

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM S-8
REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

HARVARD BIOSCIENCE, INC.
(Exact Name of Registrant as Specified in Its Charter)

Delaware
(State of Incorporation)

04-3306140
(I.R.S. Employer
Identification No.)

84 October Hill Road
Holliston, Massachusetts
(Address of Principal Executive Offices)

01746
(Zip Code)

EMPLOYMENT INDUCEMENT AWARDS
HARVARD BIOSCIENCE, INC. FOURTH AMENDED AND RESTATED 2000 STOCK OPTION AND INCENTIVE PLAN
(Full Title of the Plans)

James Green, Chief Executive Officer
HARVARD BIOSCIENCE, INC.
84 October Hill Road
Holliston, Massachusetts 01746
(508) 893-8999
(Name, address, and telephone number, including area code, of agent for service)

With copies to:

Josef B. Volman
Robert A. Pettit
Burns & Levinson LLP
125 High Street
Boston, Massachusetts 02110
(617) 345-3000

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer
Non-accelerated filer

Accelerated filer
Smaller reporting company
Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act

Calculation of Registration Fee

Title of Securities to be Registered	Amount to be Registered (1)	Proposed Maximum Offering Price Per Share	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
Common Stock, par value \$0.01 per share	111,842 shares (2)	\$1.78 (3)	\$199,079 (3)	\$22
Common Stock, par value \$0.01 per share	71,630 shares (4)	\$3.43 (5)	\$245,691 (5)	\$27
Common Stock, par value \$0.01 per share	3,700,000 shares (6)	\$3.43 (5)	\$12,691,000 (5)	\$1,385
TOTAL	3,883,472 shares		\$13,135,770	\$1,434

- (1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the “Securities Act”), this Registration Statement shall also be deemed to cover such additional securities that become issuable by reason of any stock dividend, stock split, recapitalization or any other similar transactions.
- (2) Consists of shares of common stock, par value \$0.01 per share (“Common Stock”) of Harvard Bioscience, Inc. (the “Registrant”) that are issuable upon exercise of stock options granted outside the Registrant’s Fourth Amended and Restated 2000 Stock Option and Incentive Plan (together with previous versions of such plan, the “Plan”), but pursuant to the terms of the Plan as if such stock options were granted under the Plan, to the Registrant’s Chief Financial Officer to induce such individual to accept employment with the Registrant (the “Inducement Option Awards”).
- (3) Calculated pursuant to Rule 457(h) under the Securities Act solely for the purpose of computing the registration fee, based on the weighted average exercise price of the Inducement Option Awards.
- (4) Consists of restricted stock units issued outside the Plan, but pursuant to the terms of the Plan as if such restricted stock units were granted under the Plan, to the Registrant’s Chief Financial Officer to induce such individual to accept employment with the Registrant (the “Inducement RSU Awards”).
- (5) Estimated solely for the purpose of calculating the registration fee in accordance with Rules 457(c) and 457(h) of the Securities Act. The proposed maximum aggregate offering price is based upon the average of the high and low sales prices of the Registrant’s Common Stock, as reported on The Nasdaq Global Market on November 2, 2020.
- (6) Consists of 3,700,000 shares of Common Stock that were added to the Plan pursuant to an amendment and restatement thereof approved by the Registrant’s stockholders on June 11, 2020.

EXPLANATORY NOTE

This Registration Statement on Form S-8 is being filed for the purpose of registering (i) 111,842 shares of the Registrant's Common Stock issuable under a previously announced inducement stock option grant that was granted on July 18, 2019 to Michael A. Rossi, the Registrant's Chief Financial Officer; (ii) 71,630 shares of the Registrant's Common Stock issuable under a previously announced inducement restricted stock unit award that was granted on July 18, 2019 to Mr. Rossi, including shares issuable upon attainment of performance goals as specified therein; and (iii) 3,700,000 shares of Common Stock that were added to the Registrant's Fourth Amended and Restated 2000 Stock Option and Incentive Plan pursuant to an amendment and restatement thereof approved by the Registrant's stockholders on June 11, 2020.

PART I INFORMATION REQUIRED IN THE SECTION 10(a) PROSPECTUS

The information called for in Part I of Form S-8 to be contained in the Section 10(a) prospectus is not being filed with or included in this registration statement (by incorporation by reference or otherwise) in accordance with the rules and regulations of the Securities and Exchange Commission (the "Commission").

PART II INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

The Registrant is subject to the informational and reporting requirements of Sections 13(a), 14 and 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and in accordance therewith files reports, proxy statements and other information with the Commission. The following documents, which are on file with the Commission, are hereby incorporated by reference in, and shall be deemed a part of, this Registration Statement:

(a) The Registrant's Annual Report on Form 10-K for the year ended December 31, 2019, filed with the Commission on March 16, 2020;

(b) The Registrant's Definitive Proxy Statement on Schedule 14, filed with the Commission on April 28, 2020;

(c) The Registrant's Quarterly Reports on Form 10-Q for the quarters ended March 31, 2020, June 30, 2020 and September 30, 2020, filed with the Commission on May 8, 2020, August 10, 2020, and November 6, 2020, respectively;

(d) the Registrant's Current Reports on Form 8-K filed with the Commission on March 6, 2020, April 7, 2020, April 23, 2020, May 4, 2020, May 6, 2020 and June 15, 2020; and

(e) The description of the Registrant's Common Stock contained in the Registrant's registration statement on Form 8-A (File No. 000-31923) filed with the Commission on November 9, 2000 under the Exchange Act, including any amendment or report filed for the purpose of updating such description.

All documents subsequently filed by the registrant pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, prior to the filing of a post-effective amendment which indicates that all securities offered hereby have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference in this Registration Statement and to be part hereof from the date of the filing of such documents. The Registrant is not, however, incorporating by reference any documents or portions thereof, whether specifically listed above or filed in the future, that are not deemed "filed" with the Commission, including any information furnished pursuant to Items 2.02 or 7.01 of Form 8-K or related exhibits furnished pursuant to Item 9.01 of Form 8-K.

Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for the purposes of this Registration Statement to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this Registration Statement. Under no circumstances will any information furnished under Items 2.02 or 7.01 of Form 8-K be deemed incorporated by reference unless such Current Report on Form 8-K expressly provides to the contrary.

Item 4. Description of Securities.

Not applicable.

Item 5. Interests of Named Experts and Counsel.

None.

Item 6. Indemnification of Directors and Officers.

As permitted by Section 102 of the Delaware General Corporation Law, the Registrant has adopted provisions in its Second Amended and Restated Certificate of Incorporation, or its Charter, and Amended and Restated Bylaws, as amended, or its Bylaws, that limit or eliminate the personal liability of its directors for a breach of their fiduciary duty of care as a director. The duty of care generally requires that, when acting on behalf of a corporation, directors exercise an informed business judgment based on all material information reasonably available to them. Consequently, a director will not be personally liable to the Registrant or its stockholders for monetary damages or breach of fiduciary duty as a director, except for liability for:

- any breach of the director's duty of loyalty to the Registrant or its stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- any act related to unlawful stock repurchases, redemptions or other distributions or payments of dividends; or
- any transaction from which the director derived an improper personal benefit.

These limitations of liability do not affect the availability of equitable remedies such as injunctive relief or rescission. The Registrant's Charter also authorizes the Registrant to indemnify its officers, directors and other agents to the fullest extent permitted under Delaware law.

As permitted by Section 145 of the Delaware General Corporation Law, the Registrant's Bylaws provide that it will indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding by reason of the fact that such person, or a person of whom he or she is the legal representative, is or was the Registrant's director or officer, or by reason of the fact that the Registrant's director or officer is or was serving, at the Registrant's request, as a director, officer, employee or agent of another corporation or of a partnership, joint venture, trust or other enterprise, including service with respect to employee benefit plans maintained or sponsored by the Registrant. The Registrant will indemnify such persons against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action if such person acted in good faith and in a manner reasonably believed to be in the Registrant's best interests and, with respect to any criminal proceeding, had no reason to believe such person's conduct was unlawful. Any amendment of this provision will not reduce the Registrant's indemnification obligations relating to actions taken before an amendment. The Registrant's Charter and Bylaws, each attached as an exhibit to Amendment No. 2 to the Registrant's Form S-1 Registration Statement (File No. 333-45996, filed with the SEC on November 9, 2000), provide for the indemnification provisions described above.

In addition, the Registrant has entered into separate indemnification agreements, a form of which is attached as Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q (filed with the SEC on May 8, 2020), with the Registrant's directors and certain of its officers which may be broader than the specific indemnification provisions contained in the Delaware General Corporation Law. These indemnification agreements generally require the Registrant, among other things, to indemnify such officers and directors against liabilities that may arise by reason of their status or service as directors or officers, subject to certain exceptions and limitations. These indemnification agreements also require the Registrant to advance any expenses incurred by such directors or officers as a result of any proceeding against them as to which they could be indemnified.

The Registrant has also obtained policies that insure its directors and officers and those of its subsidiaries against certain liabilities they may incur in their capacity as directors and officers. Under these policies, the insurer, on the Registrant's behalf, may also pay amounts for which the Registrant has granted indemnification to the directors or officers. These indemnification provisions and the indemnification agreements may be sufficiently broad to permit indemnification of the Registrant's officers and directors for liabilities, including reimbursement of expenses incurred, arising under the Securities Act.

Item 7. Exemption from Registration Claimed.

Not applicable.

Item 8. Exhibits.

The Exhibit Index preceding the signature page to this Registration Statement is incorporated by reference.

Item 9. Undertakings.

The undersigned Registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement:
 - i. to include any prospectus required by Section 10(a)(3) of the Securities Act;
 - ii. to reflect in the prospectus any facts or events arising after the effective date of the Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the Registration Statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective Registration Statement; and
 - iii. to include any material information with respect to the plan of distribution not previously disclosed in the Registration Statement or any material change to such information in the Registration Statement;

provided, however, that paragraphs (1)(i) and (1)(ii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the Registrant pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in the Registration Statement.

- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

The Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the Registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in this Registration Statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted directors, officers and controlling persons of the Registrant pursuant to the provisions described in Item 6 hereof, or otherwise, the Registrant has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

EXHIBIT INDEX

Exhibit Number	Description
4.1(1)	Second Amended and Restated Certificate of Incorporation of Harvard Bioscience, Inc.
4.2(1)	Amended and Restated Bylaws of Harvard Bioscience, Inc.
4.3(2)	Amendment No. 1 to Amended and Restated Bylaws of Harvard Bioscience, Inc.
4.4(1)	Specimen certificate for shares of Common Stock, \$0.01 par value, of Harvard Bioscience, Inc.
4.5(3)	Amended and Restated Securityholders' Agreement, dated as of March 2, 1999, by and among Harvard Apparatus, Inc., Pioneer Partnership II, Pioneer Capital Corp., First New England Capital, L.P. and Citizens Capital, Inc. and Chane Graziano and David Green
4.6(4)	Harvard Bioscience, Inc. Fourth Amended and Restated 2000 Stock Option and Incentive Plan, as amended
4.7*	Deferred Stock Award Agreement, dated as of July 18, 2019, by and between Harvard Bioscience, Inc. and Michael Rossi
4.8*	Non-Qualified Stock Option Agreement, dated as of July 18, 2019, by and between Harvard Bioscience, Inc. and Michael Rossi
5.1*	Legal opinion from Burns & Levinson LLP
23.1*	Consent of Grant Thornton LLP
23.2*	Consent of Burns & Levinson LLP (contained in the opinion filed as Exhibit 5.1 to this Registration Statement)
24.1*	Power of attorney (included on the signature page to this Registration Statement)

* Filed herewith.

- (1) Previously filed as an exhibit to the Company's Registration Statement on Form S-1/A (File No. 333-45996) (filed on November 9, 2000) and incorporated by reference thereto.
- (2) Previously filed as an exhibit to the Company's Current Report on Form 8-K (filed on November 1, 2007) and incorporated by reference thereto.
- (3) Previously filed as an exhibit to the Company's Registration Statement on Form S-1/A (File No. 333-45996) (filed on October 25, 2000) and incorporated by reference thereto.
- (4) Previously filed as an Exhibit to the Company's Quarterly Report on Form 10-Q (filed on August 10, 2020) and incorporated by reference thereto.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the Town of Holliston, Massachusetts, on this 6th day of November, 2020.

HARVARD BIOSCIENCE, INC.

By: /s/ JAMES GREEN
James Green, Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL BY THESE PRESENTS that each individual whose signature appears below constitutes and appoints each of James Green and Michael A. Rossi as such person's true and lawful attorney-in-fact and agent with full power of substitution and resubstitution, for such person in such person's name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement (or any registration statement for the same offering that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933), and to file the same, with all exhibits thereto, and all documents in connection therewith, with the Securities and Exchange Commission, granting unto each said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as such person might or could do in person, hereby ratifying and confirming all that any said attorney-in-fact and agent, or any substitute or substitutes of any of them, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the date indicated. Each person listed below has signed this registration statement as an officer or director of Harvard Bioscience, Inc.

Signature	Title	Date
<u>/s/ JAMES GREEN</u> James Green	Chief Executive Officer and Director (Principal Executive Officer)	November 6, 2020
<u>/s/ MICHAEL A. ROSSI</u> Michael A. Rossi	Michael A. Rossi (Principal Financial Officer and Principal Accounting Officer)	November 6, 2020
<u>/s/ KATHERINE A. EADE</u> Katherine A. Eade	Director	November 6, 2020
<u>/s/ ALAN EDRICK</u> Alan Edrick	Director	November 6, 2020
<u>/s/ JOHN F. KENNEDY</u> John F. Kennedy	Director	November 6, 2020
<u>/s/ THOMAS W. LOEWALD</u> Thomas W. Loewald	Director	November 6, 2020
<u>/s/ BERTRAND LOY</u> Bertrand Loy	Director	November 6, 2020
<u>/s/ SUSAN STEELE</u> Susan Steele	Director	November 6, 2020

**DEFERRED STOCK AWARD AGREEMENT
UNDER THE HARVARD BIOSCIENCE, INC. THIRD AMENDED AND RESTATED 2000
STOCK OPTION AND INCENTIVE PLAN, AS AMENDED**

Name of Grantee: Michael Rossi (the "**Grantee**")

Grant Date: July 18, 2019 (the "**Grant Date**")

On the Grant Date, Harvard Bioscience, Inc., a Delaware corporation (including its successors, the "**Company**") and the Grantee entered into an employment agreement setting forth the terms of Grantee's employment, which contemplated among other things that the parties would enter into this award agreement. The Board of Directors of the Company has determined that it is in the best interests of the Company and its stockholders to grant this award to the Grantee as provided herein. Capitalized terms used in this award agreement but not defined herein shall have the meanings assigned to them in the Harvard Bioscience, Inc. Third Amended and Restated Stock Option and Incentive Plan (as amended, the "**Plan**"). While the award granted pursuant hereto (the "**Award**") is made outside the Plan as an employment inducement award, the Award will be governed in all respects as if issued under the Plan, as currently in effect and as may be amended hereafter from time to time and this Deferred Stock Award Agreement (the "**Agreement**").

The Company hereby grants a number of Restricted Stock Units ("**RSUs**") to be determined in accordance herewith to the Grantee. The Award represents a promise to pay to the Grantee certain shares of Common Stock, par value \$0.01 per share (the "**Stock**") of the Company in an amount determined based on the attainment of performance goals related to total shareholder return ("**TSR**") and continued employment, subject to the restrictions and conditions set forth herein and in the Plan.

1. Grant and Restrictions.

(a) Grant. The Company hereby awards to the Grantee a target award of **47,753** RSUs (hereinafter, as adjusted in accordance with Section 8, the "**Target Award**"), subject to the vesting and other conditions set forth herein and in the Plan, with the final amount of the Award to be the Final RSUs as determined in accordance with Section 2 below.

(b) No Voting Rights and Dividends. Until such time as the RSUs are paid to the Grantee in shares of Stock, the Grantee shall have no voting rights and no rights to any dividends or other distributions with respect to the RSUs.

(c) Restrictions on Transfer. The RSUs granted pursuant to this Agreement may not be sold, assigned, transferred, pledged or otherwise encumbered or disposed of prior to vesting.

2. Vesting of Restricted Stock Units.

(a) General Vesting Terms. Except as set forth in Paragraphs 2(b) and 2(c) below, to the extent the achieved Performance Factor is greater than 0% as of the end of the Performance Period (as defined below), the Grantee shall vest in a number of RSUs (the "**Final RSUs**") based on the attainment of the TSR performance goals described on Schedule A as of the end of the Performance Period (as defined below), such vesting to be as follows: (i) 1/3 of the aggregate amount of the Final RSUs shall vest on the last day of the Performance Period (the "**Initial Vesting Date**"), (ii) 1/3 of the aggregate amount of the Final RSUs shall vest on the first anniversary of the Initial Vesting Date, and (iii) the remaining 1/3 of the aggregate amount of the Final RSUs shall vest on the second anniversary of the Initial Vesting Date, provided that with respect to each such 1/3 tranche, the Grantee remains employed by the Company or any Subsidiaries through the respective vesting date (i.e., with respect to the initial 1/3, the Grantee must remain so employed on the Initial Vesting Date). The Performance Period is the one year period beginning on the Grant Date (the "**Performance Period**"). Your Final RSUs will be determined by multiplying the Target Award by the percentage (from zero to 150%) (the "**Performance Factor**") which is based on the Company's Total Shareholder Return during the Performance Period compared to the Index Constituent Companies, determined according to Schedule A of this Agreement. Except as specifically provided below in this Section 2, no RSUs will vest for any reason prior to the Initial Vesting Date. Except as provided in Paragraphs 2(b) and 2(c) below, if the TSR performance goals are not attained at the end of the Performance Period, the RSUs will be immediately forfeited. Upon vesting in accordance herewith or Paragraph 2(c), the restrictions and conditions in Paragraph 1 of this Agreement with respect to such RSU shall lapse and such RSU shall become payable to the Grantee in shares of Stock on the relevant vesting date in the amount of the vested RSUs in accordance with this Paragraph (a) and Schedule A. Any fractional RSU resulting from the vesting of the RSUs in accordance with this Agreement shall be rounded down to the nearest whole number.

(b) Except as noted in Paragraph 2(c) below, and notwithstanding any provision of any other agreement or arrangement between the Grantee and the Company that provides accelerated vesting of RSUs or all equity awards in general in the event of certain types of termination, the Grantee's rights to all RSUs granted herein and not yet vested in accordance with the provisions of Paragraphs 2(a) or 2(c), and Schedule A, shall automatically terminate upon the Grantee's termination of employment, voluntarily or involuntarily, with the Company and its Subsidiaries for any reason (including death).

(c) Notwithstanding anything to the contrary in this Agreement, if a Change of Control occurs during the Performance Period, the date of such Change of Control shall be deemed the last day of the Performance Period, and the Performance Factor will be calculated as if the date of the Change of Control is the last day of the Performance Period. In such event, (i) your Final RSUs will be determined by multiplying the Target Award by the calculated Performance Factor and (ii) to the extent the achieved Performance Factor is greater than 0% as of the end of such reduced Performance Period, your Final RSUs shall vest in full as of the date of such Change of Control.

3. Receipt of Stock Upon Vesting. Upon the vesting of the RSUs as provided in Paragraph 2, the Grantee shall receive one share of Stock for each RSU vested. Shares of Stock acquired pursuant to this Award shall be issued and delivered to the Grantee either in actual stock certificates or by electronic book entry, subject to tax withholding as provided in Paragraph 6 below.

4. Incorporation of Plan. Notwithstanding anything herein to the contrary, this Agreement shall be subject to and governed by all the terms and conditions of the Plan, including the powers of the Administrator set forth in the Plan. Capitalized terms in this Agreement shall have the meaning specified in the Plan, unless a different meaning is specified herein.

5. Transferability. This Agreement is personal to the Grantee, is non-assignable and is not transferable in any manner, by operation of law or otherwise, other than by will or the laws of descent and distribution.

6. Tax Withholding. Unless the Grantee elects to satisfy the tax withholding obligation in a timely manner by making the payments or related arrangements in accordance with Section 14(a) of the Plan (including, without limitation, payments made from such Grantee's compensation or other cash payments otherwise due him or her from the Company or by paying the Company directly by a separate check), the tax withholding obligation shall be satisfied by the Company withholding, from shares of Stock to be issued to the Grantee hereunder, such number of the Grantee's shares having an aggregate fair market value equal to the required minimum amount of the tax withholding then due with respect to such Grantee.

7. No Obligation to Continue Employment. Neither the Company nor any Subsidiary is obligated by or as a result of the Plan or this Agreement to continue the Grantee in employment and neither the Plan nor this Agreement shall interfere in any way with the right of the Company or any Subsidiary to terminate the employment of the Grantee at any time.

8. Certain Corporate Changes. If any change is made to the Common Stock (whether by reason of merger, consolidation, reorganization, recapitalization, stock dividend, stock split, combination of shares, or exchange of shares or any other change in capital structure made without receipt of consideration), then unless such event or change results in the termination of all the RSUs granted under this Agreement, the Administrator shall adjust, as provided in the Plan, the number and class of shares underlying the RSUs held by the Grantee, the maximum number of shares for which the RSUs may vest, and the share price or class of Common Stock for purposes of the TSR performance goals, as appropriate, to reflect the effect of such event or change in the Company's capital structure in such a way as to preserve the value of the RSUs. Any adjustment that occurs under the terms of this Section 8 or the Plan will not change the timing or form of payment with respect to any RSUs except in accordance with section 409A of the Code.

9. Notices. Notices hereunder shall be mailed or delivered to the Company at its principal place of business and shall be mailed or delivered to the Grantee at the address on file with the Company or, in either case, at such other address as one party may subsequently furnish to the other party in writing.

HARVARD BIOSCIENCE, INC.

By: /s/ James Green
Name: James Green
Title: Chief Executive Officer

The foregoing Agreement is hereby accepted and the terms and conditions thereof hereby agreed to by the undersigned.

Dated: July 18, 2019

/s/ Michael Rossi

Grantee's Signature

Grantee's name and address:

Michael Rossi



Schedule A

Determination of Performance Factor

The Performance Factor shall be determined according to the following table:

<u>Relative TSR Percentile Rank*</u>	<u>Performance Factor**</u>
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%

Examples: If the Company's Relative TSR Percentile Rank falls into the 43rd percentile (i.e., ten percentiles above the 33rd percentile), the Performance Factor will be 80% (calculated by multiplying eight by 3% and adding it to 50%). If the Company's Relative TSR Percentile Rank falls into the 65th percentile (i.e., fifteen percentiles above the 50th percentile), the Performance Factor will be 130% (calculated by multiplying fifteen by 2% and adding it to 100%), provided that if the Total Shareholder Return for the Company is negative, the Performance Factor in such instance would be 100%.

*Total Shareholder Return for the Company shall be based on the percentage increase/decrease from the Initial Price to the Final Price, and shall reflect the reinvestment of dividends paid (if any) to shareholders of Common Stock during the Measurement Period.

** If the Total Shareholder Return is negative for the Performance Period, the Performance Factor is subject to a cap of 100%.

For purposes of the foregoing calculation:

1. "**Total Shareholder Return**" mean the quotient (expressed as a percentage) obtained by dividing (i)(A) the Final Price, plus (B) the aggregate amount of dividends paid in respect of a share of Common Stock during the Measurement Period (assuming reinvestment of the dividends), minus (C) the Initial Price, by (ii) the Initial Price.
 2. "**Initial Price**" means the average closing price of Common Stock over the twenty trading day period ending on the trading day immediately preceding the first day of the Performance Period.
 3. "**Final Price**" means the average closing price of Common Stock over the twenty trading day period ending on the last day of the Measurement Period, provided that in connection with a Change of Control, the Final Price shall be the per share purchase price in the Change of Control.
 4. "**Measurement Period**" means the Performance Period; provided that in the event of a Change of Control, Total Shareholder Return shall be calculated through the date of the Change of Control as provided in the Agreement.
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5. “**Relative TSR Percentile Rank**” means the percentile within the Index Constituent Companies (as defined below) that the Company’s Total Shareholder Return would have for the Measurement Period.

6. If the Company’s Relative TSR Percentile Rank falls between the measuring points, the Company’s Relative TSR Percentile Rank will be rounded to the nearest whole percentage point. With respect to the Index Constituent Companies, such Initial Price and Final Price shall be determined on a component basis (assuming dividend reinvestment) during the applicable twenty (20) trading day periods using an open approach).

7. The companies included from the NASDAQ Biotechnology Index for purposes of the Relative TSR Percentile Rank calculation (the “**Index Constituent Companies**”) will be determined on the first day of the Measurement Period and will be changed only in accordance with the following and no company shall be added during the Measurement Period for purposes of the Relative TSR Percentile Rank calculation. The Index Constituent Companies for purposes of the Relative TSR Percentile Rank calculation will be subject to change as follows:

(i) In the event of a merger, acquisition or business combination transaction of a company in the Index Constituent Companies in which the company in the Index Constituent Companies is the surviving entity and remains publicly traded, the surviving entity shall remain a company in the Index Constituent Companies. Any entity involved in the transaction that is not the surviving company shall no longer be a company in the Index Constituent Companies.

(ii) In the event of a merger, acquisition or business combination transaction of a company in the Index Constituent Companies, a “going private” transaction or other event involving a company in the Index Constituent Companies or the liquidation of a company in the Index Constituent Companies, in each case where the company in the Index Constituent Companies is not the surviving entity or is no longer publicly traded, the company shall no longer be a company in the Index Constituent Companies.

(iii) Notwithstanding the foregoing, in the event of a bankruptcy of a company in the Index Constituent Companies where the company in the Index Constituent Companies is not publicly traded at the end of the Measurement Period, such company shall remain a company in the Index Constituent Companies but shall be deemed to have a Total Shareholder Return of negative 100% (-100%).

**NON-QUALIFIED STOCK OPTION TO PURCHASE SHARES OF COMMON
STOCK UNDER THE HARVARD BIOSCIENCE, INC.
THIRD AMENDED AND RESTATED
2000 STOCK OPTION AND INCENTIVE PLAN**

111,842 Shares

July 18, 2019
(Option Issuance Date)

On July 18, 2019, Harvard Bioscience, Inc., a Delaware corporation (including its successors, the “Company”) and Michael Rossi (the “Optionee”) entered into an employment agreement setting forth the terms of Optionee’s employment (as amended, restated or modified from time to time, the “Employment Agreement”), which contemplated among other things that the parties would enter into this option agreement. The Board of Directors of the Company has determined that it is in the best interests of the Company and its stockholders to grant an option (the “Option”) to the Optionee as provided herein.

Capitalized terms used in this Option but not defined herein shall have the meanings assigned to them in the Harvard Bioscience, Inc. Third Amended and Restated Stock Option and Incentive Plan (as amended, the “Plan”). While this Option granted pursuant hereto is made outside the Plan as an employment inducement award, this Option will be governed in all respects as if issued under the Plan, as currently in effect and as may be amended hereafter from time to time and this option agreement.

Subject to the terms and conditions set forth herein and in the Plan (the “Agreement”), the Company hereby grants to the Optionee an option to purchase (the “Option”), prior to the tenth (10th) anniversary of the date hereof (the “Expiration Date”), at an exercise price per share of **\$1.78**, all or any of 111,842 shares of Common Stock, \$.01 par value, of the Company (the “Shares”). This Option is intended to be a Non-qualified Stock Option granted under the Plan.

1. Vesting Schedule. No portion of this Option may be exercised until such portion shall have vested. Except as set forth below and subject to the terms and conditions set forth below, this Option shall be vested and exercisable with respect to the following number of Shares on the dates indicated:

<u>Cumulative Number of Shares Exercisable</u>	<u>Vesting Date</u>
27,960 (25%)	07/18/2020
55,921 (50%)	07/18/2021
83,881 (75%)	07/18/2022
111,842 (100%)	07/18/2023

Once vested, this Option shall continue to be exercisable at any time or times prior to the close of business on the Expiration Date, subject to the provisions hereof and of the Plan.

2. Manner of Exercise. The Optionee may exercise the Option only in the following manner: From time to time prior to the Expiration Date, the Optionee may give written notice to the Company of any election to purchase some or all of the vested Shares purchasable at the time of such notice. Said notice shall specify the number of vested Shares to be purchased and shall be accompanied by payment therefor in cash, certified check, bank check or wire transfer, in U.S. funds, payable to the order of the Company in an amount equal to the purchase price of such Shares, or such other method as may be consented to by the Administrator.

The transfer to the Optionee on the records of the Company or of the transfer agent of the Shares will be contingent upon the Company's receipt from the Optionee of full payment for the Shares, as set forth above and any agreement, statement or other evidence that the Company may require to satisfy itself that the issuance of the Shares to be purchased pursuant to the exercise of Options under the Plan and any subsequent resale of such Shares will be in compliance with the applicable laws and regulations.

The Shares purchased upon exercise of this Option shall be transferred to the Optionee on the records of the Company or of the transfer agent upon compliance, to the satisfaction of the Administrator, with all requirements under the applicable laws or regulations in connection with such issuance and with the requirements hereof and of the Plan. The determination of the Administrator as to such compliance shall be final and binding on the Optionee. The Optionee shall not be deemed to be the holder of, or to have any of the rights of a holder with respect to, any Shares subject to this Option unless and until this Option shall have been exercised pursuant to the terms hereof, the Company shall have issued and delivered such Shares to the Optionee, and the Optionee's name shall have been entered as the stockholder of record on the books of the Company. Thereupon, the Optionee shall have full voting, dividend and other ownership rights with respect to such Shares.

The minimum number of shares with respect to which this Option may be exercised at any one time shall be 100 shares, unless the number of shares with respect to which this Option is being exercised is the total number of shares subject to exercise under this Option at the time.

3. Termination of Employment or Death of Optionee. The Option, as to any Shares not theretofore purchased, shall terminate on the earlier of the Expiration Date or 30 days after the Optionee is no longer employed by the Company or a Subsidiary (as defined in the Plan); provided, however, that if such termination of employment results from (i) the Optionee's death or disability, the Option may be exercised as to vested Shares as of the date of such termination of employment within three (3) months thereafter (but in no event later than the Expiration Date) by the Optionee's executors, administrators, personal representatives, or any person or persons to whom the Option may be transferred by will or by the laws of descent and distribution, but only to the extent that the Optionee was entitled to exercise the Option at the time of such termination of Optionee's employment or (ii) the Optionee's termination for Cause (as defined below), the Option (as to all vested and unvested Shares) shall immediately terminate and be of no further force or effect. Following the termination of the Optionee's employment and prior to the termination of the Option, except as otherwise set forth in any employment agreement between the Company and the Optionee, and unless otherwise determined by the Administrator, the Option may only be exercised as to vested Shares as of the date of the termination of the Optionee's employment. The Option does not confer upon the Optionee any right with respect to continuation of employment by the Company, nor shall it interfere with any right of the Company to terminate such employment at any time or any employee's "employee-at-will" status.

"Cause" as such term relates to the termination of any person means the occurrence of one or more of the following: (i) such person is convicted of, pleads guilty to, or confesses to any felony or any act of fraud, misappropriation or embezzlement, (ii) such person engages in a fraudulent act to the material damage or prejudice of the Company or any Subsidiary or in conduct or activities materially damaging to the property, business or reputation of the Company or any Subsidiary, (iii) any material act or omission by such person involving malfeasance or negligence in the performance of such person's duties to the Company or any Subsidiary to the material detriment of the Company or any Subsidiary, which has not been corrected by such person within 30 days after written notice from the Company of any such act or omission, (iv) failure by such person to comply in any material respect with the terms of his employment agreement, if any, or any written policies or directives of the Board, which has not been corrected by such person within 30 days after written notice from the Company of such failure, or (v) material breach by such person of his noncompetition agreement with the Company, if any, provided that if Cause is defined in any employment agreement between the Company and the Optionee, the definition in such employment agreement shall govern the meaning of Cause as used hereunder.

4. Shares. The Shares that are the subject of the Option are shares of the Common Stock, \$.01 par value, of the Company as constituted on the date of the Option, subject to adjustment as provided in Section 3 of the Plan.

5. Effect of Certain Transactions. If (i) the Company is merged into or consolidated with another corporation and the Company is not the surviving corporation, (ii) one or more corporations are merged into the Company which continues as the surviving corporation and the stockholders of the Company immediately prior to the transaction own less than a majority of its outstanding Common Stock immediately after the transaction, or shares of Common Stock of the Company are converted into cash, securities or property other than shares of Common Stock of the Company, or (iii) the Company is liquidated, dissolved, or sells or otherwise disposes of all or substantially all of its assets to another entity while any portion of the Option remains unexercised and unexpired, then in any of such transactions the Administrator may, in its sole discretion, take one or more of the following actions:

(a) The Administrator may cancel the Option as of the effective date of any such transaction, provided that notice of such cancellation shall be given to the Optionee at least 15 days prior to the effective date of such transaction, and the Optionee shall have the right to exercise so much of the Option as is exercisable during said 15-day period, including Options which become exercisable due to acceleration of vesting, if any, by the Administrator;

(b) The Administrator may (i) cancel the Option as to unvested Shares as of the effective date of the transaction and (ii) provide for the repurchase of unexercised Options as to vested Shares as of the effective date of such transaction by the Company on the effective date of such transaction for the same cash, securities or other property received with respect to each outstanding Share in the transaction by the stockholders of the Company, less the exercise price of the Option;

(c) The Administrator may provide for the voluntary exchange of the Option on the effective date of such transaction for an option or other rights granted by a successor corporation on terms reasonably acceptable to the Optionee; or

(d) The Administrator may provide that after the effective date of such transaction, the Optionee shall be entitled upon exercise of the Option as to any vested Shares to receive in lieu of each Share purchasable under the Option the same cash, securities or other property received with respect to each outstanding Share in the transaction by the stockholders of the Company.

Upon the consummation of a Sale Event (as defined in the Plan) or occurrence of a Change of Control (as defined in the Plan), in either case, following the grant date of the Option, the Option shall become fully vested and exercisable with respect to all of the Shares as of the effective time of the Sale Event or the occurrence of the Change of Control, respectively.

6. Status of the Option. This Option is intended to qualify as a "Non-qualified stock option" under Section 422 of the Internal Revenue Code of 1986, as amended (the "Code"), but the Company does not represent or warrant that this Option qualifies as such. The Optionee should consult with his or her own tax advisors regarding the tax effects of this Option and the requirements necessary to obtain favorable income tax treatment under Section 422 of the Code, including, but not limited to, holding period requirements. To the extent any portion of this Option does not so qualify as a "Non-qualified stock option," such portion shall be deemed to be a non-qualified stock option. If the Optionee intends to dispose or does dispose (whether by sale, gift, transfer or otherwise) of any Shares within the one year period beginning on the date after the transfer of such shares to him or her, or within the two year period beginning on the day after the grant of this Option, he or she will so notify the Company within 30 days after such disposition.

7. Transferability. This Agreement is personal to the Optionee, is non-assignable and is not transferable in any manner, by operation of law or otherwise, other than by will or the laws of descent and distribution. This Option is exercisable, during the Optionee's lifetime, only by the Optionee, and thereafter, only by the Optionee's legal representative or legatee.

8. Miscellaneous. Notices hereunder shall be mailed or delivered to the Company at its principal place of business, 84 October Hill Road, Holliston, MA 01746 and shall be mailed or delivered to the Optionee at the address set forth below, or in either case at such other address as one party may subsequently furnish to the other party in writing.

9. Incorporation of Plan. Notwithstanding anything herein to the contrary, this Agreement shall be subject to and governed by all the terms and conditions of the Plan, including the powers of the Administrator set forth in the Plan. Capitalized terms in this Agreement shall have the meaning specified in the Plan, unless a different meaning is specified herein.

Harvard Bioscience, Inc.

By: /s/ James W. Green
Name: James W. Green
Title: Chief Executive Officer

The foregoing Option is hereby acceptable and its terms and conditions are hereby agreed to.

/s/ Michael Rossi
Michael Rossi

Dated: July 18, 2019

[LETTERHEAD OF BURNS & LEVINSON LLP]

November 6, 2020

Harvard Bioscience, Inc.
84 October Hill Road
Holliston, MA 01746-1371

Re: Securities Being Registered under Registration Statement on Form S-8

Ladies and Gentlemen:

This opinion letter is furnished to you in connection with your filing of a Registration Statement on Form S-8 (the "Registration Statement") pursuant to the Securities Act of 1933, as amended (the "Securities Act"), on or about the date hereof relating to an aggregate of 3,883,472 shares (the "Shares") of Common Stock, \$0.01 par value per share (the "Common Stock"), of Harvard Bioscience, Inc., a Delaware corporation (the "Company"), that may be issued pursuant to (i) the Company's Fourth Amended and Restated 2000 Stock Option and Incentive Plan, as amended (the "Plan"), (ii) the Deferred Stock Award Agreement, dated as of July 18, 2019, by and between the Company and Michael Rossi, and (iii) the Non-Qualified Stock Option Agreement, dated as of July 18, 2019, by and between the Company and Michael Rossi (this clause (iii) together with clause (ii), the "Inducement Grants").

We have reviewed such documents and made such examination of law as we have deemed appropriate to give the opinion expressed below. We have relied, without independent verification, as to matters of fact material to the opinion set forth below, on certificates of officers of the Company.

The opinion expressed below is limited to the Delaware General Corporation Law (which includes applicable provisions of the Delaware Constitution and reported judicial decisions interpreting the Delaware General Corporation Law and the Delaware Constitution).

For purposes of the opinion expressed below, we have assumed that a sufficient number of authorized but unissued shares of the Company's Common Stock will be available for issuance when the Shares are issued.

Based on the foregoing, we are of the opinion that the Shares have been duly authorized and, upon issuance and delivery against payment therefor in accordance with the terms of the Plan or the Inducement Grants, as applicable, will be validly issued, fully paid and nonassessable.

We hereby consent to the inclusion of this opinion as Exhibit 5.1 to the Registration Statement. In giving our consent, we do not admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations thereunder.

Very truly yours,

/s/ BURNS & LEVINSON LLP

BURNS & LEVINSON LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our reports dated March 16, 2020, with respect to the consolidated financial statements and internal control over financial reporting of Harvard Bioscience, Inc., included in the Annual Report on Form 10-K for the year ended December 31, 2019, which are incorporated by reference in this Registration Statement. We consent to the incorporation by reference of the aforementioned reports in this Registration Statement.

/s/ GRANT THORNTON LLP

Boston, Massachusetts
November 6, 2020
