

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

SCHEDULE 13D
(Rule 13d-101)

INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT
TO § 240.13d-1(a) AND AMENDMENTS THERE TO FILED PURSUANT TO
§ 240.13d-2(a)

(Amendment No.)¹

Harvard Bioscience, Inc.
(Name of Issuer)

Common Stock, \$0.01 par value
(Title of Class of Securities)

416906105
(CUSIP Number)

ANDREW FREEDMAN, ESQ.
OLSHAN FROME WOLOSKY LLP
1325 Avenue of the Americas
New York, New York 10019
(212) 451-2300

(Name, Address and Telephone Number of Person
Authorized to Receive Notices and Communications)

July 8, 2019
(Date of Event Which Requires Filing of This Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§ 240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box .

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See § 240.13d-7 for other parties to whom copies are to be sent.

¹ The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the *Notes*).

1	NAME OF REPORTING PERSON ENGINE CAPITAL, L.P.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	SOURCE OF FUNDS WC	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION DELAWARE	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER 2,630,073
	8	SHARED VOTING POWER - 0 -
	9	SOLE DISPOSITIVE POWER 2,630,073
	10	SHARED DISPOSITIVE POWER - 0 -
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 2,630,073	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 7.0%	
14	TYPE OF REPORTING PERSON PN	

1	NAME OF REPORTING PERSON ENGINE JET CAPITAL, L.P.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	SOURCE OF FUNDS WC	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION DELAWARE	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER 579,417
	8	SHARED VOTING POWER - 0 -
	9	SOLE DISPOSITIVE POWER 579,417
	10	SHARED DISPOSITIVE POWER - 0 -
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 579,417	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 1.5%	
14	TYPE OF REPORTING PERSON PN	

1	NAME OF REPORTING PERSON ENGINE CAPITAL MANAGEMENT, LP	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	SOURCE OF FUNDS OO	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION DELAWARE	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER 3,209,490
	8	SHARED VOTING POWER - 0 -
	9	SOLE DISPOSITIVE POWER 3,209,490
	10	SHARED DISPOSITIVE POWER - 0 -
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,209,490	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 8.5%	
14	TYPE OF REPORTING PERSON PN	

1	NAME OF REPORTING PERSON ENGINE CAPITAL MANAGEMENT GP, LLC	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	SOURCE OF FUNDS OO	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION DELAWARE	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER 3,209,490
	8	SHARED VOTING POWER - 0 -
	9	SOLE DISPOSITIVE POWER 3,209,490
	10	SHARED DISPOSITIVE POWER - 0 -
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,209,490	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 8.5%	
14	TYPE OF REPORTING PERSON OO	

1	NAME OF REPORTING PERSON ENGINE INVESTMENTS, LLC	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	SOURCE OF FUNDS OO	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION DELAWARE	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER 3,209,490
	8	SHARED VOTING POWER - 0 -
	9	SOLE DISPOSITIVE POWER 3,209,490
	10	SHARED DISPOSITIVE POWER - 0 -
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,209,490	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 8.5%	
14	TYPE OF REPORTING PERSON OO	

1	NAME OF REPORTING PERSON ARNAUD AJDLER	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	SOURCE OF FUNDS OO	
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION BELGIUM	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER 3,209,490
	8	SHARED VOTING POWER - 0 -
	9	SOLE DISPOSITIVE POWER 3,209,490
	10	SHARED DISPOSITIVE POWER - 0 -
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,209,490	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 8.5%	
14	TYPE OF REPORTING PERSON IN	

The following constitutes the Schedule 13D filed by the undersigned (the "Schedule 13D").

Item 1. Security and Issuer.

This statement relates to the Common Stock, \$0.01 par value per share (the "Shares"), of Harvard Bioscience, Inc., a Delaware corporation (the "Issuer"). The address of the principal executive offices of the Issuer is 84 October Hill Road, Holliston, Massachusetts 01746.

Item 2. Identity and Background.

(a) This statement is filed by:

- (i) Engine Capital, L.P., a Delaware limited partnership ("Engine Capital"), with respect to the Shares directly and beneficially owned by it;
- (ii) Engine Jet Capital, L.P., a Delaware limited partnership ("Engine Jet"), with respect to the Shares directly and beneficially owned by it;
- (iii) Engine Capital Management, LP, a Delaware limited partnership ("Engine Management"), as the investment manager of each of Engine Capital and Engine Jet;
- (iv) Engine Capital Management GP, LLC, a Delaware limited liability company ("Engine GP"), as the general partner of Engine Management;
- (v) Engine Investments, LLC, a Delaware limited liability company ("Engine Investments"), as the general partner of each of Engine Capital and Engine Jet; and
- (vi) Arnaud Ajdler, as the managing partner of Engine Management, and the managing member of each of Engine GP and Engine Investments.

Each of the foregoing is referred to as a "Reporting Person" and collectively as the "Reporting Persons." Each of the Reporting Persons is party to that certain Joint Filing Agreement, as further described in Item 6. Accordingly, the Reporting Persons are hereby filing a joint Schedule 13D.

(b) The address of the principal office of each of Engine Capital, Engine Jet, Engine Management, Engine GP, Engine Investments, and Mr. Ajdler is 1345 Avenue of the Americas, 33rd Floor, New York, New York 10105.

(c) The principal business of each of Engine Capital and Engine Jet is investing in securities. 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.

(d) No Reporting Person has, during the last five (5) years, been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors).

(e) No Reporting Person has, during the last five (5) years, been party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

(f) Mr. Ajdler is a citizen of Belgium.

Item 3. Source and Amount of Funds or Other Consideration.

The Shares purchased by each of Engine Capital and Engine Jet were purchased with working capital (which may, at any given time, include margin loans made by brokerage firms in the ordinary course of business) in open market purchases. The aggregate purchase price of the 2,630,073 Shares beneficially owned by Engine Capital is approximately \$4,946,494, including brokerage commissions. The aggregate purchase price of the 579,417 Shares beneficially owned by Engine Jet is approximately \$1,089,071, including brokerage commissions.

Item 4. Purpose of Transaction.

The Reporting Persons purchased the Shares based on the Reporting Persons' belief that the Shares, when purchased, were undervalued and represented an attractive investment opportunity. Depending upon overall market conditions, other investment opportunities available to the Reporting Persons, and the availability of Shares at prices that would make the purchase or sale of Shares desirable, the Reporting Persons may endeavor to increase or decrease their position in the Issuer through, among other things, the purchase or sale of Shares on the open market or in private transactions or otherwise, on such terms and at such times as the Reporting Persons may deem advisable.

On July 18, 2019, the Reporting Persons delivered a letter (the "Letter") to the Issuer's Board of Directors (the "Board") which, among other things, expressed certain of the Reporting Persons' concerns as well as highlighted potential opportunities for the Issuer to maximize stockholder value. While the Reporting Persons have confidence in the quality and stability of the Issuer's businesses, its strong brand names, and market positioning in the niche markets in which it operates, the Reporting Persons believe the Issuer is deeply undervalued. In the Letter, the Reporting Persons recommended that the Board takes steps to improve the Issuer's operating strategy, corporate governance practices and certain executive compensation plans. Specifically, the Reporting Persons urged the Board to consider, among other things, the following actions to unlock stockholder value: (i) separating the roles of CEO and Chairman and declassifying the Board; (ii) renegotiating the current CEO's compensation package so that it better aligns with appropriate performance metrics; (iii) adding new directors with strong, relevant backgrounds; (iv) placing an emphasis on incentivizing and retaining key senior management individuals; (v) refinancing debt to lower interest rate and improve free cash flows; (vi) consolidating recent acquisitions in order to improve profit margins; and (vii) commencing a review of strategic alternatives, including a potential sale of the Issuer. In the Letter, the Reporting Persons expressed their desire to work constructively with the Board. The full text of the letter is attached hereto as Exhibit 99.1 and is incorporated herein by reference. The Reporting Persons have also engaged, and intend to continue to engage, in discussions with management and the Board of the Issuer regarding the recommendations set forth in the Letter as well as certain other matters, including Board representation and the composition of the Board, generally.

No Reporting Person has any present plan or proposal which would relate to or result in any of the matters set forth in subparagraphs (a) - (j) of Item 4 of Schedule 13D except as set forth herein or such as would occur upon or in connection with completion of, or following, any of the actions discussed herein. The Reporting Persons intend to review their investment in the Issuer on a continuing basis. Depending on various factors, including, without limitation, the Issuer's financial position and investment strategy, the price levels of the Shares, conditions in the securities markets and general economic and industry conditions, the Reporting Persons may in the future take such actions with respect to their investment in the Issuer as they deem appropriate, including, without limitation, engaging in communications with management and the Board, engaging in discussions with stockholders of the Issuer and others about the Issuer and the Reporting Persons' investment, making proposals to the Issuer concerning strategic alternatives, the calling of special meeting(s), changes to the capitalization, ownership structure, board structure (including board composition) or operations of the Issuer, purchasing additional Shares, selling some or all of their Shares, engaging in short selling of or any hedging or similar transaction with respect to the Shares, or changing their intention with respect to any and all matters referred to in Item 4.

Item 5. Interest in Securities of the Issuer.

The aggregate percentage of Shares reported owned by each person named herein is based upon 37,687,608 Shares outstanding, as of May 2, 2019, which is the total number of Shares outstanding as reported in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on May 8, 2019.

A. Engine Capital

(a) As of the close of business on July 18, 2019, Engine Capital directly owned 2,630,073 Shares.

Percentage: Approximately 7.0%

- (b)
1. Sole power to vote or direct vote: 2,630,073
 2. Shared power to vote or direct vote: 0
 3. Sole power to dispose or direct the disposition: 2,630,073
 4. Shared power to dispose or direct the disposition: 0

(c) The transactions in the Shares by Engine Capital during the past sixty (60) days are set forth in Schedule A and are incorporated herein by reference.

B. Engine Jet

(a) As of the close of business on July 18, 2019, Engine Jet directly owned 579,417 Shares.

Percentage: Approximately 1.5%

- (b)
1. Sole power to vote or direct vote: 579,417
 2. Shared power to vote or direct vote: 0
 3. Sole power to dispose or direct the disposition: 579,417
 4. Shared power to dispose or direct the disposition: 0

(c) The transactions in the Shares by Engine Jet during the past sixty (60) days are set forth in Schedule A and are incorporated herein by reference.

C. Engine Management

- (a) Engine Management, as the investment manager of each of Engine Capital and Engine Jet, may be deemed to beneficially own the Shares owned directly by Engine Capital and Engine Jet. As of the date hereof, Engine Management may be deemed to beneficially own 3,209,490 Shares.

Percentage: Approximately 8.5%

- (b) 1. Sole power to vote or direct vote: 3,209,490
2. Shared power to vote or direct vote: 0
3. Sole power to dispose or direct the disposition: 3,209,490
4. Shared power to dispose or direct the disposition: 0
- (c) Engine Management has not entered into any transactions in the Shares during the past sixty (60) days. The transactions in the Shares on behalf of each of Engine Capital and Engine Jet during the past sixty (60) days are set forth in Schedule A and are incorporated herein by reference.

D. Engine GP

- (a) Engine GP, as the general partner of Engine Management, may be deemed to beneficially own the Shares owned directly by Engine Capital and Engine Jet. As of the date hereof, Engine GP may be deemed to beneficially own 3,209,490 Shares.

Percentage: Approximately 8.5%

- (b) 1. Sole power to vote or direct vote: 3,209,490
2. Shared power to vote or direct vote: 0
3. Sole power to dispose or direct the disposition: 3,209,490
4. Shared power to dispose or direct the disposition: 0
- (c) Engine GP has not entered into any transactions in the Shares during the past sixty (60) days. The transactions in the Shares on behalf of each of Engine Capital and Engine Jet during the past sixty (60) days are set forth in Schedule A and are incorporated herein by reference.

E. Engine Investments

- (a) Engine Investments, as the general partner of each of Engine Capital and Engine Jet, may be deemed to beneficially own the Shares owned directly by Engine Capital and Engine Jet. As of the date hereof, Engine Investments may be deemed to beneficially own 3,209,490 Shares.

Percentage: Approximately 8.5%

- (b) 1. Sole power to vote or direct vote: 3,209,490
2. Shared power to vote or direct vote: 0
3. Sole power to dispose or direct the disposition: 3,209,490
4. Shared power to dispose or direct the disposition: 0
- (c) Engine Investments has not entered into any transactions in the Shares during the past sixty (60) days. The transactions in the Shares on behalf of each of Engine Capital and Engine Jet during the past sixty (60) days are set forth in Schedule A and are incorporated herein by reference.

F. Amaud Ajdler

- (a) Mr. Ajdler, as the managing member of Engine Management and Engine Investments, may be deemed to beneficially own the 3,209,490 Shares owned beneficially by Engine Management and Engine Investments.

Percentage: Approximately 8.5%

- (b) 1. Sole power to vote or direct vote: 3,209,490
2. Shared power to vote or direct vote: 0
3. Sole power to dispose or direct the disposition: 3,209,490
4. Shared power to dispose or direct the disposition: 0

- (c) Mr. Ajdler has not entered into any transactions in the Shares during the past sixty (60) days. The transactions in the Shares on behalf of each of Engine Capital and Engine Jet during the past sixty (60) days are set forth in Schedule A and are incorporated herein by reference.

Each Reporting Person, as a member of a “group” with the other Reporting Persons for the purposes of Section 13(d)(3) of the Securities Exchange Act of 1934, as amended, may be deemed the beneficial owner of the Shares directly owned by the other Reporting Persons. Each Reporting Person disclaims beneficial ownership of such Shares except to the extent of his or its pecuniary interest therein.

- (d) No person other than the Reporting Persons is known to have the right to receive, or the power to direct the receipt of dividends from, or proceeds from the sale of, the Shares.
- (e) Not applicable.

Item 6. Contracts, Arrangements, Understandings or Relationships With Respect to Securities of the Issuer.

On July 18, 2019, the Reporting Persons entered into a Joint Filing Agreement in which the Reporting Persons agreed to the joint filing on behalf of each of them of statements on Schedule 13D with respect to the securities of the Issuer to the extent required by applicable law. A copy of the Joint Filing Agreement is attached hereto as Exhibit 99.2 and is incorporated herein by reference.

Other than as described herein, there are no contracts, arrangements, understandings or relationships among the Reporting Persons, or between the Reporting Persons and any other person, with respect to the securities of the Issuer.

Item 7. Material to be Filed as Exhibits.

- 99.1 Letter to the Board, dated July 18, 2019.
- 99.2 Joint Filing Agreement by and among Engine Capital, L.P., Engine Jet Capital, L.P., Engine Investments, LLC, Engine Capital Management, LP, Engine Capital Management GP, LLC and Amaud Ajdler, dated July 18, 2019.

SIGNATURES

After reasonable inquiry and to the best of his knowledge and belief, each of the undersigned certifies that the information set forth in this statement is true, complete and correct.

Dated: July 18, 2019

Engine Capital, L.P.

By: Engine Investments, LLC
General Partner

By: /s/ Arnaud Ajdler
Name: Arnaud Ajdler
Title: Managing Member

Engine Jet Capital, L.P.

By: Engine Investments, LLC
General Partner

By: /s/ Arnaud Ajdler
Name: Arnaud Ajdler
Title: Managing Member

Engine Capital Management, LP

By: Engine Capital Management GP, LLC
General Partner

By: /s/ Arnaud Ajdler
Name: Arnaud Ajdler
Title: Managing Member

Engine Capital Management GP, LLC

By: /s/ Arnaud Ajdler
Name: Arnaud Ajdler
Title: Managing Member

Engine Investments, LLC

By: /s/ Arnaud Ajdler
Name: Arnaud Ajdler
Title: Managing Member

/s/ Arnaud Ajdler
Arnaud Ajdler

SCHEDULE A**Transactions in the Shares During the Past Sixty (60) Days**

<u>Nature of the Transaction</u>	<u>Amount of Securities Purchased / (Sold)</u>	<u>Price Per Share (\$)</u>	<u>Date of Purchase / Sale</u>
<u>ENGINE CAPITAL, L.P.</u>			
Purchase of Common Stock	32,867	1.9550	06/12/2019
Purchase of Common Stock	410,838	1.9894	06/12/2019
Purchase of Common Stock	9,448	2.1375	06/13/2019
Purchase of Common Stock	49,301	2.0714	06/13/2019
Purchase of Common Stock	113,088	2.0099	06/14/2019
Purchase of Common Stock	85,170	2.0485	06/18/2019
Purchase of Common Stock	125,070	1.9971	06/19/2019
Purchase of Common Stock	164	2.0000	06/20/2019
Purchase of Common Stock	82,148	2.0083	06/20/2019
Purchase of Common Stock	99,732	2.0100	06/24/2019
Purchase of Common Stock	82,148	2.0160	06/25/2019
Purchase of Common Stock	164,296	1.9684	06/26/2019
Purchase of Common Stock	54,509	2.0044	06/27/2019
Purchase of Common Stock	225,907	2.0409	06/28/2019
Purchase of Common Stock	61,195	1.6135	07/08/2019
Purchase of Common Stock	782,766	1.6782	07/08/2019
Purchase of Common Stock	109,061	1.6005	07/09/2019
Purchase of Common Stock	25,384	1.5433	07/09/2019
Purchase of Common Stock	17,011	1.7886	07/10/2019
Purchase of Common Stock	8,195	1.8629	07/11/2019
Purchase of Common Stock	46,054	1.8736	07/12/2019
Purchase of Common Stock	12,779	1.8228	07/15/2019
Purchase of Common Stock	16,553	1.7844	07/16/2019
Purchase of Common Stock	16,389	1.7550	07/17/2019
<u>ENGINE JET CAPITAL, L.P.</u>			
Purchase of Common Stock	7,133	1.9550	06/12/2019
Purchase of Common Stock	89,162	1.9894	06/12/2019
Purchase of Common Stock	2,050	2.1375	06/13/2019
Purchase of Common Stock	10,699	2.0714	06/13/2019
Purchase of Common Stock	24,575	2.0099	06/14/2019
Purchase of Common Stock	18,508	2.0485	06/18/2019
Purchase of Common Stock	27,180	1.9971	06/19/2019

CUSIP NO. 416906105

Purchase of Common Stock	36	2.0000	06/20/2019
Purchase of Common Stock	17,852	2.0083	06/20/2019
Purchase of Common Stock	21,673	2.0100	06/24/2019
Purchase of Common Stock	17,852	2.0160	06/25/2019
Purchase of Common Stock	35,704	1.9684	06/26/2019
Purchase of Common Stock	11,845	2.0044	06/27/2019
Purchase of Common Stock	49,093	2.0409	06/28/2019
Purchase of Common Stock	13,298	1.6135	07/08/2019
Purchase of Common Stock	170,106	1.6782	07/08/2019
Purchase of Common Stock	23,701	1.6005	07/09/2019
Purchase of Common Stock	5,516	1.5433	07/09/2019
Purchase of Common Stock	7,662	1.7886	07/10/2019
Purchase of Common Stock	3,748	1.7886	07/10/2019
Purchase of Common Stock	1,805	1.8629	07/11/2019
Purchase of Common Stock	10,146	1.8736	07/12/2019
Purchase of Common Stock	2,815	1.8228	07/15/2019
Purchase of Common Stock	3,647	1.7844	07/16/2019
Purchase of Common Stock	3,611	1.7550	07/17/2019

Engine Capital LP
1345 Avenue of the Americas, 33rd Floor
New York, NY 10105
(212) 321-0048

July 18, 2019

Mr. Jim Green
Chairman and CEO
Harvard Bioscience, Inc.
84 October Hill Road
Holliston, MA 01746

cc: Members of the Board of Directors

Dear Jim:

Thank you for taking the time to speak with us yesterday. As you know, Engine Capital LP, together with its affiliates (“Engine”), has become one of the largest shareholders of Harvard Bioscience, Inc. (“Harvard Bioscience”, “HBIO” or the “Company”) with an ownership of 8.5%. Harvard Bioscience represents a significant investment for Engine. We invested in Harvard Bioscience because of the quality and stability of its businesses, its strong brand names and market positioning in the niche markets in which it operates, our belief that the Company is deeply undervalued, and the fact that there are opportunities readily within the control of the Board of Directors (the “Board”) to significantly increase shareholder value.

For context, Engine is a value-oriented investment firm launched in July 2013. Since its launch, Engine has negotiated board representation or settlements at 17 public companies and added 27 highly-qualified new board members to these companies. We have followed Harvard Bioscience and the industry for a number of years. As part of our due diligence, we have had an opportunity to discuss Harvard Bioscience and its prospects with competitors, customers and former employees. We also had the opportunity to discuss the business and its prospects over the last few months with the Company’s CEO at the time, Mr. Jeffrey Duchemin. These discussions have led us to the conclusion that Harvard Bioscience is a high-quality asset that is currently misunderstood by the market and significantly undervalued after losing 70.8% of its value over the last year and 42.4% over the last three years¹.

¹ Performance as of July 8, 2019 close

As you know, Harvard Bioscience has been built over time through acquisitions. The Company's niche markets are stable, recession resistant, but low growth. The Company therefore needs to make acquisitions to accelerate its growth and appeal to public market investors. Unfortunately, the Company has put itself in a difficult strategic position. It is too levered to pursue larger value-creating acquisitions following the purchase of Data Science International and its stock is now too cheap to be used as a currency to make acquisitions. Following the Data Science International acquisition, the Board missed a significant opportunity to take advantage of the higher HBIO stock price to raise equity, reduce leverage and position itself for other acquisitions. As a consequence, HBIO is now an orphaned equity that is trading well below the strategic value of its assets. The CEO's resignation earlier this week further adds execution risks to an already difficult situation, and, frankly, we question the timing of this decision given the recent management turmoil over the last year, especially the absence of a CFO.

Clearly, the status quo at Harvard Bioscience is untenable and the Board needs to take decisive actions to avoid further shareholder value deterioration. The Board needs to create the right environment to rebuild shareholder value, and in our opinion, needs to immediately focus on the following aspects of its business:

A. Corporate governance and Board composition.

We believe that Harvard Bioscience should adhere to corporate governance best practices. In that regard, we were surprised by the Board's decision to combine the role of CEO and Chairman, especially because the positions were separated under the prior CEO. In our view, there are frankly no good reasons to recombine the positions and we question the Board's decision to do so. We also believe that the Company should immediately take steps to declassify the Board. We think annual elections of directors create more accountability within an organization.

We also believe that the Board could be strengthened through the addition of new directors with strong and relevant backgrounds. Given the balance sheet, capital allocation and M&A issues we raise in this letter, Engine thinks that it is important to add new Board members with particular financial skillsets as well as public market and capital allocation experience. Further, the Board would be strengthened by having stronger shareholder representation. We note that the current Board members own a de minimis amount of equity.

Finally, we are very concerned that no Board member has bought a single share of stock in the public market during the last few months, despite the stock price hitting all-time lows. The fact that not a single director was willing to invest in the stock after the recent selloff is disappointing and gives us concern regarding the culture of stock ownership at the Company and the Board's confidence in the future prospects of the Company.

B. Executive compensation

We were extremely disappointed by the employment agreement between the Company and Mr. James Green. In particular, the equity component of Mr. Green's employment agreement is troubling. Mr. Green just received 864,307 time-vested shares and another 418,360 performance shares linked to the achievement of a relative total shareholder return. Given how low the stock price has fallen following the removal of the stock from the Russell 2000 index just a few days ago, we suspect HBIO will handily outperform the chosen benchmark. Therefore, de-facto, the Board just gave Mr. Green the equivalent of 1,282,667 time-vested shares. This represents around 3.4% of the Company, an incredibly high level of dilution for an initial grant. By contrast, we note that Mr. Duchemin's initial grant was 100% stock-option based, not restricted stocks, and that in general, his compensation package was heavily skewed towards stock options. We believe a grant of stock options to Mr. Green would have been a lot more appropriate. Alternatively, the Compensation Committee and the Board could have exclusively granted performance shares with operational targets for Mr. Green to reach. We call on the Board and Mr. Green to renegotiate this inappropriate compensation package.

C. Management turnover

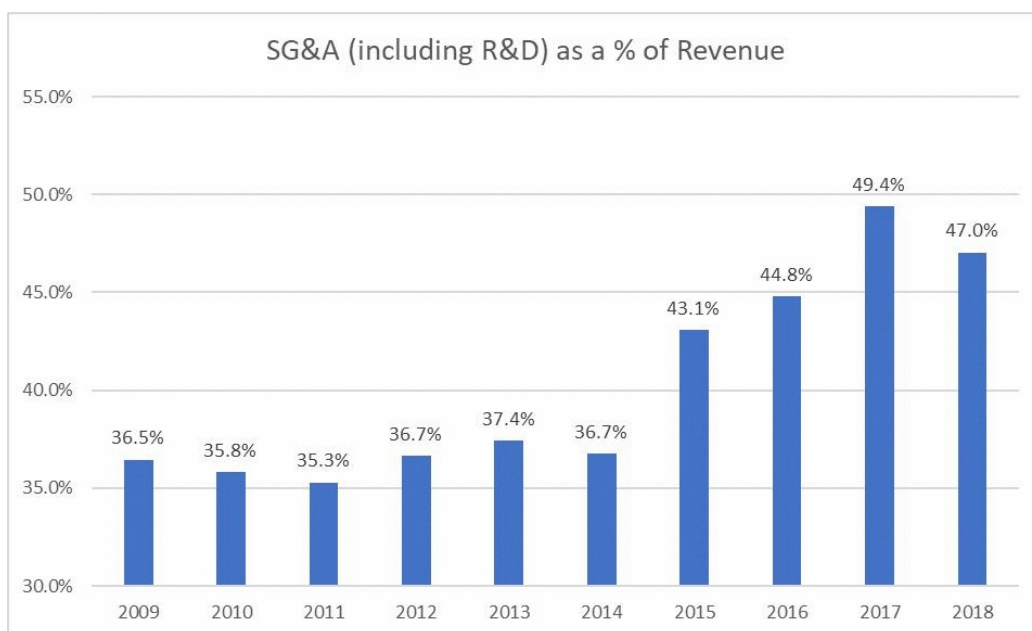
We are extremely concerned with recent management turnover, and in particular, the recent departure of CFO Kam Unninayar after only a few months on the job. This follows the departure of the prior CFO Robert Gagnon in August 2018. We also note the departure of Mr. Yong Sun in December 2018. Based on our due diligence, we believe other members of the management team, including a controller, have also left. This is obviously extremely worrisome, especially at a company of this size, where the management team is smaller and there are fewer people ready to step up and take over. Hiring a permanent CFO and retaining key individuals has to be one of the Board's primary focuses, especially as the stock has now dropped significantly and management's stock options are underwater. We believe there are multiples ways to achieve this. One way would be to grant senior management a new batch of options struck at the current lower stock price. These options would not only re-incentivize management but would also provide retention benefits since they would vest over time. We would also strongly suggest that these options immediately vest upon a change in control to act as a "transaction bonus" in case of a sale of the Company. There may be other effective ways to structure these retention packages.

D. Debt refinancing

We believe the Company can significantly reduce its interest rate by refinancing its debt with a more traditional bank and potentially save a couple million dollars per year that could be used to reduce leverage and improve free cash flows. This is something that should not be delayed as the financing environment can rapidly change.

E. Margin opportunity

We believe there is a significant margin opportunity at HBIO. As you can see in the chart below, SG&A (including R&D) expenses have significantly increased over the last few years. From 2009 to 2014, SG&A expenses were in a narrow band between 36% and 37% of revenue. In 2018, SG&A expenses were at 47% of revenue, a significant increase. We believe there are opportunities to close this gap, including further consolidation from recent acquisitions. This opportunity is obviously very material – if HBIO could return to its historical cost structure, it could earn an additional \$12 million pre-tax, almost doubling its operating income.



F. Review of the Company's strategic alternatives

Given the strategic quandary we highlighted above, the significant shareholder value destruction, and the execution risks the Company faces, we believe it is important for the Board to start considering a review of the Company's strategic alternatives. We believe that it is incumbent upon the Board, in accordance with its fiduciary duties, to explore all opportunities to close the significant value gap and unlock shareholder value. We suspect the Company would be a lot more valuable to a strategic buyer or, more likely, a private equity buyer who could use Harvard Bioscience as a platform company and significantly accelerate its growth through M&A, something that is difficult for the Company in the public market, as we have discussed. We also estimate the Company would save around \$2 million in a private setting, a meaningful number in light of the Company's current valuation. Based on our experience, we believe the Company would fetch a price between \$3.50 and \$4.00 per share, which would represent a substantial premium compared to where the stock trades currently. Since no Board member has bought shares when the stock was trading for as low as \$2 per share during the last few weeks, we can't imagine the Board would argue that this price range undervalues the Company. Based on our due diligence, we believe the Company has already been approached in the recent past by potential buyers.

In conclusion, we believe that the Board has a unique opportunity to create significant shareholder value, but in order to do so, the Board must act with urgency. We look forward to working constructively with the Board and intend to monitor closely the developments at the Company. We must, however, reserve our rights to take whatever actions in the future we believe may be required to protect the best interests of shareholders.

Very truly yours,

/s/ Arnaud Ajdler

Arnaud Ajdler
Managing Partne

JOINT FILING AGREEMENT

In accordance with Rule 13d-1(k)(1)(iii) under the Securities Exchange Act of 1934, as amended, the persons named below agree to the joint filing on behalf of each of them of a Statement on Schedule 13D (including additional amendments thereto) with respect to the shares of Common Stock, \$0.01 par value, of Harvard Bioscience, Inc., a Delaware corporation. This Joint Filing Agreement shall be filed as an Exhibit to such Statement.

Dated: July 18, 2019

Engine Capital, L.P.

By: Engine Investments, LLC
General Partner

By: /s/ Arnaud Ajdler
Name: Arnaud Ajdler
Title: Managing Member

Engine Jet Capital, L.P.

By: Engine Investments, LLC
General Partner

By: /s/ Arnaud Ajdler
Name: Arnaud Ajdler
Title: Managing Member

Engine Capital Management, LP

By: Engine Capital Management GP, LLC
General Partner

By: /s/ Arnaud Ajdler
Name: Arnaud Ajdler
Title: Managing Member

Engine Capital Management GP, LLC

By: /s/ Arnaud Ajdler
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Title: Managing Member

Engine Investments, LLC

By: /s/ Arnaud Ajdler
Name: Arnaud Ajdler
Title: Managing Member

/s/ Arnaud Ajdler
Arnaud Ajdler