

Audit Committee

The Audit Committee currently consists of Messrs. Edrick, Kennedy and Loy, and Ms. Eade. Mr. Kennedy serves as the Chairman. The Audit Committee is comprised entirely of independent Directors and it operates under a Board-approved charter that sets forth its duties and responsibilities. The Audit Committee met seven times during 2019.

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

- reviewing our financial statements and related disclosures included in quarterly and annual financial statements, as well as quarterly earnings releases;
- reviewing the adequacy of our internal controls, and financial systems and management practices;
- appointing, retaining and terminating, and determining compensation of, our independent auditors;
- overseeing our independent auditors and the evaluation of the independent auditors’ qualifications, performance and independence;
- assuring the regular rotation of audit partners, including any lead and concurring partners, in accordance with applicable laws and regulations;
- reporting matters that arise relating to quality or integrity of our financial statements 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 has also established procedures for the receipt, retention and treatment, on a confidential basis, of complaints received by the Company.

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 Board of Directors has determined that Messrs. Edrick, Kennedy and Loy, and Ms. Eade, are “independent” as such term is currently defined by Nasdaq rules for purposes of service on the Audit Committee. The Board of Directors has also determined that each of Messrs. Edrick, Kennedy and Loy qualifies as an “audit committee financial expert” as this term has been defined under the rules of the SEC.

Compensation Committee

The Compensation Committee currently consists of Messrs. Kennedy and Loewald. Mr. Loewald serves as the Chair. Ms. Steele will be appointed to the Compensation Committee following the Annual Meeting. 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 six times during 2019.

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 2019 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 Mr. Kennedy, Mr. Loewald and Ms. Steele are "independent" as such term is currently defined by Nasdaq rules for purposes of service on the Compensation Committee.

Governance Committee

The current members of the Governance Committee are Messrs. Loewald and Loy, and Ms. Eade. Ms. Eade is the Chair. 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 five times during 2019.

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. At the Annual Meeting, Mr. Loewald and Ms. Eade will be standing for election by the stockholders for the first time. Mr. Loewald was first identified as a candidate for Director by a non-management member of our Board of Directors and Ms. Eade was first identified as a candidate for Director by our former Chief Executive Officer.

The Governance Committee has established procedures for stockholders to recommend Director candidates. All stockholder 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 stockholder recommendations for Director candidates must be submitted to the Company not less than 120 calendar days prior to the anniversary of the date on which our proxy statement was released to stockholders in connection with the previous year's annual meeting. All stockholder recommendations for Director candidates must include:

- the name and address of record of the stockholder,
- a representation that the stockholder is a record holder of our securities, or if the stockholder 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 stockholder 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.

The Governance Committee will evaluate all such proposed Director candidates, including those recommended by stockholders, 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 that each of its Audit, Compensation and Governance Committees shall be comprised entirely of independent Directors, subject to certain exceptions under the Nasdaq rules to such requirement. 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’s Role in Risk Oversight

Risks to the Company are discussed by the Board of Directors during the year. Management is responsible for the day-to-day management of risks we face, while the Board, as a whole and through its Committees, oversees risk management. The Audit Committee is responsible for reviewing and discussing with management our policies with respect to risk assessment and risk management. The Board of Directors and the Audit Committee review and discuss, including with management, risks that arise or may arise, including in relation to legal, compliance and cyber-security matters, as well as novel risks that arise such as the impact of the COVID-19 global pandemic. 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. The ownership guidelines require each non-employee member of the Board of Directors, within five years from their initial election to the Board 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 the guidelines, unvested awards of restricted stock units are included in the calculation while stock options are excluded. All of our Directors are currently in compliance with these equity ownership guidelines.

CODE OF BUSINESS CONDUCT AND ETHICS

The Board of Directors has adopted a Code of Business Conduct and Ethics, 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 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. We intend to post any amendments to or waivers from our Code of Business Conduct and Ethics at this location on our website.

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, 2019 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, 2019.
2. The Audit Committee has discussed with representatives of Grant Thornton LLP the matters required to be discussed with them by applicable requirements of the Public Company Accounting Oversight Board and the SEC.
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, 2019 for filing with the Securities and Exchange Commission.

Submitted by the Audit Committee:

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

DIRECTOR COMPENSATION

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 Board compensation. Our Board of Directors and Compensation Committee annually review our Board compensation to evaluate whether it remains competitive such that we are able to recruit and retain qualified Directors. 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 Board 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. The Board compensation program described below remained at the same levels as compared to 2018 except with the introduction of a separate annual retainer for the individual serving as Lead Independent Director as a result of the 2019 management transitions.

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

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

Each non-employee Director will be entitled to receive a non-qualified stock option having an aggregate Black-Scholes grant date fair value of \$134,400, rounded to the nearest 100 shares, provided that in no case shall such stock option be less than 25,000 shares. Such option shall be for the purchase of Common Stock of the Corporation and shall vest annually over three years and be granted on the fifth business day following his or her initial election to the Board.

Annual Compensation of Non-Employee Directors

Annual Retainers

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

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

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

The annual retainer awards (each a "Retainer Award") are generally granted on the first trading day of January (the "Grant Date") and vest quarterly over the calendar year on each March 31, June 30, September 30 and December 31, subject to the Director's continued service through the applicable vesting date. The number of shares of Common Stock to be granted as a Retainer Award is equal to the quotient of (i) the dollar value of the award as set forth above, divided by (ii) the average daily closing market price of the Common Stock during the preceding month of November, rounded to the nearest 100 shares.

Additional Board Member or Board Roles: In the event that a non-employee Director is added to the Board, or is named Lead Independent Director or chairman (of the board or any committee), or joins any committee during a fiscal year after the Grant Date, such Director shall be granted a Retainer Award (the "Additional Retainer Award"), in relation to such additional roles and respective retainer amounts pro-rated for the remainder of such year. Such Additional Retainer Award shall be granted on the first trading day of the month after the individual is appointed to such roles. The Additional Retainer Award shall vest in equal amounts spread over the remaining quarterly vesting dates of the Retainer Awards for such calendar year subject to continued service as a non-employee Director on the applicable vesting dates. The number of shares of Common Stock to be granted as an Additional Retainer Award is equal to the quotient of (i) the dollar value of the award as set forth above (pro-rated for the remainder of the fiscal year following the appointment to the additional role), divided by (ii) the average daily closing market price of the Common Stock during 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 (for example, a director appointed to additional roles in August would use the average daily closing market price for the preceding June).

Reduced Board Roles: In the event a Director's service (including as a Board or committee member, as chairman of the Board or any committee, or as Lead Independent Director) 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, and the pro-rated portion of the quarterly amount attributable to such roles shall vest on that earlier vesting date, with the remaining unvested portion of the award attributable to such roles being forfeited.

Annual Equity Award

Each non-employee Director will also be entitled to receive an equity award in the form of restricted stock units having an aggregate cash value of \$80,640, rounded to the nearest 100 shares, vesting fully on the earlier to occur of (i) the date of the Corporation's next Annual Meeting of Stockholders after the grant date, immediately prior to the commencement of such meeting, and (ii) one year from the date of grant, subject to the Director's continued service through the applicable vesting date, and granted on the fifth business day following the Annual Meeting of Stockholders.

Expenses

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

2019 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, 2019.

Name (1)	Option Awards (2), (3)	Restricted Stock Awards (4)	Total
<i>Katherine Eade</i>	\$ -	\$ 132,956	\$ 132,956
<i>Alan Edrick</i>	134,400	13,054	147,454
<i>James Green</i>	-	141,876	141,876
<i>John F. Kennedy</i>	-	149,184	149,184
<i>Thomas Loewald</i>	-	136,501	136,501
<i>Bertrand Loy</i>	-	152,130	152,130

- (1) The compensation for Mr. Green set forth in the table pertains to the period in fiscal 2019 prior to him becoming the President and Chief Executive Officer of the Company. Jeffrey A. Duchemin, the Company's former Chief Executive Officer is not included in this table as he was an employee of the Company and thus received no additional compensation for his service as a Director. The compensation received by Mr. Green and Mr. Duchemin in their respective roles as an employee of the Company is shown in the 2019 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 13 to the Company's audited financial statements for the fiscal year ended December 31, 2019 included in the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 16, 2020.
- (3) The aggregate number of option awards outstanding at December 31, 2019, and held by the non-employee Directors were as follows: 86,700 options for Ms. Eade; 101,800 options for Mr. Edrick; 37,059 options for Mr. Kennedy; 87,600 options for Mr. Loewald; and 55,300 options for Mr. Loy. Information regarding the options held by Mr. Green, who served as our President and Chief Executive Officer as of December 31, 2019, is disclosed in the table below entitled "Outstanding Equity Awards At Fiscal Year-End—2019".
- (4) The aggregate number of restricted stock unit awards outstanding at December 31, 2019, and held by the non-employee Directors were as follows: 35,100 for Ms. Eade; 0 for Mr. Edrick; 35,100 awards for Mr. Kennedy; 35,100 awards for Mr. Loewald and 35,100 awards for Mr. Loy. Information regarding the awards held by Mr. Green, who served as our President and Chief Executive Officer as of December 31, 2019, is disclosed in the table below entitled "Outstanding Equity Awards At Fiscal Year-End—2019".

INFORMATION ABOUT OUR EXECUTIVE OFFICERS

The following table shows information about our executive officers:

Name	Age	Position
James Green	61	Chief Executive Officer, President and Director
Michael Rossi	46	Chief Financial Officer
Yash Singh	46	Executive Vice President, Cellular & Molecular Technologies
Kenneth Olson	58	Vice President and General Manager, Data Sciences International

Biographical information for Mr. Green is provided above under the heading “Directors of Harvard Bioscience, Inc.”

Michael Rossi was named Chief Financial Officer in July 2019. Immediately prior to becoming Chief Financial Officer of the Company, Mr. Rossi served as Chief Financial Officer of Laborie Medical Technologies from August 2018 to May 2019, a manufacturer of urology and gastrointestinal diagnostic equipment. Prior to that role, he was Chief Financial Officer of Medical Specialties Distributors, a healthcare supply chain management solutions company, for over three years. Earlier in his career, Mr. Rossi held finance roles of increasing responsibility at various public companies, including Haemonetics Corporation, The Princeton Review, Inc., American Tower Corporation, Sonus Networks and Manufacturers’ Services Limited. He began his professional career as an accountant at PricewaterhouseCoopers. Mr. Rossi earned a B.S. in accounting from Babson College and an MBA from Babson College’s Olin School of Management.

Yash Singh was named Executive Vice President, Cellular & Molecular Technologies in October 2019. Prior to joining the Company, he served in various executive roles at Analogic Corporation (“Analogic”) from 2009 to 2019, most recently as President of Analogic’s Power and Motion Business. Analogic is focused on the design and manufacture of imaging and signal processing technologies. Prior to joining Analogic, Mr. Singh was a senior associate at Booz & Company. Mr. Singh earned a B.S. in chemical engineering from the Indian Institute of Technology in Bombay, India and an MBA from Haas School of Business, University of California at Berkeley.

Kenneth Olson was named Vice President and General Manager, Data Sciences International in October 2019. Prior to joining DSI, Mr. Olson served as the Senior Vice President of Global Engineering and Operations at Spacelabs Healthcare, a patient monitoring and diagnostic cardiology companies, from May 2017 to October 2019. From July 2013 until October 2019, Mr. Olson ran a successful management consulting firm in the medical device space. Mr. Olson previously served as Vice President of Research & Development at ABT Molecular Imaging from December 2010 to July 2013. Mr. Olson has significant experience in Emergency Medical Services (EMS), with over 40 issued patents in cardiology and resuscitation products. He served as Vice President of Research and Development for Medtronic Physio-Control from May 2006 to December 2010, where he oversaw the development of the LP15 Monitor/Defibrillator. Prior to Medtronic, Olson was the Chief Technical Officer for Cardiac Science, after a merger with Survivalink Corporation where he had served as the VP of R&D from its inception. Mr. Olson earned a B.S. in electrical engineering and an MBA from the University of Minnesota.

COMPENSATION DISCUSSION & ANALYSIS

Our most recently completed fiscal year 2019 was a year of significant change for the Company. It became increasingly evident during the first part of 2019 that a change in Company strategy and leadership was necessary for Harvard Bioscience to thrive in our highly competitive industry. As a result, on July 8, 2019, we announced the transition of the executive leadership of our Company from our former President and Chief Executive Officer, Jeffrey A. Duchemin, to our then-serving non-Executive Chairman of the Board, James Green. At the time, Mr. Green was not only the Harvard Bioscience non-Executive Chairman, he was also the President of Spacelabs Healthcare, one of the largest patient monitoring companies in the world, based in Seattle, Washington. Having been hired by Spacelabs only 15 months earlier, Mr. Green was in the process of leading a highly successful improvement in the financial results of Spacelabs with operating profit expanding significantly during his tenure. Prior to his role at Spacelabs, Mr. Green was the Chairman and CEO of Analogic Corporation for nearly 10 years. Under his leadership, Analogic navigated the great recession while increasing its revenues by approximately 50% and dramatically improved key financial metrics such as revenue per employee, operating margin and earnings per share.

In order to attract Mr. Green to take on the leadership role for Harvard Bioscience and lead our Company through the necessary large scale management change process we required, we needed to offer a compensation package that was compelling enough for Mr. Green to take on the role, relocate back to the Boston area and walk away from his existing compensation package from Spacelabs. The Compensation Committee used CEO pay data that had previously been provided by the Compensation Committee's consultant, Arthur J. Gallagher and Co., to inform its offer level as well as our knowledge of the value of his existing compensation package.

Ten days after the announcement of Mr. Green as our new Chief Executive Officer, we named Michael Rossi as our new Chief Financial Officer. Mr. Rossi also brings a significant experience with turnarounds and driving financial and operational improvements within complex middle market manufacturing and distribution businesses. Mr. Rossi also brings over fifteen years of public company accounting and reporting experience as well as experience managing debt and liquidity during both periods of growth and business downturns. The Compensation Committee considered his experience as essential to our successful turnaround.

During the period since Mr. Green's appointment in July 2019 through December 31, 2019, with our new leadership team in place, our Company has undergone significant change and already shown tangible results.

This Compensation Discussion and Analysis, which should be read together with the executive compensation tables set forth below, provides information regarding our executive compensation program for our named executive officers. Our current named executive officers are James Green, our President and Chief Executive Officer, Michael Rossi, our Chief Financial Officer and Yash Singh, our Executive Vice President, Cellular and Molecular Technologies. This proxy statement also includes disclosures required with respect to Jeffrey A. Duchemin, our former President and Chief Executive Officer, and Kam Unninaray, our former Chief Financial Officer, who served in such capacities during fiscal year 2019 until their respective resignations.

Our Compensation Committee is responsible for determining the 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. 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. Such determination is made in reliance on a number of other factors, including analysis and guidance provided by an independent executive compensation consultant from time to time, as well as compensation for comparable executive positions at peer group companies and our historical practices.

Objectives of Our Executive Compensation Programs

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

- attract and retain high performing and experienced executives;
- motivate and reward executives whose knowledge, skills and performance are deemed 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, including growing our revenues, earnings per share, total market capitalization and share price.

Role of Independent Executive Compensation Consultant

From time to time, our Compensation Committee has engaged an independent executive compensation consultant to provide guidance with respect to the development and implementation of our compensation programs. The Compensation Committee utilizes the reports, recommendations and insight of the independent executive compensation consultant, along with a variety of additional factors, including input from the Chief Executive Officer as to the other executive officers, in determining the appropriate compensation, including salary, bonus and equity grants, with respect to our named executive officers. Most recently, in October 2018, the Compensation Committee obtained analysis and recommendations from Arthur J. Gallagher & Co. (“Gallagher”) pertaining to the compensation, including salary, bonus and equity grants, with respect to our Chief Executive Officer and Chief Financial Officer. The data from this most recent Gallagher analysis informed the Compensation Committee’s decision on the offer made to both Mr. Green and Mr. Rossi when they were hired in July 2019. The companies represented in the Gallagher study from October 2018 (the “Peer Group”) represented public companies from both the life sciences and industrial sectors, with a focus on companies that produce and provide equipment, and consisted of:

Life Science Peer Group Companies

Teligent, Inc.
Jounce Therapeutics, Inc.
Recro Pharma, Inc.
Fluidigm Corp.
Oxford Immunotec Global Plc
Nanostring Technologies Inc.
Castlight Health, Inc.
Concert Pharmaceuticals, Inc.
Fortress Biotech, Inc.
RTI Surgical, Inc.
Insys Therapeutics, Inc.
Endologix Inc.
Computer Programs & Systems Inc.
Veracyte, Inc.

Industrial Peer Group Companies

Gencor Industries Inc.
Northwest Pipe Co.
Eastern Co.
Fluent, Inc.
Hurco Companies Inc.
BG Staffing, Inc.
Willdan Group, Inc.
Willis Lease Finance Corp.
Plug Power Inc.
Allied Motion Technologies Inc.
NL Industries Inc.
Eagle Bulk Shipping Inc.

The Peer Group companies had fiscal year 2017 revenues of between \$67 million and \$280 million and, as of August 31, 2018, had market capitalizations of between \$106 million and \$492 million.

Gallagher also provides medical benefits consulting services to one of the Company's subsidiaries, for which it received commission-based fees from insurers of \$54,401 and fees paid by the Company of \$1,495 during fiscal year 2019. The Compensation Committee has assessed the independence of Gallagher pursuant to the Nasdaq rules and the Company concluded that the work performed by Gallagher for the Compensation Committee did not raise any conflict of interest.

Shareholder Engagement

At the request of the Board, our management team led an extensive shareholder outreach initiative during fiscal year 2019 and early fiscal year 2020. This outreach initiative was designed to assist our Board in fully understanding the perspectives of our shareholders. We also consulted any publicly-available policies of our major shareholders to better understand their views on corporate governance and executive compensation. This effort supplemented the ongoing communications between our management and shareholders through various engagement channels, including direct meetings, analyst conferences and road shows. These meetings provided the management and the Board with valuable insights into our shareholders' perspectives.

During this engagement, we reached out to our top 30 shareholders representing more than 78% of our shares outstanding. Mr. Green, our new Chief Executive Officer, and Mr. Rossi, our new Chief Financial Officer, held at least one telephonic meeting with shareholders representing 46% of our shares outstanding. We provided an open forum to each shareholder to discuss and comment on any aspects of the Company's overall strategy, corporate governance, and executive compensation. Overall, we received positive feedback from the shareholders who engaged with us, and they expressed confidence in the new management team. Following this engagement with our shareholders, we agreed to keep in contact with them, as well as the other shareholders who chose not to engage with us, in order to continue to receive whatever feedback they may have on our strategy, corporate governance, and executive compensation.

Compensation Elements

The elements of executive compensation include base salary, annual cash incentive bonuses, long-term equity incentive compensation, employment agreements, and broad-based benefits programs. We have not adopted any formal guidelines for allocating total compensation between long-term and short-term compensation, cash compensation and non-cash compensation, or among different forms of non-cash compensation.

Base Salary

We pay our executive officers a base salary, which our Compensation Committee reviews and determines 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. The 2019 annualized base salary of each of Messrs. Green, Rossi and Singh and our former executive officers, Mr. Duchemin and Ms. Unninayar were:

<u>Current Executive Officers</u>	<u>2019 Base Salary</u>	<u>Increase over 2018</u>
James Green	573,100	N/A
Michael Rossi	340,000	N/A
Yash Singh	320,000	N/A
<u>Former Executive Officers</u>		
Jeff Duchemin	573,000	2.90%
Kam Unninayar	340,000	N/A

In connection with the cost management measures undertaken to address the evolving coronavirus pandemic, for the period beginning on April 13, 2020 and ending on June 30, 2020, Mr. Green and Mr. Rossi voluntarily agreed to have their salaries reduced by 50%.

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 has the authority to provide such bonuses for a given fiscal year based on the performance of our executive officers with respect to 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 most recently have been measured by exceeding targets relating to revenue growth and non-GAAP earnings per diluted share. Non-GAAP earnings per diluted share excludes certain charges noted in the footnote of the table below. 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 considers other performance goals, current economic conditions and exceptional and/or inadequate performances by each executive officer.

In 2019, the Compensation Committee established performance targets with respect to the annual cash incentive bonuses for the named executive officers, including our former Chief Executive Officer and Chief Financial Officer.

Metric	Weighting	Target (100% Payout)	Actual Results	Actual Payout
HBIO Revenue	40%	\$125.3M	\$116.2M	\$0
HBIO Non-GAAP EPS (1)	30%	\$0.22	\$0.18	\$0
Discretionary	30%	N/A	N/A	\$0

(1) Metric adjusted to exclude, charges relating to stock-based compensation; severance, restructuring and related costs; intangible assets amortization and impairments; non-cash adjustments related to acquisition accounting; and corresponding adjustments to income taxes.

As a result of their departure, our former Chief Executive Officer and former Chief Financial Officer did not receive an annual incentive bonus with respect to fiscal year 2019.

In connection with the compensation packages they received upon their hiring in 2019, each of our current named executive officers agreed that eligibility for annual cash bonuses would not commence until fiscal year 2020. As such, our current named executive officers did not receive any annual cash incentive bonus for fiscal year 2019, provided that when his employment commenced Mr. Green received a pro-rated, time-based RSU, as described below, equal to a minimum annual bonus attributable to fiscal year 2019. This grant, along with a two year cliff based equity award granted to Mr. Green at such time, were designed to offset the loss a bonus that would have expected to have been paid to Mr. Green by his former employer, Spacelabs Healthcare.

Commencing in fiscal year 2020, Mr. Green is eligible to receive cash incentive compensation equal to 100% of his base salary upon achievement of his financial targets, with a maximum of 150% of his base salary, and each of Messrs. Rossi and Singh are eligible to receive cash incentive compensation equal to 50% of their respective base salaries, with a maximum of 75% of the applicable base salary.

Our Performance Metrics that apply to each of our executive officers for the 2020 HBIO Annual Cash Incentive Plan are as set forth below. For 2020, the Compensation Committee eliminated the discretionary component of the annual incentive program. The Performance Metrics identified below have financial targets that were pre-established by the Compensation Committee of the Board of Directors. The financial targets were established based on financial goals communicated publicly in September 2019.

Metric	Weighting	Rationale for Metric
HBIO Revenues	20%	Strategic goal to return the Company to organic growth
HBIO Adjusted Operating Income (Non-GAAP Measure)	80%	Achievement of Adjusted Operating Income targets designed to significantly improve the core profitability of the business, enable HBIO to pay down debt, and invest in products and revenue growth activities.

Long-Term Equity Incentive Compensation

We place a significant emphasis on performance-based incentive compensation. We grant long-term equity incentive awards in the form of stock option awards and/or restricted stock units (“RSUs”) to executives as part of our total compensation package. 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.

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 serve as a retentive device and 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. 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. 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.
- Stock options reward recipients based upon the appreciation in value of the Common Stock following the grant date, and there is no value to these awards if our share price does not increase. Stock options 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. Stock options are earned based on continued service to us and generally vest over a range of one to four years, subject to continued employment with our Company. 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. 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.
- Market condition RSUs provide an additional incentive for executive officers to create shareholder value, as these awards only vest if the relative total shareholder return, or TSR, of our Common Stock as compared to companies in the utilized index exceeds the performance goals established by the Committee. The Committee believes that measuring TSR on a relative, rather than on an absolute, basis provides a more relevant measure of the performance of the Company’s stock. By mitigating the impact of macroeconomic factors (both positive and negative) that are beyond the control of the Company and its executives, we believe relative TSR provides rewards that are better aligned with relative performance through varying economic cycles. The maximum number of shares, relative to target, that can be earned under this TSR plan is 150%.

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 Companies and take into account additional factors such as level of individual responsibility, experience and performance. The vesting of our long-term equity incentive compensation is typically subject to continued employment with our Company, and in some instances, to acceleration in connection with certain termination events and a change-in-control.

In the first quarter of 2019, the Compensation Committee granted a mix of stock options, time-based RSU awards and market condition RSUs to Mr. Duchemin and Ms. Unninayar, each with vesting subject, among other things, to the executive's continued employment with the Company on the vesting dates.

Name	Time-based RSUs (#) ¹	Options (#) ²	Market condition RSUs (#) ³
Jeffrey Duchemin	113,034	271,139	56,517
Kam Unninayar	37,995	91,139	18,997

- (1) Each of these time-based RSUs and options were to vest in four equal installments on January 1, 2020, 2021, 2022 and 2023.
- (2) Options had an exercise price of \$3.79, being the closing price of the Company's Common Stock on the grant date.
- (3) The market condition RSUs were to vest in equal installments on March 7, 2020, 2021 and 2022, and were linked to the achievement of a relative total shareholder return of our Common Stock from March 7, 2019 to the earlier of (i) March 7, 2020 or (ii) upon a change of control (measured relative to the Nasdaq Biotechnology index and based on the 20-day trading average price before each such date).

While these options, time-based RSUs and market condition RSUs were granted to our former named executive officers on March 7, 2019, these awards were forfeited upon the respective executive's resignation as the vesting was subject to the executive's continued employment with our Company.

In connection with the hiring of our current named executive officers in 2019, Messrs. Green, Rossi and Singh, such executives were granted long-term equity incentive grants to align their interest with the Company's stockholders and our long-term performance. Such awards were granted on the respective employment commencement dates, being July 8 for Mr. Green, July 18 for Mr. Rossi and October 31 for Mr. Singh in the following amounts:

	Stock Options	Market Condition RSUs	Time-Based RSUs
James Green	N/A	418,360 at target, based on HBIO TSR relative to Nasdaq Biotechnology Index over a one-year performance period, which represents a portion of the regular long-term incentive award	<ul style="list-style-type: none"> · 418,360 vesting in four equal annual installments beginning in January 2020, which represents a portion of the regular long-term incentive compensation award · 202,875 vesting in July 2020 in lieu of annual incentive bonus (pro-rata) · 243,072 vesting in July 2021 as an inducement to join the Company
Michael Rossi	111,842 Exercise Price = \$1.78	47,753 at target, based on HBIO TSR relative to Nasdaq Biotechnology Index over a one-year performance period	N/A
Yash Singh	86,614 Exercise Price = \$2.80	39,286 at target, based on HBIO TSR relative to Nasdaq Biotechnology Index over a one-year performance period	N/A

With respect to Mr. Green, the portion of such awards attributable to long-term incentive compensation as described below were intended to be amounts attributable to a twelve-month period beginning on the anniversary of his hire date.

For each of the options, the exercise prices were the closing price of the Company's Common Stock on the respective grant date, and they vest in four equal annual installments commencing one year from the grant date, subject to the named executive officer's continued employment through the applicable vesting date.

The market condition RSUs for our current named executive officers vest in three equal installments commencing on the anniversary of the grant date, and are linked to the achievement of a relative total shareholder return of the our Common Stock from the respective grant date to the earlier of (i) the applicable anniversary of the grant or (ii) upon a change of control (measured relative to the Nasdaq Biotechnology index and based on the 20-day trading average price before each such date, or for a change of control, the per share purchase price in such change of control).

With respect to all of the market condition RSUs described above, including those that have been forfeited in relation to our former named executive officers and those granted to our current named executive officers, the target number of these restricted stock units that may be earned is reported above; the maximum amount that may be earned is 150% of target, with a cap of 100% in the event of negative TSR. The TSR calculations will be adjusted to reflect stock splits, recapitalizations and other similar events. The market condition RSUs will vest at target—the amount reported in the table above—if the TSR of the Company’s Common Stock is at the 50th percentile of companies in the Nasdaq Biotechnology index. A payout at maximum, which is 150% of the target award, may be achieved if the relative TSR is at or above the 75th percentile of companies in the Nasdaq Biotechnology index. In order to receive a payout at equal to 50% of the target award, the relative TSR must be at or above the 33rd percentile of companies in the Nasdaq Biotechnology index. If the relative TSR of the Company’s Common Stock is below the 20th percentile, the market condition RSUs will not vest and the awards will be forfeited. The complete payout matrix for the market condition RSUs granted in fiscal 2019 is presented in the table below:

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

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. The 401(k) plan provides for matching contributions equal to 100% of each dollar contributed up to 1% of eligible compensation plus 50% of each additional 1% of eligible compensation up to 6% for a maximum matching contribution of 3.5%. We offer similar plans in foreign countries.

Executive Stock Ownership Guidelines

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

Anti-Short Selling and Anti-Margin Policies

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

2019 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, our Executive Vice President, Cellular and Molecular Technologies, as well as our former Chief Executive Officer and Chief Financial Officer during 2019, all during the fiscal years ended December 31, 2019 and 2018. As a smaller reporting company, we are only required to provide two years of compensation information for our named executive officers.

<u>Name and Principal Position</u>	<u>Year</u>	<u>Salary (\$)</u>	<u>Bonus (\$)</u>	<u>Option Awards (\$)(1)</u>	<u>Stock Awards (\$) (1)</u>	<u>All Other Compensation (\$)</u>	<u>Total (\$)</u>
<i>James W. Green</i> Chairman of the Board, President and Chief Executive Officer	2019	\$ 264,789	\$ -	\$ -	\$ 1,972,503	\$ 43,431(2)	\$ 2,280,723
<i>Michael A. Rossi</i> Chief Financial Officer	2019	\$ 145,157	\$ -	\$ 85,000	\$ 88,821	\$ 1,569(3)	\$ 320,547
<i>Yash Singh</i> Executive Vice President, Cellular and Molecular Technologies	2019	\$ 45,539	\$ -	\$ 110,000	\$ 119,037	\$ -	\$ 274,576
<i>Jeffrey A. Duchemin</i> Former President and Chief Executive Officer	2019	\$ 305,461	\$ -	\$ 428,400	\$ 663,510	\$ 447,986(4)	\$ 1,845,357
	2018	551,580	367,620	-	\$ 815,996	24,109	1,759,305
<i>Kam Unninayar</i> Former Chief Financial Officer	2019	\$ 150,385	\$ -	\$ 144,000	\$ 223,029	\$ 2,877(5)	\$ 520,290
	2018	26,154	10,000	69,998	\$ 69,998	-	176,150

(1) Based on the aggregate grant date fair value computed in accordance with the provisions of FASB ASC 718, "Compensation—Stock Compensation". Under FASB ASC 718, the vesting condition related to the market condition RSUs is considered a market condition and not a performance condition. Accordingly, there is no grant date fair value below or in excess of the amount reflected in the table above for the named executive officers that could be calculated and disclosed based on achievement of the underlying market condition. Assumptions used in the calculation of this amount are set forth in Note 13 to the Company's audited financial statements for the fiscal year ended December 31, 2019, included in the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 16, 2020.

(2) Includes \$5,000 for automobile allowance, \$25,000 for housing, \$9,900 for relocation expenses and \$3,531 in matching contributions made by the Company to Mr. Green's tax-qualified 401(k) Savings Plan account.

(3) Includes \$1,569 in matching contributions made by the Company to Mr. Rossi's tax-qualified 401(k) Savings Plan account.

(4) Includes \$6,000 for automobile allowance, \$10,600 in matching contributions made by the Company to Mr. Duchemin's tax-qualified 401(k) Savings Plan account, \$2,499 for life insurance purchased for Mr. Duchemin's benefit and \$428,887 representing severance for Mr. Duchemin's benefit paid through December 31, 2019. Mr. Duchemin's total severance was \$862,500 with the remaining \$433,613 to be paid during the year ended December 31, 2020 subject to his continuing obligations described in his separation agreement. Mr. Duchemin departed from his roles as President and Chief Executive Officer in July 2019.

(5) Includes \$2,877 in matching contributions made by the Company to Ms. Unninayar's tax-qualified 401(k) Savings Plan account. Ms. Unninayar resigned from her role as Chief Financial Officer in May 2019.

GRANTS OF PLAN-BASED AWARDS—2019

The following table sets forth certain information concerning the individual grants of equity awards to the named executive officers who received such grants during the fiscal year ended December 31, 2019. These awards identified in the table below are also reported in the Outstanding Equity Awards at Fiscal Year-End—2019 included within the proxy statement.

<u>Name</u>	<u>Award Type</u>	<u>Grant Date</u>	<u>Number of Shares of Stock or Units (#)</u>		<u>Grant Date Fair Value of Option Awards (\$)</u>	
<i>James W. Green</i>	Market Condition RSU	7/8/2019	418,360	(1)	\$ 598,255	(15)
	Time Based RSU	7/8/2019	202,875	(2)	322,571	(16)
	Time Based RSU	7/8/2019	243,072	(3)	386,484	(16)
	Time Based RSU	7/8/2019	418,360	(4)	665,192	(16)
<i>Michael A. Rossi</i>	Market Condition RSU	7/18/2019	47,753	(5)	\$ 88,821	(15)
	Stock Option Award	7/18/2019	111,842	(6)	85,000	(17)
<i>Yash Singh</i>	Market Condition RSU	10/31/2019	39,286	(7)	\$ 119,037	(15)
	Stock Option Award	10/31/2019	86,614	(8)	110,000	(17)
<i>Jeffrey A. Duchemin</i>	Market Condition RSU	3/7/2019	56,517	(9)	\$ 235,111	(15)
	Time Based RSU	3/7/2019	113,034	(10)	428,399	(16)
	Stock Option Award	3/7/2019	271,139	(11)	428,400	(17)
<i>Kam Unninyar</i>	Market Condition RSU	3/7/2019	18,997	(12)	\$ 79,028	(15)
	Time Based RSU	3/7/2019	37,995	(13)	144,001	(16)
	Stock Option Award	3/7/2019	91,139	(14)	144,000	(17)

- (1) These market condition restricted stock units were granted on July 8, 2019 with performance based vesting conditions. The RSUs vest in three equal annual installments on July 8, 2020, July 8, 2021 and July 8, 2022, and are linked to the achievement of a relative total shareholder return of the Issuer's Common Stock from July 8, 2019 to the earlier of July 8, 2020 or upon a change of control (measured relative to the Nasdaq Biotechnology index and based on the 20-day trading average price before each such date, or for a change of control, the per share purchase price in such change of control). The target number of these RSUs that may be earned is noted in the table above; the maximum amount is 150% of the number reported.
- (2) These restricted stock units were granted on July 8, 2019 and vest in full on July 8, 2020. 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."
- (3) These restricted stock units were granted on July 8, 2019 and vest in full on July 8, 2021. The vesting of all restricted stock units is subject to the executive's continued employment with the Company, and is also subject, in some instances, to acceleration in connection with certain termination events and a change-in-control as described in "Potential Payments Upon Termination or Change-in-Control."
- (4) These restricted stock units were granted on July 8, 2019 and vest in four equal installments on each of the first four anniversaries of January 1, 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."
- (5) These market condition restricted stock units were granted on July 18, 2019 with performance based vesting conditions. The RSUs vest in three equal annual installments on July 18, 2020, July 18, 2021 and July 18, 2022, and are linked to the achievement of a relative total shareholder return of the Issuer's Common Stock from July 18, 2019 to the earlier of July 18, 2020 or upon a change of control (measured relative to the Nasdaq Biotechnology index and based on the 20-day trading average price before each such date, or for a change of control, the per share purchase price in such change of control). The target number of these RSUs that may be earned is noted in the table above; the maximum amount is 150% of the number reported.

- (6) This stock option award was granted on July 18, 2019 and vests in four equal installments on each of the first four anniversaries of July 18, 2019. The fair value of the stock option award was based on the Black Scholes value of the Company's stock on the date of the grant multiplied by the total number of the shares underlying the option granted to Mr. Rossi.
- (7) These market condition restricted stock units were granted on October 31, 2019 with performance based vesting conditions. The RSUs vest in three equal annual installments on October 31, 2020, October 31, 2021 and October 31, 2022, and are linked to the achievement of a relative total shareholder return of the Issuer's Common Stock from October 31, 2019 to the earlier of October 31, 2020 or upon a change of control (measured relative to the Nasdaq Biotechnology index and based on the 20-day trading average price before each such date, or for a change of control, the per share purchase price in such change of control). The target number of these RSUs that may be earned is noted in the table above; the maximum amount is 150% of the number reported.
- (8) This stock option award was granted on October 31, 2019 and vests in four equal installments on each of the first four anniversaries of October 31, 2019. The fair value of the stock option award was based on the Black Scholes value of the Company's stock on the date of the grant multiplied by the total number of the shares underlying the option granted to Mr. Singh.
- (9) These market condition restricted stock units were granted on March 7, 2019 with performance based vesting conditions. Due to Mr. Duchemin's departure, the full award was forfeited on July 7, 2019.
- (10) These restricted stock units were granted on March 7, 2019 with vesting in four equal installments on each of the first four anniversaries of January 1, 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." Due to Mr. Duchemin's departure, 28,258 shares had accelerated vesting on July 7, 2019. The remaining shares were forfeited on July 7, 2019.
- (11) This stock option award was granted on March 7, 2019 and vests in four equal installments on each of the first four anniversaries of January 1, 2019. The fair value of the stock option award was based on the Black Scholes value of the Company's stock on the date of the grant multiplied by the total number of the shares underlying the option granted to Mr. Duchemin. Due to Mr. Duchemin's departure, 67,784 underlying shares had accelerated vesting on July 7, 2019. The remaining shares underlying the option were forfeited on July 7, 2019.
- (12) These market condition restricted stock units were granted on March 7, 2019 with performance based vesting conditions. Due to Ms. Unninayar's departure, the full award was forfeited on May 31, 2019.
- (13) These restricted stock units were granted on March 7, 2019 with vesting in four equal installments on each of the first four anniversaries of January 1, 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." Due to Ms. Unninayar's departure, the shares were forfeited on May 31, 2019.
- (14) This stock option award was granted on March 7, 2019 and vests in four equal installments on each of the first four anniversaries of January 1, 2019. The fair value of the stock option award was based on the Black Scholes value of the Company's stock on the date of the grant multiplied by the total number of the shares underlying the option granted to Ms. Unninayar. Due to Ms. Unninayar's departure, the option was forfeited on May 31, 2019.
- (15) The fair value of the market condition RSU's are based on the Monte-Carlo simulated value on the grant date.
- (16) The fair value of the RSUs is based on the closing market price of the Company's stock on the date of the grant multiplied by the total number of the RSUs granted to each of the named executive officers of the Company.

(17) 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 13 to the Company's audited financial statements for the fiscal year ended December 31, 2019, included in the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 12, 2020.

Employment Agreements

Chief Executive Officer

We have entered into an employment agreement with Mr. Green, dated July 2, 2019, which provides for a term of two years from his commencement date of July 8, 2019, which such term shall automatically be extended for two additional years on each anniversary of the commencement date 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. In addition, the agreement provides for an annual base salary, which is subject to review annually by our Board of Directors and Compensation Committee. Furthermore, commencing with fiscal year 2020, Mr. Green is eligible to receive cash incentive compensation on an annual basis of up to one hundred fifty percent (150%) of his base salary upon meeting objectives as determined by the Board of Directors or the Compensation Committee from time to time. Mr. Green is also eligible to participate in other incentive compensation plans as the Board of Directors or Committee shall provide for the Company's senior executive officers.

Chief Financial Officer

We have entered into an employment agreement with Mr. Rossi, dated July 18, 2019, which provides for a term of one year, which such term shall automatically be extended for one additional year on each anniversary of the commencement date 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. In addition, the agreement provides for an annual base salary, which is subject to review annually by our Board of Directors and Compensation Committee. Furthermore, commencing with fiscal year 2020, Mr. Rossi is eligible to receive cash incentive compensation on an annual basis of up to fifty percent (50%) of his Base Salary upon meeting objectives as determined by the Board of Directors or the Compensation Committee from time to time. Mr. Rossi is also eligible to participate in other incentive compensation plans as the Board of Directors or Committee shall provide for the Company's senior executive officers.

Executive Vice President, Cellular & Molecular Technologies

We have entered into an employment agreement with Mr. Singh, dated October 31, 2019, which provides for a term of one year, which such term shall automatically be extended for one additional year on each anniversary of the commencement date 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. In addition, the agreement provides for an annual base salary, which is subject to review annually by our Board of Directors and Compensation Committee. Furthermore, commencing with fiscal year 2020, Mr. Singh is eligible to receive cash incentive compensation on an annual basis of up to fifty percent (50%) of his Base Salary upon meeting objectives as determined by the Board of Directors or the Compensation Committee from time to time. Mr. Singh is also eligible to participate in other incentive compensation plans as the Board of Directors or Committee shall provide for the Company's senior executive officers.

Former Chief Executive Officer

Prior to his departure in 2019, we entered into an employment agreement with Mr. Duchemin, dated August 26, 2013. This agreement, as amended, provided for a term ending August 26, 2020, which would 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 gave written notice to the other that it does not wish to extend the agreement. As amended, Mr. Duchemin's employment agreement provided for an annual base salary, as well as eligibility to receive cash incentive compensation on an annual basis of up to a one hundred fifty percent (150%) of his base salary upon meeting objectives as determined by the Board of Directors or the Compensation Committee, which could include non-GAAP earnings per share (on a pro-forma basis, as applicable), revenue growth, and EBITDA, each exclusive of one-time charges, and other discretionary factors. Under the employment agreement, the base salary amount was subject to review annually by our Board of Directors and Compensation Committee. Mr. Duchemin was also eligible to participate in other incentive compensation plans as the Board of Directors or Compensation Committee provided for our senior executive officers. In connection with his hiring, Mr. Duchemin also received an inducement stock option grant of 500,000 options.

The employment agreement with Mr. Duchemin also required us to provide certain payments and benefits to him in the event of a termination of his employment by us without cause, by him for good reason or upon his death or disability. In return, Mr. Duchemin covenanted not to compete with us or solicit our employees for one year following the termination of his employment.

Former Chief Financial Officer

Prior to her departure in 2019, we entered into an employment agreement with Ms. Unninayar, dated October 18, 2018. The agreement provided for an initial term ending November 26, 2019, which would 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 gave written notice to the other that it does not wish to extend the agreement. Ms. Unninayar's employment agreement provided for an annual base salary (initially \$340,000) and eligibility to receive cash incentive compensation on an annual basis of up to a fifty percent (50%) of her base salary upon meeting objectives as determined by the Board of Directors or the Compensation Committee from time to time, which such bonus was subject to a 0 to 2x multiplier depending on individual and Company performance as determined by the Board or a Committee thereof. Under the employment agreement, the base salary amount was subject to review annually by our Board of Directors and Compensation Committee. Ms. Unninayar was also eligible to participate in other incentive compensation plans as the Board of Directors or Compensation Committee provided for our senior executive officers. The employment agreement also included a customary best net/modified economic cutback 280G provisions. In connection with her hiring, Ms. Unninayar also received inducement equity awards having an aggregate value at issuance of \$140,000, consisting of \$70,000 in non-qualified stock options, and \$70,000 in deferred stock awards of restricted stock units.

The employment agreement with Ms. Unninayar also required us to provide certain payments and benefits to the executive in the event of a termination of her employment by us without cause, by her for good reason or upon her death or disability. In return, Ms. Unninayar covenanted not to compete with us or solicit our employees for one year following the termination of employment.

OUTSTANDING EQUITY AWARDS AT FISCAL YEAR-END—2019

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 and market condition RSUs held by the applicable named executive officers noted below as of December 31, 2019.

	Option Awards				Stock Awards			
	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price (\$)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested (\$)(1)	Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (#)	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested (\$)(1)
James W. Green	60,000	-	\$ 5.27	5/5/2025	35,100 (2) 202,875 (3) 243,072 (4) 418,360 (5)	\$ 107,055 \$ 618,769 \$ 741,370 \$ 1,275,998	418,360 (6)	\$ 1,275,998
Michael A. Rossi	-	111,842 (7)	\$ 1.78	7/28/2029	-	-	47,753 (8)	\$ 145,647
Yash Singh	-	86,614 (9)	\$ 2.80	10/31/2029	-	-	39,286 (10)	\$ 119,822
Jeffrey A. Duchemin	67,784 130,000 300,000 350,000	- - - -	\$ 3.79 \$ 5.56 \$ 4.12 \$ 4.31	1/10/2021 1/10/2021 1/10/2021 1/10/2021	- - - -	- - - -	- - - -	- - - -

(1) Based on a closing stock price of \$3.05 per share on December 31, 2019.

(2) These RSUs were granted on May 23, 2019 in connection with Mr. Green’s Board service and, assuming continued service with the Company, the RSUs vest in full on May 23, 2020.

(3) These RSUs were granted on July 8, 2019 and, assuming continued employment with the Company, the unvested RSUs vest in full on July 8, 2020.

(4) These RSUs were granted on July 8, 2019 and, assuming continued employment with the Company, the unvested shares vest in full on July 8, 2021.

(5) These RSUs were granted on July 8, 2019 and, assuming continued employment with the Company, the unvested shares vest in equal installments on January 1 of each of 2020, 2021, 2022 and 2023.

(6) These market condition RSUs were granted on July 8, 2019 with performance-based vesting conditions. The RSUs vest in three equal installments on July 8, 2020, July 8, 2021 and July 8, 2022, and are linked to the achievement of a relative total shareholder return of the Company's Common Stock from July 8, 2019 to the earlier of July 8, 2020 or upon a change of control (measured relative to the Nasdaq Biotechnology index and based on the 20-day trading average price before each such date, or for a change of control, the per share purchase price in such change of control). The target number of these RSUs that may be earned is noted in the table above; the maximum amount is 150% of the number reported.

(7) These options were granted on July 18, 2019 and, assuming continued employment with the Company, the unvested options become exercisable in equal installments on July 18 of each of 2020, 2021, 2022 and 2023.

- (8) These market condition RSUs were granted on July 18, 2019 with performance-based vesting conditions. The RSUs vest in three equal installments on July 18, 2020, July 18, 2021 and July 18, 2022, and are linked to the achievement of a relative total shareholder return of the Company's Common Stock from July 18, 2019 to the earlier of July 18, 2020 or upon a change of control (measured relative to the Nasdaq Biotechnology index and based on the 20-day trading average price before each such date, or for a change of control, the per share purchase price in such change of control). The target number of these RSUs that may be earned is noted in the table above; the maximum amount is 150% of the number reported.
- (9) The option was granted on October 31, 2019 and, assuming continued employment with the Company, the unvested options become exercisable in equal installments on October 31 of each of 2020, 2021, 2022 and 2023.
- (10) These market condition RSUs were granted on October 31, 2019 with performance-based vesting conditions. The RSUs vest in three equal installments on October 31, 2020, October 31, 2021 and October 31, 2022, and are linked to the achievement of a relative total shareholder return of the Company's Common Stock from October 31, 2019 to the earlier of October 31, 2020 or upon a change of control (measured relative to the Nasdaq Biotechnology index and based on the 20-day trading average price before each such date, or for a change of control, the per share purchase price in such change of control). The target number of these RSUs that may be earned is noted in the table above; the maximum amount is 150% of the number reported.

Potential Payments upon Termination or Change-in-Control

Termination Arrangements with Current Named Executive Officers

The employment agreements with each of our named executive officers also require the Company to provide certain payments and benefits in the event of a termination of the executive's employment by us without cause, by the executive for good reason, upon death or disability or in relation to a change-in-control. The events constituting cause, good reason and a change-in-control are specified in the respective agreement. Such benefits include, without limitation, 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. These employment agreements also provide change-in-control benefits, and have customary best net/modified economic cutback provisions in relation to Section 280G of the Internal Revenue Code. In some instances, the executive's receipt of such payments and other benefits in connection with such a termination is subject to the executive signing a general release of claims, as provided in the respective employment agreement.

With respect to termination due to death or disability, all equity awards of the named executive officers shall accelerate and fully vest and we shall also pay a cash lump sum equal to the value of COBRA premiums for a period of twelve (12) months following the termination that may be used by the 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 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 eighteen (18) months for Mr. Green, and twelve (12) months for each of Mr. Rossi and Mr. Singh, of his respective 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 (provided that with respect to Mr. Green, as to the time-based RSUs granted in connection with his hiring, such period shall be 24 months, and with respect to the market condition RSUs granted in connection with his hiring, the performance period would be measured as to the period from grant through the termination event). 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 for Mr. Green, and twelve (12) months for Mr. Rossi and Mr. Singh, following the termination that may be used by the respective executive to pay for health insurance coverage that is substantially similar to the coverage executive and his eligible dependents received prior to the termination.

In the event that the executive is terminated within three months prior to, or twelve months after, a change in control (as described in his employment agreement), we shall pay the executive a single lump sum in cash equal to twenty-four (24) months as to Mr. Green, and eighteen (18) months as to Mr. Rossi and Mr. Singh, of his respective base salary, and all stock options and other stock-based awards granted to the executive shall immediately accelerate and become exercisable or non-forfeitable as of the date of the change in control (and as to Mr. Green, with respect to the market condition RSUs granted in connection with his hiring, the performance period would be measured as to the period from grant through the change of control event). In addition, following such termination we shall also pay a cash lump sum equal to the value of COBRA premiums for a period of twenty four (24) months for Mr. Green, and eighteen (18) months for Mr. Rossi and Mr. Singh, following the termination that may be used by the respective 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.

Termination Arrangements with Mr. Duchemin

In July 2019 we transitioned from our former President and Chief Executive Officer, Jeffrey A. Duchemin, to Mr. Green. As previously disclosed, Mr. Duchemin transitioned out of his roles as President, Chief Executive Officer and a Director of the Company, and received the separation benefits he was contractually entitled to under his employment agreement in relation to a termination without cause, which consisted of (i) a severance amount equal to 18 months of his base salary rate in equal installments over the period of one year from the date of termination; (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; and (iii) 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. In addition, the Company agreed that Mr. Duchemin's vested options will be exercisable through and including January 10, 2021, and he is entitled to monthly reimbursement of expenses pertaining to out-placement services up to an aggregate amount of \$25,000.

Termination Arrangements with Ms. Unninayar

In May 2019 Kam Unninayar, our former Chief Financial Officer, resigned. In connection with her resignation, Ms. Unninayar received the accrued compensation she was contractually entitled to under her employment agreement, which consisted of accrued and unpaid base salary, vacation time and to the extent required by law, any other compensation actually earned for periods ended prior to the date of her resignation.

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 17, 2020 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 17, 2020 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 17, 2020, 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.

<u>Name and Address of Beneficial Owner (1)</u>	<u>Common Stock Beneficially Owned</u>		
	<u>Shares</u>	<u>Percent (2)</u>	
<i>Greater than 5% Holders</i>			
Engine Capital Management, LP and affiliates 1345 Avenue of the Americas, 33rd Floor New York, NY 10105	3,209,490	8.4%	(3)
Chane Graziano 23610 Peppermill Court Bonita Springs, FL 34134	2,546,107	6.6%	(4)
Dimensional Fund Advisors, LP 6300 Bee Cave Road, Building One Austin, TX 78746	2,132,796	5.6%	(5)
Potomac Capital Management, Inc. and affiliates 299 Park Avenue, 21st Floor New York, NY 10171	2,087,401	5.4%	(6)
<i>Non-Employee Directors (1)</i>			
John F. Kennedy	358,702	*	(7)
Bertrand Loy	324,759	*	(8)
Thomas Loewald	166,775	*	(9)
Katherine Eade	184,740	*	(10)
Alan Edrick	35,725	*	(11)
Susan Steele	-	*	
<i>Named Executive Officers (1)</i>			
James Green	384,368	*	(12)
Michael A. Rossi	-		
Yash Singh	-		
All Executive Officers and Directors, as a group (9 persons);	1,455,069	3.7%	(13)

* Represents beneficial ownership of less than one percent (1%) of our outstanding Common Stock.

- (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 38,375,133 shares outstanding on April 17, 2020 together with the applicable options and restricted stock units for each stockholder.
- (3) This information is based solely upon a Schedule 13D/A filed by Engine Capital Management, LP (“Engine Management”) and certain affiliates with the SEC on February 19, 2020. Engine Capital, L.P. (“Engine Capital”) reported sole voting power over 2,630,073 shares and sole dispositive power over 2,630,073 shares. Engine Jet Capital, L.P. (“Engine Jet”) reported sole voting power over 579,417 shares and sole dispositive power over 579,417 shares. Engine Management reported sole voting power over 3,209,490 shares and sole dispositive power over 3,209,490 shares. Engine Capital Management GP, LLC (“Engine GP”) reported sole voting power over 3,209,490 shares and sole dispositive power over 3,209,490 shares. Engine Investments, LLC (“Engine Investments”) reported sole voting power over 3,209,490 shares and sole dispositive power over 3,209,490 shares. Arnaud Ajdler reported sole voting power over 3,209,490 shares and sole dispositive power over 3,209,490 shares. Engine Management is the investment manager of each of Engine Capital and Engine Jet. Engine GP serves as the general partner of Engine Management. Engine Investments serves as the general partner of each of Engine Capital and Engine Jet. Mr. Ajdler serves as the managing partner of Engine Management and the managing member of each of Engine GP and Engine Investments.
- (4) This information is based solely upon a Schedule 13G/A filed by Chane Graziano with the SEC on May 13, 2019, reporting sole voting power over 2,546,107 shares and sole dispositive power over 2,546,107 shares.
- (5) This information is based solely upon a Schedule 13G/A filed by Dimensional Fund Advisors, LP with the SEC on February 12, 2020, reporting sole voting power over 2,009,539 shares and sole dispositive power over 2,132,796 shares.
- (6) This information is based solely upon a Schedule 13G/A filed by Potomac Capital Management, Inc. (“Potomac Capital”) and certain affiliates with the SEC on February 7, 2020. Paul J. Solit reported sole voting power over 2,087,401 shares, sole dispositive power over 2,087,401 shares. Potomac Capital reported sole voting power over 1,832,268 shares and sole dispositive power over 1,832,268 shares. Potomac Capital Management V LLC (the “Potomac General Partner”) reported sole voting power over 1,832,268 shares and sole dispositive power over 1,832,268 shares. Potomac Capital Partners V, LP (“Potomac V”) reported sole voting power over 1,832,268 shares and sole dispositive power over 1,832,268 shares. Potomac V is a private investment vehicle. Potomac Capital is the investment manager of Potomac V. Potomac General Partner is the general partner of Potomac V. Mr. Solit is the principal and controlling person of Potomac Capital and Potomac General Partner.
- (7) Includes options to acquire 37,059 shares that are exercisable within 60 days after April 17, 2020 and 18,100 restricted stock units that will fully vest within 60 days after April 17, 2020.
- (8) Includes options to acquire 55,300 shares that are exercisable within 60 days after April 17, 2020, as well as 18,100 restricted stock units that will fully vest within 60 days after April 17, 2020.
- (9) Includes options to acquire 58,400 shares that are exercisable within 60 days after April 17, 2020, as well as 35,100 restricted stock units that will fully vest within 60 days after April 17, 2020.
- (10) Includes options to acquire 58,400 shares that are exercisable within 60 days after April 17, 2020, as well as 35,100 restricted stock units that will fully vest within 60 days after April 17, 2020.
- (11) Includes 35,725 shares of Common Stock.
- (12) Includes options to acquire 60,000 shares that are exercisable within 60 days after April 17, 2020, as well as 18,100 restricted stock units that will fully vest within 60 days after April 17, 2020.
- (13) Includes options to acquire 269,159 shares that are exercisable within 60 days after April 17, 2020, as well 175,500 restricted stock units that will fully vest within 60 days after April 17, 2020.

EQUITY COMPENSATION PLAN INFORMATION

The following table sets forth information as of December 31, 2019 concerning the number of shares of Common Stock issuable under our existing equity compensation plans.

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options, Restricted Stock Units, Warrants and Rights	Weighted Average Exercise Price of Outstanding Options, Warrants, And Rights	Number of Securities Remaining Available For Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected In Column (a))
	(a)	(b)	(c)
Equity compensation plans approved by security holders (1)	4,100,568	\$ 4.09	785,952(2)
Equity compensation plans not approved by security holders	285,495	\$ 2.23	-
Total	4,386,063		785,952

(1) Consists of the Equity Plan and the Harvard Bioscience, Inc. Employee Stock Purchase Plan (as amended, the "ESPP"). Number of securities in column (a) for plans approved by security holders consists of 2,067,666 outstanding stock options and 2,032,902 RSUs. Number of securities in column (a) for plans not approved by security holders consists of 198,456 outstanding stock options and 87,039 RSUs.

(2) Represents 467,356 shares available for future issuance under the 2000 Plan and 318,596 shares available for future issuance under the ESPP.

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.

Aside from the indemnification agreements we have entered into with each of our Directors, each of which provides that we will indemnify our Directors for expenses incurred because of their status as a Director to the fullest extent permitted by Delaware law, our certificate of incorporation and our by-laws, during the 2019 fiscal year, we were not a participant in any related person transactions that required disclosure under this heading.

DELINQUENT SECTION 16(A) REPORTS

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, 2019, the reporting persons complied on a timely basis with all Section 16(a) filing requirements applicable to them, other than (i) Mr. Duchemin and Ms. Unninayar, our former named executive officers, who each had one late filing reporting their annual long-term incentive equity grants in the first quarter of 2019, (ii) Mr. Edrick, who had one late filing reporting his pro-rata retainer award in connection with being added to the Audit Committee, (iii) Mr. Rossi, our Chief Financial Officer, whose Form 3 and initial Form 4 reporting his inducement equity grants, were each late due to delays in receiving the required filing codes, and (iv) Mr. Singh, our Executive Vice President, Cellular & Molecular Technologies, and Mr. Kenneth Olson, our Vice President and General Manager, Data Sciences International, each of whose initial Form 4 reporting his respective inducement equity grant, was late due to delays in receiving the required filing codes.

STOCKHOLDER COMMUNICATIONS WITH THE BOARD OF DIRECTORS

Stockholders and other interested parties 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 "Board Communication." All such letters should clearly state whether the intended recipients are all members of the Board of Directors or certain specified individual Directors. Our Secretary or his or her designee will make a copy of any such 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 for the audits of the Company's annual consolidated financial statements for the last two fiscal years, in each of the following categories is as set forth in the table below.

	<u>2019</u>	<u>2018</u>
Audit Fees (1)	\$ 1,246,414	\$ 1,308,776
Tax Fees (2)	204,161	162,177
Other	-	-
Total Fees (3)	<u>\$ 1,450,574</u>	<u>\$ 1,470,953</u>

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

All of the services performed in the year ended December 31, 2019 were pre-approved by the Audit Committee. It is the Audit Committee's policy to pre-approve all audit and permitted non-audit services to be provided to us by the independent registered public accounting firm. The Audit Committee's authority to pre-approve non-audit services may be delegated to one or more members of the Audit Committee, who shall present all decisions to pre-approve an activity to the full Audit Committee at its first meeting following such decision. The Audit Committee has delegated this pre-approval authority to its Chairman (currently John Kennedy) for non-audit services with aggregate fees of \$30,000 or less. In addition, the Audit Committee has considered whether the provision of the non-audit services above is compatible with maintaining the independent registered public accounting firm's independence.

PROPOSAL 2
RATIFICATION OF APPOINTMENT OF INDEPENDENT REGISTERED PUBLIC
ACCOUNTING FIRM

The Audit Committee of the Board of Directors has appointed Grant Thornton LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2020. 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 virtually 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, 2020.

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, 2020.

**APPROVAL OF THE HARVARD BIOSCIENCE, INC.
FOURTH AMENDED AND RESTATED 2000 STOCK OPTION AND INCENTIVE PLAN**

We are proposing that our stockholders approve an amendment and restatement of the Harvard Bioscience, Inc. Third Amended and Restated 2000 Stock Option and Incentive Plan (as amended before the amendment and restatement, the “Equity Plan” and as amended and restated, the “Amended Equity Plan”) to, among other things, increase by 3,700,000 shares the number of authorized shares of Common Stock available for issuance under the Amended Equity Plan from 20,908,929 shares to 24,608,929 shares. The Amended Equity Plan is designed to attract, motivate and retain officers, employees, non-employee Directors and other key persons (including 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 (including consultants and prospective employees) of the Company and its subsidiaries. Currently, 20,908,929 shares of Common Stock are reserved for issuance pursuant to awards granted under the Equity Plan. As of March 31, 2020, only 275,419 shares remained available for issuance under the Equity Plan. On February 25, 2020, the Board of Directors approved the Amended Equity Plan, subject to stockholder approval. The Board’s approval was also recommended by the Compensation Committee, and including an analysis of ISS Corporate Solutions and multiple factors, including stock overhang, burn rate, shareholder value transfer and plan features. The Amended Equity Plan makes the following changes, among others, to the Equity Plan:

- increases the aggregate number of shares authorized for issuance under the Equity Plan by 3,700,000 shares to 24,608,929 shares of Common Stock;
- reduces the fungible share ratio from 1.79 to 1.49, resulting in 1.49 shares being deducted from the Amended Equity Plan for each share subject to deferred stock awards (i.e., restricted stock unit awards), restricted stock awards, unrestricted stock awards, performance share awards or other awards under our Equity Plan for which the full value of such share is transferred by us to the award recipient, excluding an option or stock appreciation right;
- eliminates certain tax related provisions as affected by the enactment of the Tax Cuts and Jobs Act of 2017;
- eliminates the provision that provides for the automatic grant of a non-qualified stock option to purchase 25,000 shares of Common Stock to non-employee Directors; and
- makes other clarifying and updating changes.

Our Board of Directors believes that the proposed Amended Equity Plan 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 only 275,419 shares remaining available for issuance under the Equity Plan as of March 31, 2020, our Board of Directors believes that the proposed Amended Equity Plan will enable us to achieve our compensation objectives. These objectives include using long-term equity incentive awards in order to further 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 proposed Amended Equity Plan 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 proposed Amended Equity Plan, 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 2020 and thereafter. Accordingly, we are seeking stockholder approval of the proposed Amended Equity Plan. In the event that the proposed Amended Equity Plan is not approved by stockholders, the Equity Plan will continue in effect but would have up to 275,419 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 of \$2.21 per share, as reported on the Nasdaq Global Market on March 31, 2020, the maximum aggregate market value of the 3,700,000 additional shares that could potentially be issued under the proposed Amended Equity Plan, is approximately \$8.2 million. Such calculation assumes that all the 3,700,000 additional shares were issued as options or other non-full value awards. Based on the revised fungible share provision in the Amended Equity Plan, if all 3,700,000 additional shares were allocated to full value awards (which would result in the lesser amount of approximately 2,483,221 shares being issued), the maximum aggregate market value of such 2,483,221 additional shares based on such closing price is approximately \$5.5 million. The shares issued by us under the proposed Amended Equity Plan will be authorized but unissued shares.

As of March 31, 2020: (i) 275,419 shares of our Common Stock remained available for future awards under our Equity Plan; (ii) 1,876,285 shares of our Common Stock were subject to unvested restricted stock unit awards under our Equity Plan (which is based on time-based awards, as well as the maximum potential award amount that can be earned under market condition awards); and (iii) 2,060,965 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 \$4.09 per share and a weighted average term to maturity of 5.6 years). During fiscal year 2019, our Board of Directors approved the grant of 2,170,686 restricted stock units and options to purchase 744,968 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 portions of such fiscal years which resulted in the share amounts of long-term incentive grants, as well as inducement grants with respect to the hiring of executive officers in 2019, being higher than anticipated when issuing awards. We anticipate that based on current valuations of our Common Stock, the proposed Amended Equity Plan, if approved by the stockholders, would provide sufficient availability to grant stock options and other stock-based awards for 2020.

A summary of the material terms of the proposed Amended Equity Plan, reflecting the changes described above, is included below. Stockholders are urged to read the actual text of the Equity Plan, as proposed to be amended by the Amended Equity Plan (with the provisions being amended provided with red bold italics for additions, and a ~~strike-through~~ of text being eliminated), which is set forth as Appendix A to this proxy statement and incorporated herein by reference.

Vote Required

The proposal to approve the Amended Equity Plan 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 A VOTE “FOR” THE APPROVAL OF THE HARVARD BIOSCIENCE, INC. FOURTH AMENDED AND RESTATED 2000 STOCK OPTION AND INCENTIVE PLAN.

Summary of the proposed Amended Equity Plan

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

Shares Available. The maximum number of shares authorized proposed for issuance under the Amended Equity Plan is 24,608,929 shares of Common Stock, which is an increase of 3,700,000 shares from the number of shares currently authorized for issuance under the Equity Plan. No more than 1,000,000 shares of Common Stock may be subject to options or stock appreciation rights granted to any one individual grantee during any one calendar year period. The shares underlying any awards that expire or terminate or are surrendered or forfeited (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 1.49 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 will not be 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 1.49 shares.

As described above, if the proposed Amended Equity Plan is approved by our stockholders at the Annual Meeting, the fungible share provision which deducts from shares available for grant under our Equity Plan 1.79 shares for each share that underlies an award granted under our Equity Plan for restricted stock unit awards, restricted stock awards, unrestricted stock awards, performance share awards or other awards under our Equity Plan for which the full value of such share is transferred by us to the award recipient, will be revised such that the ratio will be reduced to 1.49.

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

Plan Administration. The Amended Equity Plan will be administered by the Compensation Committee of the Board of Directors. The administrator of the Amended 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 Amended Equity Plan. The administrator may delegate to the Chief Executive Officer the authority to grant awards to employees, other than individuals who are subject to the reporting and other provisions of Section 16 of the Securities Exchange Act of 1934, as amended, 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 (including consultants and prospective employees) are eligible to participate in the Equity Plan, subject to the discretion of the administrator. Approximately, 3 officers, 506 employees and 5 non-employee Directors are eligible to participate in the Amended Equity Plan, if selected by the Compensation Committee.

Stock Options. The exercise price of stock options awarded under the Amended 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 Amended Equity Plan, the period of time, if any, after retirement, death, disability or termination of employment during which options may be exercised. Additionally, during the participant's lifetime, all stock options are exercisable only by the participant or the participant's legal representative.

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.

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.

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; provided, however, that restricted stock awards with a time-based restriction may become vested incrementally over such three-year period.

Restricted Stock Units. The administrator may award restricted 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; provided, however, that restricted stock units with a time-based restriction may become vested incrementally over such three-year period. At the end of the deferral period, the participants shall be paid, to the extent vested, in shares.

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 restricted stock unit award.

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 Amended 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. The aggregate number of shares of unrestricted stock issuable pursuant under the Amended Equity Plan, when combined with the number of shares of underlying unvested stock options accelerated by the administrator under certain conditions, is limited to 10% of the maximum number of shares of Common Stock reserved and available for issuance under the Amended Equity Plan. The aggregate number of shares of unrestricted stock issuable pursuant under the Amended Equity Plan, when combined with the number of shares of underlying unvested stock options accelerated by the administrator under certain conditions, is limited to 10% of the maximum number of shares of Common Stock reserved and available for issuance under the Amended Equity Plan.

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 Amended 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, restricted stock unit 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 Amended 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 Amended Equity Plan) and upon a “change of control” (as defined in the Amended Equity Plan), 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 of control, except as may be otherwise provided in the relevant award agreement. In addition, upon a sale event, all outstanding awards under the Amended 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 Amended Equity Plan after April 20, 2030, being the 10-year anniversary of the date that the Amended Equity Plan was approved by the Board of Directors. No other awards may be granted under the Amended Equity Plan after June 11, 2030, being the 10-year anniversary of the date that the Amended Equity Plan was approved by stockholders.

Amendments. Stockholder approval will be required to amend the Amended Equity Plan if the administrator determines that this approval is required to ensure that incentive stock options qualify as such 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 Amended 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 Amended Equity Plan. On April 20, 2020, the Board of Directors approved the Amended Equity Plan, which is being submitted for approval by the Company’s stockholders at the Annual Meeting on June 11, 2020.

Tax Aspects Under the Code

The following is a summary of the principal federal income tax consequences of certain transactions under the Amended Equity Plan. It does not describe all federal tax consequences under the Amended 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 (i) upon sale of such shares, any amount realized in excess of the option price (the amount paid for the shares) will be taxed to the optionee as a long-term capital gain, and any loss sustained will be a long-term capital loss, and (ii) 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 (i) the optionee will realize ordinary income in the year of disposition in an amount equal to the excess (if any) of the fair market value of the shares at exercise (or, if less, the amount realized on a sale of such shares) over the option price thereof, and (ii) we will generally be entitled to deduct such amount, subject to the limitations of Section 162(m) of the Code. 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, the option is treated as a non-qualified option. For example, 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, subject to the limitations of Section 162(m) of the Code, 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 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. Upon disposition of any shares acquired through an award of stock appreciation rights, the participant will recognize long-term or short-term capital gain or loss depending upon the sale price and holding period of the shares.

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 or the achievement of performance conditions. 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, less any amount paid by the participant for such shares. 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, subject to the limitations of Section 162(m) of the Code. Upon disposition of any shares acquired through a restricted stock 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.

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, subject to the limitations of Section 162(m) of the Code. 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. 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 Amended 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. Upon disposition of any shares acquired through other awards granted under the Amended Equity Plan, the participant will recognize long-term or short-term capital gain or loss depending upon the sale price and holding period of the shares.

Parachute Payments. The vesting of any portion of an option or other award that is accelerated due to the occurrence of a change of 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 Amended Equity Plan may be limited to the extent that any covered employee, including the Chief Executive Officer, Chief Financial Officer and other current or former executive officer whose compensation is or after December 31, 2016 was required to be reported in the summary compensation table, receives compensation in an applicable year in excess of \$1 million a year, including performance-based compensation.

New Plan Benefits

The number of stock options and other forms of Awards that will be granted under the Amended Equity Plan is not currently determinable because our equity award grants are discretionary in nature. We have not granted any awards as of the date hereof that are contingent upon the approval of the Amended Equity Plan. Information about awards granted to our named executive officers and directors during 2019 can be found under the heading “Compensation Discussion & Analysis – Grants of Plan-Based Awards – 2019” and Director Compensation – 2019 Director Compensation Table”, respectively. During 2019, under the Equity Plan, awards with respect to 1,925,474 shares of Common Stock were granted to our executive officers, awards with respect to 365,200 shares of Common Stock were granted to our non-employee directors and awards with respect to 672,308 shares of Common Stock were granted to our other employees.

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

Background

The SEC adopted final rules on January 26, 2011 to implement Section 951 of the Dodd-Frank Wall Street Reform and Consumer Protection Act requiring public companies to provide stockholders with periodic advisory votes on executive compensation (“Say-on-Pay Proposal”). Accordingly, we are seeking an advisory vote from our stockholders to approve our named executive officer compensation, as set forth below. The Board of Directors welcomes 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. Consistent with the preference of our stockholders as determined by the last vote to approve the frequency of our Say-on-Pay Proposal, we intend to conduct a Say-on-Pay Proposal annually.

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 year 2019 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 TO APPROVE THE COMPENSATION OF OUR NAMED EXECUTIVE OFFICERS.

SUBMISSION OF STOCKHOLDER PROPOSALS FOR THE 2021 ANNUAL MEETING

In order to be considered for inclusion in our proxy statement and form of proxy for our 2021 annual meeting, stockholder proposals intended to be presented at our 2021 annual meeting of stockholders must be received by us on or before December 29, 2020 and otherwise comply with the requirements set forth in Rule 14a-8 under the Exchange Act. 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.

To the extent a stockholder of record wishes to have a stockholder proposal or Director nomination considered at an annual meeting even though such proposal is not included in our proxy statement, our Bylaws provide that such stockholder of record must provide written notice of such proposal or nomination 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. For the 2021 annual meeting of stockholders, such proposal or nomination must be received no earlier than February 11, 2021 and no later than March 13, 2021.

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. 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 VIRTUALLY, 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. THE COMPANY WILL FURNISH, WITHOUT CHARGE, A COPY OF ITS ANNUAL REPORT 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.

FOURTH ~~THIRD~~ AMENDED AND RESTATED
2000 STOCK OPTION AND INCENTIVE PLAN

1) GENERAL PURPOSE OF THE PLAN; DEFINITIONS

The name of the plan is the Harvard Bioscience, Inc. Fourth ~~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~~ **24,608,929** 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, **plus an additional 3,700,000 shares added to the Plan in 2020**. 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 ~~1.49~~ **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) ~~Reserved~~ *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) **Reserved.** *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.

DATE FOURTH AMENDMENT AND RESTATEMENT APPROVED BY BOARD OF DIRECTORS: APRIL 20, 2020.

DATE FOURTH AMENDMENT AND RESTATEMENT APPROVED BY STOCKHOLDERS: JUNE 11, 2020.

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



**SCAN TO
 VIEW MATERIALS & VOTE**



VOTE BY INTERNET

Before The Meeting - Go to 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 p.m. Eastern Time the day before the cut-off date or meeting date. Have your proxy card in hand when you access the web site and follow the instructions to obtain your records and to create an electronic voting instruction form.

During The Meeting - Go to www.virtualshareholdermeeting.com/HBIO2020

You may attend the meeting via the Internet and vote during the meeting. Have the information that is printed in the box marked by the arrow available and follow the instructions.

VOTE BY PHONE - 1-800-690-6903

Use any touch-tone telephone to transmit your voting instructions up until 11:59 p.m. Eastern Time the day before the 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:

D14883-P39902

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

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

HARVARD BIOSCIENCE, INC.

The Board of Directors recommends you vote FOR the following:

1. Election of Directors

For All	Withhold All	For All Except
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

To withhold authority to vote for any individual nominee(s), mark "For All Except" and write the number(s) of the nominee(s) on the line below.

Nominees:

- 01) Katherine A. Eade
 02) Thomas Loewald

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

2. To ratify the appointment of Grant Thornton LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2020.
3. Approval of the Harvard Bioscience, Inc. Fourth Amended and Restated 2000 Stock Option and Incentive Plan to, among other things, increase the number of authorized shares of Common Stock available for issuance thereunder by 3,700,000 and to reduce the fungible share ratio thereunder.
4. Approval, by a non-binding advisory vote, of the compensation of the Company's named executive officers.

For Against Abstain

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

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

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

Signature [PLEASE SIGN WITHIN BOX]	Date

Signature (Joint Owners)	Date

Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting:
The Notice & Proxy Statement and Annual Report are available at www.proxyvote.com.

D14884-P39902

HARVARD BIOSCIENCE, INC.
Annual Meeting of Stockholders
June 11, 2020 at 11:00 AM, EDT
This proxy is solicited by the Board of Directors

The stockholder(s) hereby appoint(s) James Green and Michael A. Rossi, 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 stockholder(s) is/are entitled to vote at the Annual Meeting of Stockholders to be held at 11:00 AM, EDT on June 11, 2020. Due to the emerging public health impact of the coronavirus outbreak (COVID-19) and to support the health and well-being of our partners and stockholders, the Annual Meeting will be held by virtual meeting only. You will not be able to attend the Annual Meeting in person. To be admitted to the Annual Meeting at www.virtualshareholdermeeting.com/HBIO2020, you must enter the control number found on your proxy card, voting instruction form or notice you previously received. You may vote during the Annual Meeting by following the instructions available on the meeting website during the meeting.

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