

Biostage, Inc.
Form 424B5
May 17, 2016

Filed Pursuant to Rule 424(b)(5)
Registration No. 333-200926

PROSPECTUS SUPPLEMENT
(To the Prospectus Dated December 29, 2014)

2,836,880 Shares of Common Stock

BIOSTAGE, INC.

We are offering 2,836,880 shares of our common stock, \$0.01 par value per share, to institutional investors pursuant to this prospectus supplement and the accompanying prospectus and a stock purchase agreement with such investors.

In a concurrent private placement, we are selling to such investors warrants to purchase one-half of the number of shares of our common stock purchased by such investor in this offering (the Warrants). The Warrants and the shares of our common stock issuable upon the exercise of the Warrants are not being registered under the Securities Act of 1933, as amended, (the Securities Act), are not being offered pursuant to this prospectus supplement and the accompanying prospectus and are being offered pursuant to the exemption provided in Section 4(a)(2) under the Securities Act and Rule 506(b) promulgated thereunder.

Our common stock is listed on the Nasdaq Capital Market under the symbol BSTG . The Warrants being issued in the concurrent private placement are not listed on any securities exchange and we do not expect to list the Warrants. On May 13, 2016, the last reported sale price per share of our common stock was \$1.71 per share. As of May 13, 2016, the aggregate market value of our outstanding common stock held by non-affiliates (the public float) was approximately \$33.4 million, which was calculated based on 13,369,294 shares of outstanding common stock held by non-affiliates and on a price per share of \$2.50, the closing price of our common stock on May 3, 2016. In no event will we sell our common stock in a public primary offering with a value exceeding more than one-third of our public float in any 12-month period so long as our public float remains below \$75.0 million. During the 12 calendar month period that ends on, and includes, the date of this prospectus supplement, we have not offered any securities pursuant to General Instruction I.B.6 of Form S-3.

Investing in our securities involves a high degree of risk. See Risk Factors beginning on page S-4 of this prospectus supplement.

We retained H.C. Wainwright & Co., LLC as our exclusive placement agent to use their reasonable best efforts to solicit offers to purchase the securities in this offering. The placement agent has no obligation to buy any of the securities from us or to arrange for the purchase or sale of any specific number or dollar amount of the securities. We expect that delivery of the securities being offered pursuant to this prospectus supplement and the accompanying prospectus will be made on or about May 19, 2016.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement is truthful or complete. Any representation to the contrary is a criminal offense.

Common Stock	Per Share	Maximum Offering
Public offering price	\$1.7625	\$5,000,001
Placement agents fees ⁽¹⁾	\$0.1234	\$350,000
Proceeds to us, before expenses	\$1.6391	\$4,650,001

We have also agreed to (i) grant warrants to purchase shares of common stock to the placement agent as described under Plan of Distribution on page S-10 of this prospectus supplement and (ii) pay the placement agent a

- (1) reimbursement for out of pocket expenses in connection with marketing the transaction in the amount of up to \$10,000 and a reimbursement for legal fees and expenses of the placement agent in the amount of \$50,000. For additional information about the compensation paid to the placement agent, see Plan of Distribution.
- (2) The amount of the offering proceeds to us presented in this table does not give effect to any exercise of the Warrants being issued in this offering.

Rodman & Renshaw
a unit of H.C. Wainwright & Co.

The date of this prospectus supplement is May 17, 2016.

TABLE OF CONTENTS

TABLE OF CONTENTS

Prospectus Supplement

	Page
<u>ABOUT THIS PROSPECTUS SUPPLEMENT</u>	<u>S-ii</u>
<u>FORWARD-LOOKING STATEMENTS</u>	<u>S-iii</u>
<u>PROSPECTUS SUPPLEMENT SUMMARY</u>	<u>S-1</u>
<u>THE OFFERING</u>	<u>S-3</u>
<u>RISK FACTORS</u>	<u>S-4</u>
<u>PRICE RANGE OF COMMON STOCK</u>	<u>S-6</u>
<u>DIVIDEND POLICY</u>	<u>S-6</u>
<u>USE OF PROCEEDS</u>	<u>S-7</u>
<u>PRIVATE PLACEMENT OF WARRANTS</u>	<u>S-8</u>
<u>DILUTION</u>	<u>S-9</u>
<u>PLAN OF DISTRIBUTION</u>	<u>S-10</u>
<u>LEGAL MATTERS</u>	<u>S-12</u>
<u>EXPERTS</u>	<u>S-12</u>
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	<u>S-12</u>
<u>INFORMATION INCORPORATED BY REFERENCE</u>	<u>S-13</u>

Prospectus

<u>ABOUT THIS PROSPECTUS</u>	<u>1</u>
<u>PROSPECTUS SUMMARY</u>	<u>3</u>
<u>RISK FACTORS</u>	<u>5</u>
<u>NOTE REGARDING FORWARD-LOOKING STATEMENTS</u>	<u>5</u>
<u>USE OF PROCEEDS</u>	<u>6</u>
<u>PLAN OF DISTRIBUTION</u>	<u>7</u>
<u>SECURITIES WE MAY OFFER</u>	<u>8</u>
<u>LEGAL MATTERS</u>	<u>17</u>
<u>EXPERTS</u>	<u>17</u>
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	<u>17</u>
<u>INCORPORATION OF INFORMATION BY REFERENCE</u>	<u>18</u>

S-i

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS SUPPLEMENT

On December 12, 2014, we filed with the Securities and Exchange Commission, or the SEC, a registration statement on Form S-3 (File No. 333-200926) utilizing a shelf registration process relating to the securities described in this prospectus supplement, which registration statement was declared effective on December 29, 2014. Under this shelf registration process, we may, from time to time, sell common stock, preferred stock, warrants and/or units, of which this offering is a part.

The accompanying prospectus provides you with a general description of the securities we may offer. In this prospectus supplement, we provide you with specific information about this offering of our common stock. Both this prospectus supplement and the accompanying prospectus, including the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, include important information about us, our common stock and other information you should know before investing. Any statement contained in this prospectus supplement, the accompanying prospectus or in a document incorporated by reference shall be deemed to be modified or superseded to the extent that a statement contained herein or in any subsequently filed document which is incorporated by reference modifies or supersedes such earlier statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus supplement or the accompanying prospectus. You should read this prospectus supplement and the accompanying prospectus as well as the documents incorporated herein and therein before investing in our securities.

You should rely only on the information incorporated by reference or presented in this prospectus supplement and the accompanying prospectus. Neither we nor the placement agent has authorized anyone else to provide you with different information. You should not assume that the information in this prospectus supplement, the accompanying prospectus or in any document incorporated herein or therein by reference is accurate as of any date other than the dates on the front of those documents, regardless of the time of delivery of this prospectus supplement or any sale of our securities.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference in the prospectus supplement or the accompanying prospectus were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

Unless we have indicated otherwise, or the context otherwise requires, references in this prospectus supplement and the accompanying prospectus to Biostage, the Company, we, us and our or similar terms are to Biostage, Inc. a subsidiaries.

TABLE OF CONTENTS

FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein contains statements with respect to us which constitute forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and are intended to be covered by the safe harbor created by those sections. These statements relate to future events or to our future financial performance and involve known and unknown risks, uncertainties and other factors which may cause our actual results, performance or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements. Forward-looking statements may include, but are not limited to, statements relating to the regulatory approval of our Cellspan™ product candidates for the esophagus and airways or any other product candidates, by the FDA, EMA, MHRA or otherwise, which such approvals may not be obtained on a timely basis or at all; anticipated future earnings or other financial measures; success with respect to any clinical trials and other regulatory approval efforts and the number of patients who can be treated with our products or product candidates; commercialization efforts and marketing approvals of our products as well as the success thereof, including our Cellspan product candidates for the esophagus and airways; the continued availability of a market for our securities; our ability to raise sufficient capital to finance our planned operations, and our estimates concerning capital requirements and need for additional financing; the amount and timing of costs associated with our development of bioreactors, scaffolds and other devices and products; our failure to comply with regulations and any changes in regulations; our ability to access debt and equity markets; unpredictable difficulties or delays in the development of new technology; our collaborators not devoting sufficient time and resources to successfully carry out their duties or meet expected deadlines; our ability to attract and retain qualified personnel and key employees and retain senior management; the availability and price of acceptable raw materials and components from third-party suppliers; difficulties in obtaining or retaining the management and other human resource competencies that we need to achieve our business objectives; increased competition in the field of regenerative medicine and the financial resources of our competitors; our ability to obtain and maintain intellectual property protection for our device and product candidates; and our inability to implement our growth strategy.

In some cases, you can identify forward-looking statements by terms such as believe, may, estimate, continue, anticipate, intend, should, could, would, target, seek, aim, believe, predicts, think, objective strategy, potential, is likely, will, expect, plan project, permit and similar expressions intended to forward-looking statements. These statements reflect our current views with respect to future events, are based on assumptions and are subject to risks and uncertainties. Given these uncertainties, you should not place undue reliance on these forward-looking statements. We discuss many of these risks in greater detail under the heading Risk Factors in our SEC filings, and under the caption Risk Factors in this prospectus supplement.

You should read this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein and have filed as exhibits to the registration statement, of which the accompanying prospectus is part, completely and with the understanding that our actual future results may be materially different from what we expect. You should assume that the information appearing in this prospectus and any accompanying prospectus supplement is accurate as of the date on the cover of this prospectus or such prospectus supplement only. Our business, financial condition, results of operations and prospects may change. We may not update these forward-looking statements, even though our situation may change in the future, unless we have obligations under the federal securities laws to update and disclose material developments related to previously disclosed information. We qualify all of the information presented in this prospectus supplement and the accompanying prospectus, and particularly our forward-looking statements, by these cautionary statements.

TABLE OF CONTENTS

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights certain information about us, this offering and information appearing elsewhere in this prospectus supplement, in the accompanying prospectus and in the documents we incorporate by reference. This summary is not complete and does not contain all of the information that you should consider before investing in our securities. To fully understand this offering and its consequences to you, you should read this entire prospectus supplement and the accompanying prospectus carefully, including the information referred to under the heading Risk Factors in this prospectus supplement beginning on page S-4, the financial statements and other information incorporated by reference in this prospectus supplement and the accompanying prospectus when making an investment decision. This is only a summary and may not contain all the information that is important to you. You should carefully read both this prospectus and any accompanying prospectus supplement and any other offering materials, together with the additional information described under the heading Where You Can Find More Information.

Company Overview

We are a biotechnology company developing bioengineered organ implants based on our novel Cellframe™ technology. Our Cellframe technology is comprised of a biocompatible scaffold that is seeded with the recipient's own cells. It is being developed to treat life-threatening conditions of the esophagus, trachea or bronchus with the objective of dramatically improving the treatment paradigm for those patients.

We believe that our Cellframe technology will provide surgeons with new ways to address damage to the esophagus, bronchi, and trachea due to cancer, infection, trauma or congenital abnormalities. Products being developed based on our Cellframe technology for those indications are called Cellspan™ products.

A portion of all patients diagnosed with esophageal cancer are treated via a surgical procedure known as an esophagectomy. The current standard of care for an esophagectomy requires a complex surgical procedure that involves moving the patient's stomach or a portion of their colon into the chest to replace the portion of esophagus resected by the removal of the tumor. These current procedures have high rates of complications, and can lead to a severely diminished quality of life and require costly ongoing care. Our Cellspan esophageal implants aim to simplify the procedure, reduce complications, result in a better quality of life and reduce the overall cost of these patients to the healthcare system.

We announced favorable preliminary preclinical results of large-animal studies for the esophagus, trachea and bronchus in November 2015. Based on our preclinical testing to date, the Cellspan esophageal implant product will be our lead development product.

On May 12, 2016, we reported an update of recent results from pre-clinical large-animal studies. We disclosed that the study has demonstrated in a predictive large-animal model the ability of Biostage Cellspan organ implants to successfully stimulate the regeneration of sections of esophagus that had been surgically removed for the study. Cellspan esophageal implants, consisting of a proprietary biocompatible synthetic scaffold seeded with the recipient animal's own stem cells, were surgically implanted in place of the esophagus section that had been removed.

Study animals were returned to a solid diet two weeks after implantation surgery. The scaffolds, which are intended to be in place only temporarily, were later retrieved via the animal's mouth in a non-surgical endoscopic procedure. After 2.5 months, a complete epithelium and other specialized esophagus tissue layers were fully regenerated. Animals in

the study demonstrated weight gain and appear healthy and free of any significant side effects, including a few that are now more than 90 days post implantation, and are receiving no specialized care.

We plan to apply for orphan drug designation for our Cellspan esophageal implant in the U.S. and Europe. Orphan drug status provides market exclusivity in the U.S. for seven years from the date of the product's approval for marketing. This exclusivity is in addition to any exclusivity we may obtain due to our patents. Additionally, orphan designation provides a waiver of the BLA application fee of \$672,000. Orphan drug status in Europe provides market exclusivity there for ten years from the date of the product's approval for marketing.

S-1

TABLE OF CONTENTS

We are now advancing the development of our Cellframe technology, specifically a Cellspan esophageal implant, in collaborative large-animal studies with collaborators. We believe that our recent studies provide sufficient data to initiate Good Laboratory Practice (GLP) studies to demonstrate that our technology, personnel, systems and practices are sufficient for advancing into clinical trials. GLP studies are required to advance to an Investigational New Drug (IND) application with the U.S. FDA, which would seek approval to initiate clinical trials for Biostage Cellspan esophageal implants in humans. Our goal is to complete an IND filing by year-end 2016.

Our products are currently in development and have not yet received regulatory approval for sale anywhere in the world.

We have incurred substantial operating losses since our Company's inception, and as of March 31, 2016, we have an accumulated deficit of approximately \$27.2 million. We expect to continue to incur operating losses and negative cash flows from operations in 2016 and for the foreseeable future. We believe that our cash on hand at March 31, 2016 will not be sufficient to meet our obligations through December 31, 2016. We will need to raise additional funds in 2016 and in future years to fund our operations and, in addition to this offering, we may seek to raise necessary funds through a combination public or private equity offerings, debt financings, and other financing mechanisms or strategic collaborations and licensing arrangements.

Corporate Information

We were incorporated under the laws of the State of Delaware on May 3, 2012 by Harvard Bioscience, Inc. (Harvard Bioscience) to provide a means for separating its regenerative medicine business from its other businesses. On March 31, 2016, we changed our name from Harvard Apparatus Regenerative Technology, Inc. to Biostage, Inc. Our principal executive offices are located at 84 October Hill Road, Suite 11, Holliston, Massachusetts. Our telephone number is (774) 233-7300. We maintain a web site at <http://www.biostage.com>. The reference to our web site is intended to be an inactive textual reference only. The information contained on, or that can be accessed through, our web site is not a part of this prospectus.

S-2

TABLE OF CONTENTS

THE OFFERING

Common Stock

Common Stock offered by us	2,836,880 shares of common stock
Public offering price	\$1.7625 per share
Common stock to be outstanding immediately after the offering ⁽¹⁾	17,097,420 shares

Use of proceeds

We intend to use the net proceeds from this for research and development, including funding preclinical and clinical trials relating to the Cellframe™ technology, business development, sales and marketing, capital expenditures, working capital and other general corporate purposes. See Use of Proceeds.

Risk factors

Investing in our securities involves a high degree of risk. You should carefully review and consider the Risk Factors section of this prospectus supplement for a discussion of factors to consider before deciding to invest in shares of our common stock.

Nasdaq Capital Market Symbol

BSTG

Concurrent Offering

In a concurrent private placement, we are selling to the purchasers of shares of our common stock in this offering warrants to purchase one-half the number of shares of our common stock purchased by such investors in this offering, or up to 1,418,440 warrants. We will receive gross proceeds from the concurrent private placement transaction solely to the extent such warrants are exercised for cash. The warrants will be exercisable on the six month anniversary of the issuance date at an exercise price of \$1.7625 per share and will expire five years from the date on which first exercisable. The warrants and the shares of our common stock issuable upon the exercise of the warrants are not being offered pursuant to this prospectus supplement and the accompanying prospectus and are being offered pursuant to the exemption provided in Section 4(a)(2) under the Securities Act and Rule 506(b) promulgated thereunder. See Private Placement of Warrants.

- (1) The total shares of common stock outstanding immediately following this offering is based on 14,260,540 shares outstanding as of May 16, 2016. It excludes:

3,759,930 shares issuable upon exercise of outstanding stock options;
268 shares issuable pursuant to outstanding deferred stock awards of restricted stock units;
166,694 shares available for future grants under our 2013 Equity Incentive Plan and our Employee Stock Purchase Plan;
1,418,440 shares of common stock issuable upon exercise of warrants to be issued in a private placement, as described below under Private Placement of Warrants ; and
141,844 shares of common stock issuable upon exercise of warrants to be issued to the placement agent as described in Plan of Distribution.

S-3

TABLE OF CONTENTS

RISK FACTORS

Investing in our securities involves a high degree of risk. Before deciding whether to invest in our securities, you should consider carefully the risks and uncertainties described below. You should also consider the risks, uncertainties and assumptions discussed under the heading Risk Factors included in our most recent annual report on Form 10-K which is on file with the SEC and is incorporated herein by reference, and which may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future. There may be other unknown or unpredictable economic, business, competitive, regulatory or other factors that could have material adverse effects on our future results. If any of these risks actually occurs, our business, business prospects, financial condition or results of operations could be seriously harmed. This could cause the trading price of our common stock to decline, resulting in a loss of all or part of your investment. Please also read carefully the section above entitled Forward-Looking Statements.

Management will have broad discretion as to the use of the proceeds from this offering, and we may not use the proceeds effectively.

We currently intend to use the net proceeds from this offering for research and development, including funding preclinical and clinical trials relating to the Cellframe™ technology, business development, sales and marketing, capital expenditures, working capital and other general corporate purposes. We have not allocated specific amounts of the net proceeds from this offering for any of the foregoing purposes. Accordingly, our management will have broad discretion in the application of the net proceeds from this offering and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common stock. You will be relying on the judgment of our management with regard to the use of these net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the net proceeds are being used appropriately. It is possible that the net proceeds will be invested in a way that does not yield a favorable, or any, return for us. Our failure to apply these funds effectively could have a material adverse effect on our business and cause the price of our common stock to decline.

The investors in this offering will pay a substantially higher price than the book value of the shares of our common stock.

If you purchase shares of our common stock in this offering, you will incur an immediate and substantial dilution in net tangible book value. See Dilution on page S-9. Our net tangible book value was \$0.44 per share as of March 31, 2016. Upon the sale by us of all 2,836,880 shares of common stock offered hereby at a price of \$1.7625 per share, and after deducting the placement agent fees and expenses payable by us, our adjusted net tangible book value as of March 31, 2016 would have been approximately \$0.63 per share of common stock.

A substantial number of shares of our common stock may be sold in this offering, which could cause the price of our common stock to decline.

In this offering we will sell 2,836,880 shares of common stock, which represent approximately 19.9% of our outstanding common stock as of May 16, 2016 after giving effect to the sale of the shares of common stock. In addition, the investors in this offering will receive unregistered warrants to purchase one-half of the number of shares such investors purchased in this offering and the placement agent will receive unregistered warrants to purchase up to 5% of the aggregate number of shares of common stock sold in this offering. This sale and any future sales of a

substantial number of shares of our common stock in the public market, or the perception that such sales may occur, could adversely affect the price of our common stock on the NASDAQ Capital Market. We cannot predict the effect, if any, that market sales of those shares of common stock or the availability of those shares of common stock for sale will have on the market price of our common stock.

There is uncertainty regarding the application of the federal and state securities laws to our offering of common shares and warrants, and there is a corresponding risk that we could be required to refund the purchase price of securities offered to purchasers who so elect.

We are conducting an offering under a registration statement filed with the SEC and a concurrent private placement intended to comply with the requirements of Section 4(a)(2) under the Securities Act of 1933, as amended, and Rule 506(b) promulgated thereunder. See Private Placement of Warrants. Shares of common

TABLE OF CONTENTS

stock and warrants are being offered and sold in combination. The shares of common stock are intended to be offered and sold in a transaction registered under the Securities Act, while the warrants and shares of common stock issuable thereunder are intended to be offered and sold in a private placement exempt from the registration requirements of the Securities Act.

While we are aware of other transactions using a concurrent public/private offering approach, the SEC has not addressed whether concurrent public and private offerings and sales to the same prospective investors could adversely impact the public offering or preclude the private offering from satisfying the requirements of Rule 506(b). If the securities offered in our concurrent private placement do not satisfy the conditions of Rule 506(b), the offering could be a violation of Section 5 of the Securities Act and each purchaser could have the right to rescind its purchase of the securities, meaning that we could be required to refund the purchase price of the securities to each purchaser electing rescission. If that were to occur, we could face severe financial demands and reputational harm that could adversely affect our business and operations. Additionally, if we did not in fact qualify for the exemptions upon which it has relied, we may become subject to significant fines and penalties imposed by the SEC. It is also possible that additional remedies may be available to purchasers under applicable state law.

S-5

TABLE OF CONTENTS**PRICE RANGE OF COMMON STOCK**

Our common stock trades on The NASDAQ Capital Market under the symbol BSTG. Prior to April 1, 2016, in connection with our name change, our common stock traded on The NASDAQ Capital Market under the symbol HART since October 21, 2013. The last reported sale price for our common stock on May 13, 2016 was \$1.71 per share. As of May 13, 2016, we had approximately 178 holders of record of our common stock.

The following table sets forth for the periods indicated the high and low sale prices per share of our common stock as reported on The NASDAQ Capital Market:

	High	Low
Fiscal Year ending December 31, 2016		
First Quarter	\$ 2.60	\$ 1.08
Fiscal Year ended December 31, 2015		
First Quarter	\$ 4.32	\$ 1.89
Second Quarter	\$ 3.47	\$ 1.39
Third Quarter	\$ 1.49	\$ 0.85
Fourth Quarter	\$ 3.25	\$ 0.54
Fiscal Year ended December 31, 2014		
First Quarter	\$ 11.89	\$ 3.61
Second Quarter	\$ 10.74	\$ 6.29
Third Quarter	\$ 10.82	\$ 6.55
Fourth Quarter	\$ 8.00	\$ 2.20

DIVIDEND POLICY

We have never declared or paid cash dividends on our common stock in the past and do not intend to pay cash dividends on our common stock in the foreseeable future. Any future determination to pay cash dividends will be at the discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements and other factors our board of directors deems relevant.

TABLE OF CONTENTS

USE OF PROCEEDS

We estimate that the net proceeds to us from this offering, after deducting placement agent fees but before paying offering expenses, will be approximately \$4.7 million assuming all offered shares are sold.

We intend to use the net proceeds from this offering primarily for research and development, including funding preclinical and clinical trials relating to the CellframeTM technology, business development, sales and marketing, capital expenditures, working capital and other general corporate purposes.

We have not determined the amounts we plan to spend on any of the areas listed above or the timing of these expenditures. As a result, our management will have broad discretion to allocate the net proceeds from this offering.

Pending application of the net proceeds as described above, we intend to invest the net proceeds to us from this offering in a variety of capital preservation investments, including short-term, investment-grade and interest-bearing instruments.

S-7

TABLE OF CONTENTS

PRIVATE PLACEMENT OF WARRANTS

Concurrently with the closing of the sale of shares of common stock in this offering, we also expect to issue and sell to the investors warrants to purchase an aggregate of 1,418,440 shares of our common stock, at an initial exercise price equal to \$1.7625 per share (the Warrants).

Each Warrant shall be exercisable on the six month anniversary of the issuance date and have a term of exercise equal to five (5) years from the date on which first exercisable. Subject to limited exceptions, a holder of Warrants will not have the right to exercise any portion of its warrants if the holder, together with its affiliates, would beneficially own in excess of 4.99% of the number of shares of our common stock outstanding immediately after giving effect to such exercise.

Such securities will be issued and sold without registration under the Securities Act, or state securities laws, in reliance on the exemptions provided by Section 4(a)(2) of the Act and/or Regulation D promulgated thereunder and in reliance on similar exemptions under applicable state laws. Accordingly, the investors may exercise those warrants and sell the underlying shares only pursuant to an effective registration statement under the Securities Act covering the resale of those shares, an exemption under Rule 144 under the Securities Act, or another applicable exemption under the Securities Act.

S-8

TABLE OF CONTENTS

DILUTION

The net tangible book value of our common stock on March 31, 2016 was approximately \$6.2 million or approximately \$0.44 per share, based on 14,110,540 shares of our common stock outstanding as of March 31, 2016.

We calculate net tangible book value per share by subtracting our total liabilities from our total tangible assets and dividing the difference by the number of outstanding shares of our common stock. Dilution in net tangible book value per share to the new investors represents the difference between the amount per share paid by purchasers of shares of our common stock in this offering and the net tangible book value per share of our common stock immediately afterwards.

The investors participating in this offering will incur immediate and significant dilution. After giving effect to the issuance and sale of shares of our common stock in this offering at a public offering price of \$1.7625 per share of our common stock, after deducting the placement agent fees and estimated offering expenses payable by us, our adjusted net tangible book value as of March 31, 2016 would have been approximately \$10.7 million, or approximately \$0.63 per share of our common stock.

This represents an immediate increase in net tangible book value of \$0.19 per share to existing stockholders and immediate dilution in net tangible book value of \$1.13 per share to the new investors purchasing our common stock in this offering at the public offering price.

The following table illustrates this per share dilution:

Public offering price per share of common stock	\$ 1.7625
Net tangible book value per share as of March 31, 2016	\$ 0.44
Increase in net tangible book value per share attributable to this offering	\$ 0.19
Pro forma net tangible book value per share as of March 31, 2016 after giving effect to this offering	\$0.63
Dilution per share to the new investors in this offering	\$ 1.13

The table above excludes the following:

- 3,743,930 shares issuable upon exercise of outstanding stock options;
- 268 shares issuable pursuant to outstanding deferred stock awards of restricted stock units;
- 191,694 shares available for future grants under our 2013 Equity Incentive Plan and our Employee Stock Purchase Plan;
- 1,418,440 shares of common stock issuable upon exercise of warrants to be issued in a private placement, as described above under **Private Placement of Warrants** ; and
- 141,844 shares of common stock issuable upon exercise of warrants to be issued to the placement agent as described in **Plan of Distribution**.

To the extent that outstanding options or warrants are exercised, the investors purchasing our common stock in this offering will experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of securities, the issuance of these securities could result in further dilution to our stockholders.

TABLE OF CONTENTS

PLAN OF DISTRIBUTION

Pursuant to an engagement agreement dated May 15, 2016, we have engaged H.C. Wainwright & Co., LLC, or the placement agent, to act as our exclusive placement agent in connection with this offering of our shares of common stock pursuant to this prospectus supplement and accompanying prospectus. Under the terms of the engagement agreement, the placement agent has agreed to be our exclusive placement agent, on a reasonable best efforts basis, in connection with the issuance and sale by us of our shares of common stock in this takedown from our shelf registration statement. The terms of this offering were subject to market conditions and negotiations between us, the placement agent and prospective investors. The engagement agreement does not give rise to any commitment by the placement agent to purchase any of our shares of common stock or the private placement warrants, and the placement agent will have no authority to bind us by virtue of the engagement agreement. Further, the placement agent does not guarantee that it will be able to raise new capital in any prospective offering. The placement agent may engage sub-agents or selected dealers to assist with the offering.

We will enter into securities purchase agreements directly with investors in connection with this offering, and we will only sell to investors who have entered into securities purchase agreements.

We will deliver the shares of common stock being issued to the investors electronically upon receipt of investor funds for the purchase of the shares of our common stock offered pursuant to this prospectus supplement. We expect to deliver the shares of our common stock being offered pursuant to this prospectus supplement on or about May 19, 2016.

We have agreed to pay the placement agent a total cash fee equal to 7% of the gross proceeds of this offering, as well as 7% of any proceeds we receive from cash exercises of the Warrants. We will also pay the placement agent a reimbursement for out of pocket expenses in connection with marketing the transaction an amount of up to \$10,000 and a reimbursement for the placement agent's legal fees and expenses in the amount of \$50,000. In addition, we have agreed to issue to the placement agent warrants to purchase up to 5% of the aggregate number of shares of common stock sold in this offering. The placement agent warrants will have substantially the same terms as the private placement warrants being sold concurrently to the investors in this offering. Pursuant to FINRA Rule 5110(g), the placement agent warrants and any shares issued upon exercise of the placement agent warrants shall not be sold, transferred, assigned, pledged, or hypothecated, or be the subject of any hedging, short sale, derivative, put or call transaction that would result in the effective economic disposition of the securities by any person for a period of 180 days immediately following the date of effectiveness or commencement of sales of this offering, except the transfer of any security: (i) by operation of law or by reason of our reorganization; (ii) to any FINRA member firm participating in the offering and the officers or partners thereof, if all securities so transferred remain subject to the lock-up restriction set forth above for the remainder of the time period; (iii) if the aggregate amount of our securities held by the placement agent or related persons do not exceed 1% of the securities being offered; (iv) that is beneficially owned on a pro-rata basis by all equity owners of an investment fund, provided that no participating member manages or otherwise directs investments by the fund and the participating members in the aggregate do not own more than 10% of the equity in the fund; or (v) the exercise or conversion of any security, if all securities remain subject to the lock-up restriction set forth above for the remainder of the time period.

We have also agreed to give the placement agent a twelve-month right of first refusal to act as our lead underwriter or placement agent for any further capital raising transactions undertaken by us (exclusive for the for six months and with a minimum of 50% of fees for the remaining six months); and a twelve-month tail fee equal to the cash and warrant compensation in this offering, if any investor with which we have had substantive discussions with respect to this offering, provides us with further capital during such twelve-month period following termination of our

engagement (20 days after May 15, 2016).

We have agreed to indemnify the placement agent and specified other persons against some civil liabilities, including liabilities under the Securities Act, and the Securities Exchange Act of 1934, as amended, or the Exchange Act, and to contribute to payments that the placement agent may be required to make in respect of such liabilities.

S-10

TABLE OF CONTENTS

The placement agent may be deemed to be an underwriter within the meaning of Section 2(a)(11) of the Securities Act, and any commissions received by it and any profit realized on the resale of the securities sold by it while acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. As an underwriter, the placement agent would be required to comply with the requirements of the Securities Act and the Exchange Act, including, without limitation, Rule 415(a)(4) under the Securities Act and Rule 10b-5 and Regulation M under the Exchange Act. These rules and regulations may limit the timing of purchases and sales of shares of common stock and warrants by the placement agent acting as principal. Under these rules and regulations, the placement agent:

may not engage in any stabilization activity in connection with our securities; and
may not bid for or purchase any of our securities or attempt to induce any person to purchase any of our securities, other than as permitted under the Exchange Act, until it has completed its participation in the distribution.

Our common stock is listed on The Nasdaq Capital Market under the symbol **BSTG** .

S-11

TABLE OF CONTENTS

LEGAL MATTERS

The validity of the issuance of the securities offered hereby will be passed upon for us by Burns & Levinson, LLP of Boston, Massachusetts. The placement agent has been represented in connection with this offering by Ellenoff Grossman & Schole LLP.

EXPERTS

The consolidated financial statements of Biostage, Inc. as of December 31, 2015 and 2014 and for each of the years in the two-year period ended December 31, 2015, have been incorporated by reference herein and in the registration statement in reliance upon the report of KPMG, LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

The audit report covering the December 31, 2015 consolidated financial statements contains an explanatory paragraph that states that the Company has suffered recurring losses from operations and will require additional financing to fund future operations which raise substantial doubt about its ability to continue as a going concern. The consolidated financial statements do not include any adjustments that might result from the outcome of that uncertainty.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the information requirements of the Exchange Act and, in accordance therewith, file annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document we file at the SEC's Public Reference Room at 100 F Street, Washington, D.C. 20549. You may call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room. These documents also may be accessed through the SEC's electronic data gathering, analysis and retrieval system, or EDGAR, via electronic means, including the SEC's home page on the Internet (www.sec.gov).

This prospectus supplement and the accompanying prospectus are only part of a registration statement on Form S-3 that we have filed with the SEC under the Securities Act and therefore omits certain information contained in the registration statement. We have also filed exhibits and schedules with the registration statement that are excluded from this prospectus supplement and the accompanying prospectus, and you should refer to the applicable exhibit or schedule for a complete description of any statement referring to any contract or other document. You may inspect a copy of the registration statement, including the exhibits and schedules, without charge, at the public reference room or obtain a copy from the SEC upon payment of the fees prescribed by the SEC.

We also maintain a website at <http://www.biostage.com>, through which you can access our SEC filings. The information contained on our website is not incorporated by reference into, and does not form any part of, this prospectus supplement or the accompanying prospectus. We have included our website address as a factual reference and do not intend it to be an active link to our website.

TABLE OF CONTENTS

INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to incorporate by reference the information and reports we file with it, which means that we can disclose important information to you by referring you to these documents. The information incorporated by reference is an important part of this prospectus supplement, and information that we file later with the SEC will automatically update and supersede the information already incorporated by reference. We are incorporating by reference the documents listed below, which we have already filed with the SEC, and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, except as to any portion of any future report or document that is not deemed filed under such provisions, until we sell all of the securities:

Our Annual Report on Form 10-K for the year ended December 31, 2015;

Our Quarterly Report on Form 10-Q for the quarter ended March 31, 2016;

Our Current Reports on Form 8-K filed with the SEC on January 7, 2016, March 10, 2016, March 17, 2016, March 24, 2016, March 31, 2016 (in each case, except for information contained therein which is furnished rather than filed) and May 12, 2016 (only with respect to Item 8.01 therein); and

The description of our common stock contained in our registration statement on Form 10-12B filed with the SEC on July 31, 2013 and amended on September 20, 2013 and October 11, 2013.

Upon request, we will provide, without charge, to each person, including any beneficial owner, to whom a copy of this prospectus is delivered a copy of the documents incorporated by reference into this prospectus supplement. You may request a copy of these filings, and any exhibits we have specifically incorporated by reference as an exhibit in this prospectus supplement, at no cost by writing or telephoning us at the following address:

Biostage, Inc.

84 October Hill Road, Suite 11

Holliston, Massachusetts 01746-1371

Telephone: (774) 233-7300.

This prospectus supplement is part of a registration statement we filed with the SEC. We have incorporated exhibits into this registration statement. You should read the exhibits carefully for provisions that may be important to you.

You should rely only on the information incorporated by reference or provided in this prospectus or any prospectus supplement. We have not authorized anyone to provide you with different information. We are not making an offer of these securities in any state where the offer is not permitted. You should not assume that the information in this prospectus or in the documents incorporated by reference is accurate as of any date other than the date on the front of this prospectus or those documents.

TABLE OF CONTENTS

PROSPECTUS

\$20,000,000

**HARVARD APPARATUS REGENERATIVE
TECHNOLOGY, INC.**

**Common Stock
Preferred Stock
Warrants
Units**

We may from time to time issue, in one or more series or classes, up to \$20,000,000 in aggregate principal amount of our common stock, preferred stock, warrants and/or units. We may offer these securities separately or together in units. We will specify in the accompanying prospectus supplement the terms of the securities being offered. We may sell these securities to or through underwriters and also to other purchasers or through agents. We will set forth the names of any underwriters or agents, and any fees, conversions, or discount arrangements, in the accompanying prospectus supplement. We may not sell any securities under this prospectus without delivery of the applicable prospectus supplement.

You should read this document and any prospectus supplement or amendment carefully before you invest in our securities.

Our common stock is listed on the NASDAQ Capital Market under the symbol HART. On December 11, 2014, the closing price for our common stock, as reported on the NASDAQ Capital Market, was \$3.53 per share.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading Risk Factors contained in this prospectus beginning on page 5 and any applicable prospectus supplement, and under similar headings in the other documents that are incorporated by reference into this prospectus.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR DETERMINED IF THIS PROSPECTUS IS ACCURATE, TRUTHFUL OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The date of this Prospectus is December 29, 2014.

TABLE OF CONTENTS

TABLE OF CONTENTS

	Page
<u>ABOUT THIS PROSPECTUS</u>	<u>1</u>
<u>PROSPECTUS SUMMARY</u>	<u>3</u>
<u>RISK FACTORS</u>	<u>5</u>
<u>NOTE REGARDING FORWARD-LOOKING STATEMENTS</u>	<u>5</u>
<u>USE OF PROCEEDS</u>	<u>6</u>
<u>PLAN OF DISTRIBUTION</u>	<u>7</u>
<u>SECURITIES WE MAY OFFER</u>	<u>8</u>
<u>LEGAL MATTERS</u>	<u>17</u>
<u>EXPERTS</u>	<u>17</u>
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	<u>17</u>
<u>INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE</u>	<u>18</u>

i

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, utilizing a shelf registration process. Under the shelf registration process, we may offer shares of our common stock and preferred stock, warrants to purchase any of such securities, and units comprised of any such securities with a total value of up to \$20,000,000 from time to time under this prospectus at prices and on terms to be determined by market conditions at the time of offering. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities, including, to the extent applicable:

designation or classification;
aggregate offering price;
rates and times of payment of dividends or other payments, if any;
redemption, conversion, exchange, settlement or sinking fund terms, if any;
conversion, exchange or settlement prices or rates, if any, and, if applicable, any provisions for changes to or adjustments in the conversion, exchange or settlement prices or rates and in the securities or other property receivable upon conversion, exchange or settlement;
ranking;
restrictive covenants, if any;
voting or other rights, if any; and
important federal income tax considerations.

A prospectus supplement may include a discussion of risks or other special considerations applicable to us or the offered securities. A prospectus supplement may also add, update or change information in this prospectus. If there is any inconsistency between the information in this prospectus and any applicable prospectus supplement, you must rely on the information in the prospectus supplement. Please carefully read both this prospectus and any applicable prospectus supplement together with the additional information described under the heading **Where You Can Find More Information**.

The registration statement containing this prospectus, including exhibits to the registration statement, provides additional information about us and the securities offered under this prospectus. The registration statement can be read at the SEC's website (www.sec.gov) or at the SEC's Public Reference Room mentioned under the heading **Where You Can Find More Information**.

We have not authorized any broker-dealer, salesperson or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus and an accompanying supplement to this prospectus. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus or an accompanying prospectus supplement. This prospectus and an accompanying supplement to this prospectus do not constitute an offer to sell or the solicitation of an offer to buy securities, nor do this prospectus and an accompanying supplement to this prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation. The information contained in this prospectus and an accompanying prospectus supplement speaks only as of the date set forth on the applicable cover page and may not reflect subsequent changes in our business, financial condition, results of operations and prospects even though this prospectus and any accompanying prospectus supplement is delivered or securities are sold on a later date.

TABLE OF CONTENTS

We may sell the securities directly to or through underwriters, dealers or agents. We, and our underwriters or agents, reserve the right to accept or reject all or part of any proposed purchase of securities. If we do offer securities through underwriters, dealers or agents, we will include in any applicable prospectus supplement:

the names of those underwriters, dealers or agents;
applicable fees, discounts, and commissions to be paid to them;
details regarding over-allotment options, if any; and
the net proceeds to us.

2

TABLE OF CONTENTS

PROSPECTUS SUMMARY

The following summary highlights information contained elsewhere in this prospectus. It may not contain all of the information that is important to you. You should read the entire prospectus carefully, especially the discussion regarding the risks of investing in our securities under the heading Risk Factors, before investing in our securities. All references to Company we, our or us refer solely to Harvard Apparatus Regenerative Technology, Inc. and its subsidiaries and not to the persons who manage us or sit on our Board of Directors (the Board).

About Harvard Apparatus Regenerative Technology

We are a clinical stage biotechnology company making regenerated organs for transplant. Our first product, the HART-Trachea, is intended to be used to restore the structure and/or function of a severely damaged trachea (windpipe). The HART-Trachea is comprised of the patient's own bone marrow cells seeded on our proprietary InBreath porous plastic scaffold in our proprietary InBreath organ bioreactor. The HART-Trachea has received orphan drug designation from the U.S. Food and Drug Administration, or FDA, for trachea transplant. Orphan drug designation will provide us with 7 years of market exclusivity from the date of FDA approval of the HART-Trachea.

We are currently engaged in pre-clinical development of our Hart-Trachea. The Hart-Trachea and our other transplant products are currently in development and have not yet received regulatory approval for sale anywhere in the world.

We believe our HART-Trachea could enable surgeons to treat nearly all life-threatening constrictions of the airway.

Our HART-Trachea addresses both of the critical challenges to trachea transplant: the shortage of suitable donor tracheas and the risk and expense of lifelong anti-rejection drug therapy. Because the scaffolds are synthetic, they can be made in large quantities and therefore will eliminate the need to wait for suitable donor tracheas. Because the cells are from the patient, the patient's body does not reject the HART-Trachea and therefore the patients do not need to take anti-rejection drugs. In addition, to date, patients with trachea cancer treated using our products have not required either chemotherapy or radiation therapy after the transplant, thus potentially eliminating the significant side effects and expense of such therapies. Because these substantial costs and risks can be reduced or even eliminated with our technology, we believe our products can both help save lives and reduce overall healthcare costs.

Corporate Information

We were incorporated under the laws of the State of Delaware on May 3, 2012. Our principal executive offices are located at 84 October Hill Road, Suite 11, Holliston, Massachusetts. Our telephone number is (774) 233-7300. We maintain a web site at <http://www.hartregen.com>. The reference to our web site is intended to be an inactive textual reference only. The information contained on, or that can be accessed through, our web site is not a part of this information statement.

The name Harvard Apparatus is used under a license agreement between Harvard Bioscience, Inc. and Harvard University. Harvard Bioscience has granted us a sublicense under this license agreement with respect to the name Harvard Apparatus for use in the name Harvard Apparatus Regenerative Technology. We have filed a trademark application with respect to the InBreath trademark.

Common Stock

As discussed below under the heading "Securities We May Offer," we may issue shares of our common stock from time to time. Holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of shareholders; provided that Holders of common stock are not entitled to vote on any amendment to our amended and restated certificate of incorporation, or our Charter, that changes the powers, preferences, rights or other terms of one or more series of undesignated preferred stock if the holders of the affected series are entitled to vote, separately or together, with the holders of one or more other such series, on such amendment pursuant to the Charter or Delaware General Corporation Law. Our Board currently has five (5) members. Our Charter provides that the number of directors shall be fixed from time to time by resolution adopted by the vote of the Board. Our Charter provides that our Board shall be divided into three classes, each consisting as nearly as reasonably may be possible of one-third of the total number of

3

TABLE OF CONTENTS

directors constituting the entire Board, with each class's term expiring on a staggered basis. Newly-created directorships and vacancies on our Board may only be filled by a majority of the members of the incumbent board then in office, though less than a quorum, and not by our stockholders. Directors may be removed from office only for cause by the affirmative vote of the holders of at least seventy-five percent (75%) of the outstanding shares entitled to be cast on the election of directors by the then-outstanding shares of all classes and series of capital stock, voting together as a single class. Holders of common stock have no preemptive, redemption or conversion rights and are not subject to future calls or assessments. No sinking fund provisions apply to our common stock. All outstanding shares are fully-paid and non-assessable. In the event of any liquidation, dissolution or winding up of our company, after the satisfaction in full of the liquidation preferences of holders of any preferred stock, holders of common stock are entitled to ratable distribution of the remaining assets available for distribution to stockholders. Holders of common stock are entitled to receive proportionately any such dividends declared by our Board, out of legally available funds for dividends, subject to any preferences that may be applicable to any shares of preferred stock that may be outstanding at that time.

Preferred Stock

As discussed below under the heading "Securities We May Offer," we may issue shares of our preferred stock from time to time, in one or more series. Under our Charter, our Board has the authority to issue, without further action by our stockholders, up to 2,000,000 shares of undesignated preferred stock in one or more series and to fix the designations, powers, preferences and the relative, participating, optional or other special rights of the shares of each series and any qualification, limitations and restrictions thereon, any or all of which may be greater than the rights of our common stock.

If we issue preferred stock, we will fix the designations, powers, preferences and the relative, participating, optional or other special rights, and any qualification, limitations and restrictions of the shares of each series that we sell under this prospectus and applicable prospectus supplements in the certificate of designations relating to that series. If we issue preferred stock, we will incorporate by reference into the registration statement of which this prospectus is a part the form of any certificate of designations that describes the terms of such series of preferred stock before the issuance thereof. We urge you to read any prospectus supplement related to any series of preferred stock we may offer, as well as the complete certificate of designations that contains the terms of the applicable series of preferred stock.

Warrants

As discussed below under the heading "Securities We May Offer," we may issue warrants for the purchase of common stock, preferred stock and/or units (as described below) in one or more series, from time to time. We may issue warrants independently or together with common stock and/or preferred stock, and the warrants may be attached to or separate from those securities.

If we issue warrants, they will be evidenced by warrant agreements or warrant certificates issued under one or more warrant agreements, which are contracts between us and an agent for the holders of the warrants. We urge you to read any prospectus supplement related to any series of warrants we may offer, as well as the complete warrant agreement and warrant certificate that contain the terms of the warrants. If we issue warrants, forms of warrant agreements and warrant certificates relating to such warrants will be incorporated by reference into the registration statement of which this prospectus is a part from other filings we would make with the SEC.

Units

As discussed below under the heading **Securities We May Offer**, we may issue units comprised of shares of common stock, shares of preferred stock and warrants in any combination. We may issue units in such amounts and in as many distinct series as we wish.

If we issue units, they will be issued under one or more unit agreements to be entered into between us and a bank or other financial institution, as unit agent. We urge you to read any prospectus supplement related to any series of units we may offer, as well as the complete unit agreement and unit certificate that contain the terms of the units. If we issue units, forms of unit agreements and unit certificates relating to such units will be incorporated by reference into the registration statement of which this prospectus is a part from other filings we would make with the SEC.

TABLE OF CONTENTS

RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the risks described herein and in the documents incorporated by reference in this prospectus and any prospectus supplement, as well as other information we include or incorporate by reference into this prospectus and any applicable prospectus supplement, before making an investment decision. Our business, financial condition or results of operations could be materially adversely affected by the materialization of any of these risks. The trading price of our securities could decline due to the materialization of any of these risks, and you may lose all or part of your investment. This prospectus and the documents incorporated herein by reference also contain forward-looking statements that involve risks and uncertainties. Actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks described herein and in the documents incorporated herein by reference, including (i) our most recent annual report on Form 10-K which is on file with the SEC and is incorporated herein by reference and (ii) other documents we file with the SEC that are deemed incorporated by reference into this prospectus.

NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains, and the documents incorporated by reference herein include, forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the Securities Act) and Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act). These statements relate to future events or to our future financial performance and involve known and unknown risks, uncertainties and other factors which may cause our actual results, performance or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements. Forward-looking statements may include, but are not limited to, statements relating to the regulatory approval of the HART-Trachea or any other HART products, by the FDA, EMA, MHRA or otherwise, which such approvals may not be obtained on a timely basis or at all; any continued benefits of our spin-off from Harvard Bioscience; anticipated future earnings or other financial measures; success with respect to any clinical trials and other regulatory approval efforts and the number of patients who can be treated with our products; commercialization efforts and marketing approvals of HART's products as well as the success thereof, including our HART-Trachea product; the continued availability of a market for the HART securities; our ability to raise sufficient capital to finance our planned operations, and our estimates concerning capital requirements and need for additional financing. the amount and timing of costs associated with our development of bioreactors, scaffolds and other devices and products; our failure to comply with regulations and any changes in regulations; our ability to access debt and equity markets; unpredictable difficulties or delays in the development of new technology; our collaborators not devoting sufficient time and resources to successfully carry out their duties or meet expected deadlines; our ability to attract and retain qualified personnel and key employees and retain senior management; our inability to operate effectively as a stand-alone, publicly traded company; the actual costs of separation may be higher than expected; the availability and price of acceptable raw materials and components from third-party suppliers; difficulties in obtaining or retaining the management and other human resource competencies that we need to achieve our business objectives; increased competition in the field of regenerative medicine and the financial resources of our competitors; our ability to obtain and maintain intellectual property protection for our device and product candidates; and our inability to implement our growth strategy.

In some cases, you can identify forward-looking statement by terms such as believe, may, estimate, continue, anticipate, intend, should, could, would, target, seek, aim, believe, predicts, think, objective

strategy potential, is likely, will, expect, plan project, permit and similar expressions intended to forward-looking statements. These statements reflect our current views with respect to future events, are based on assumptions and are subject to risks and uncertainties. Given these uncertainties, you should not place undue reliance on these forward-looking statements. We discuss many of these risks in greater detail under the heading Risk Factors in our SEC filings, and under the caption Risk Factors in this prospectus. Also, these forward-looking statements represent our estimates and assumptions only as of the date of the document containing the applicable statement. You should read this prospectus, the registration statement of which this prospectus is a part, and the exhibits and documents incorporated by reference herein and therein completely and with the

TABLE OF CONTENTS

understanding that our actual future results may be materially different from those described in forward-looking statements. We qualify all of the forward-looking statements in the foregoing documents by these cautionary statements.

You should assume that information contained in or incorporated by reference into this prospectus is accurate only as of the date on the front cover of this prospectus or the date of the document incorporated by reference, as applicable. Unless required by law, we undertake no obligation to update or revise any forward-looking statements to reflect new information or future events or developments. Thus, you should not assume that our silence over time means that actual events are bearing out as expressed or implied in such forward-looking statements.

USE OF PROCEEDS

We cannot guarantee that we will receive any proceeds in connection with this offering because we may be unable or choose not to issue and sell any securities covered by this prospectus.

Unless otherwise provided in a supplement or amendment to this prospectus, we intend to use any net proceeds from this offering, together with other available funds, for research and development, including funding preclinical and clinical trials relating to the HART-Trachea, business development, sales and marketing, capital expenditures, working capital and other general corporate purposes.

Pending these uses, we intend to invest the net proceeds to us from this offering in a variety of capital preservation investments, including short-term, investment-grade and interest-bearing instruments. The precise amounts and timing of the application of proceeds will depend upon our funding requirements and the availability of other funds. Except as mentioned in any prospectus supplement, specific allocations of the proceeds to such purposes will not have been made at the date of that prospectus supplement.

Based upon our historical and anticipated future growth and our financial needs, we may engage in additional financings of a character and amount that we determine as the need arises. We may raise additional capital through additional public or private financings, the incurrence of debt and other available sources. Please see the discussion of the risks associated with our liquidity in the section Risk Factors.

TABLE OF CONTENTS

PLAN OF DISTRIBUTION

The securities being offered may be sold in one or more transactions at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market prices, at varying prices determined at the time of sale, or at negotiated prices. These sales may be effected at various times in one or more of the following transactions, or in other kinds of transactions:

through underwriters for resale to the public or investors;
transactions on the Nasdaq Stock Market or on any national securities exchange or U.S. inter-dealer system of a registered national securities association on which our common stock may be listed or quoted at the time of sale;
in the over-the-counter market;
in private transactions and transactions otherwise than on these exchanges or systems or in the over-the-counter market;
in at the market offerings, within the meaning of Rule 415(a)(4) of the Securities Act of 1933, as amended, or the Securities Act, to or through a market maker or into an existing trading market, on an exchange or otherwise;
in connection with short sales of the shares;
by pledge to secure debt and other obligations;
through the writing of options, whether the options are listed on an options exchange or otherwise;
in connection with the writing of non-traded and exchange-traded call options, in hedge transactions and in settlement of other transactions in standardized or over-the-counter options;
through a combination of any of the above transactions; or
any other method permitted by law.

We may sell our securities directly to one or more purchasers, or to or through underwriters, dealers or agents or through a combination of those methods. The related prospectus supplement will set forth the terms of each offering, including:

the name or names of any agents, dealers, underwriters or investors who purchase the securities;
the purchase price of the securities being offered and the proceeds we will receive from the sale;
the amount of any compensation, discounts, commissions or fees to be received by the underwriters, dealer or agents;
any over-allotment options under which underwriters may purchase additional securities from us;
any discounts or concessions allowed or reallocated or paid to dealers;
any securities exchanges on which such securities may be listed;
the terms of any indemnification provisions, including indemnification from liabilities under the federal securities laws; and
the nature of any transaction by an underwriter, dealer or agent during the offering that is intended to stabilize or maintain the market price of the securities.

With respect to any at the market offerings, unless we inform you otherwise in the prospectus supplement, the sales agent with respect to any such at-the-market offering will make all sales using commercially reasonable efforts consistent with its normal trading and sales practices and applicable laws, rules and regulations, on mutually agreeable terms between the sales agent and us. We will include in the prospectus supplement the amount of any compensation to be received by the sales agent.

In addition, any securities covered by this prospectus that qualify for sale pursuant to Regulation S may be sold pursuant to Regulation S rather than pursuant to this prospectus.

TABLE OF CONTENTS

In connection with the sale of our securities, underwriters may receive compensation from us or from purchasers of our securities in the form of discounts, concessions or commissions. Underwriters, dealers and agents that participate in the distribution of our securities may be deemed to be underwriters. Discounts or commissions they receive and any profit on their resale of our securities may be considered underwriting discounts and commissions under the Securities Act.

In compliance with the guidelines of the Financial Industry Regulatory Authority, or FINRA, the maximum consideration or discount to be received by any FINRA member or independent broker dealer may not exceed eight percent (8.0%) of the aggregate amount of the securities offered to this prospectus.

We may agree to indemnify underwriters, dealers and agents who participate in the distribution of our securities against various liabilities, including liabilities under the Securities Act. We may also agree to contribute to payments that the underwriters, dealers or agents may be required to make in respect of these liabilities. We may authorize dealers or other persons who act as our agents to solicit offers by various institutions to purchase our securities from us under contracts that provide for payment and delivery on a future date. We may enter into these contracts with commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and others. If we enter into these agreements concerning any series of our securities, we will indicate that in the prospectus supplement or amendment.

In connection with an offering of our securities, underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of our securities. Specifically, underwriters may over-allot in connection with the offering, creating a syndicate short position in our securities for their own account. In addition, underwriters may bid for, and purchase, our securities in the open market to cover short positions or to stabilize the price of our securities. Finally, underwriters may reclaim selling concessions allowed for distributing our securities in the offering if the underwriters repurchase previously distributed securities in transactions to cover short positions, in stabilization transactions or otherwise. Any of these activities may stabilize or maintain the market price of our securities above independent market levels. Underwriters are not required to engage in any of these activities and may end any of these activities at any time. Agents and underwriters may engage in transactions with, or perform services for, us and our affiliates in the ordinary course of business.

SECURITIES WE MAY OFFER

The descriptions of the securities contained in this prospectus, together with the applicable prospectus supplements, summarize all the material terms and provisions of the various types of securities that we may offer. We will describe in the applicable prospectus supplement the particular terms of the securities offered by that prospectus supplement. If we so indicate in the applicable prospectus supplement, the terms of the securities may differ from the terms we have summarized below. We will also include in the prospectus supplement information, where applicable, about material United States federal income tax considerations relating to the securities and the securities exchange, if any, on which the securities will be listed.

Description of Capital Stock

The following description of our common stock and preferred stock, together with the additional information we include in any applicable prospectus supplements, summarizes the material terms and provisions of the common stock and preferred stock that we may offer under this prospectus. The following description of our capital stock does not purport to be complete and is subject to, and qualified in its entirety by, our Charter and our amended and restated

bylaws, or our Bylaws, which are exhibits to the registration statement of which this prospectus forms a part, and by applicable law. The terms of our common stock and preferred stock may also be affected by Delaware law.

Authorized Capital Stock

Our authorized capital stock consists of 30,000,000 shares of common stock, par value \$0.01 per share, and 2,000,000 shares of undesignated preferred stock, par value \$0.01 per share. As of November 6, 2014, there were 7,856,607 shares of common stock outstanding and no shares of preferred stock outstanding.

TABLE OF CONTENTS

Common Stock

Holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of shareholders; provided, that, except as otherwise required by law, holders of common stock are not entitled to vote on any amendment to the Charter that changes the powers, preferences, rights or other terms of one or more series of undesignated preferred stock if the holders of the affected series are entitled to vote, separately or together, with the holders of one or more other such series, on such amendment pursuant to the Charter or Delaware General Corporation Law. Our Charter provides that our Board shall be divided into three classes, each consisting as nearly as reasonably may be possible of one-third of the total number of directors constituting the entire Board, with each class term expiring on a staggered basis. Newly-created directorships and vacancies on our Board may only be filled by a majority of the members of the incumbent board then in office, though less than a quorum, and not by our stockholders. Directors may be removed from office only for cause by the affirmative vote of the holders of at least seventy-five percent (75%) of the outstanding shares entitled to be cast on the election of directors by the then-outstanding shares of all classes and series of capital stock, voting together as a single class. Holders of common stock have no preemptive, redemption or conversion rights and are not subject to future calls or assessments. No sinking fund provisions apply to our common stock. All outstanding shares are fully-paid and non-assessable. In the event of our liquidation, dissolution or winding up, after the satisfaction in full of the liquidation preferences of holders of any preferred stock, holders of common stock are entitled to ratable distribution of the remaining assets available for distribution to stockholders. Holders of common stock are entitled to receive proportionately any such dividends declared by our Board, out of legally available funds for dividends, subject to any preferences that may be applicable to any shares of preferred stock that may be outstanding at that time. The rights, preferences and privileges of holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future.

Listing

Our common stock is listed on the NASDAQ Capital Market under the symbol HART. On December 11, 2014, the closing price for our common stock, as reported on the NASDAQ Capital Market, was \$3.53 per share. As of the close of business on December 10, 2014, there were 177 stockholders of record of our common stock.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Registrar & Transfer Company.

Preferred Stock

Our Board is authorized to issue up to 2,000,000 shares of preferred stock in one or more series without shareholder approval. Our Board may determine the rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, of each series of preferred stock.

The purpose of authorizing our Board to issue preferred stock in one or more series and determine the number of shares in the series and its rights and preferences is to eliminate delays associated with a shareholder vote on specific issuances. Examples of rights and preferences that the Board may fix are:

dividend rights;
dividend rates;

conversion rights;
voting rights;
terms of redemption; and
liquidation preferences.

TABLE OF CONTENTS

The existence of authorized but unissued shares of preferred stock may enable our Board to render more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise. For example, if in the due exercise of its fiduciary obligations, our Board were to determine that a takeover proposal is not in the best interests of us or our stockholders, our Board could cause shares of preferred stock to be issued without stockholder approval in one or more private offerings or other transactions that might dilute the voting or other rights of the proposed acquirer, stockholder or stockholder group. The rights of holders of our common stock described above, will be subject to, and may be adversely affected by, the rights of any preferred stock that we may designate and issue in the future. The issuance of shares of preferred stock could decrease the amount of earnings and assets available for distribution to holders of shares of common stock. The issuance may also adversely affect the rights and powers, including voting rights, of these holders and may have the effect of delaying, deterring or preventing a change in control of us.

We will incorporate by reference as an exhibit to the registration statement, which includes this prospectus, the form of any certificate of designations that describes the terms of the series of preferred stock we are offering. This description and the applicable prospectus supplement will include:

- the title and stated value;
- the number of shares authorized;
- the liquidation preference per share;
- the purchase price;
- the dividend rate, period and payment date, and method of calculation for dividends;
- whether dividends will be cumulative or non-cumulative and, if cumulative, the date from which dividends will accumulate;
- the procedures for any auction and remarketing, if any;
- the provisions for a sinking fund, if any;
- the provisions for redemption or repurchase, if applicable, and any restrictions on our ability to exercise those redemption and repurchase rights;
- any listing of the preferred stock on any securities exchange or market;
- whether the preferred stock will be convertible into our common stock, and, if applicable, the conversion price, or how it will be calculated, and the conversion period;
- voting rights, if any, of the preferred stock;
- preemptive rights, if any;
- restrictions on transfer, sale or other assignment, if any;
- whether interests in the preferred stock will be represented by depositary shares;
- a discussion of any material United States federal income tax considerations applicable to the preferred stock;
- the relative ranking and preferences of the preferred stock as to dividend rights and rights if we liquidate, dissolve or wind up our affairs;
- any limitations on issuance of any class or series of preferred stock ranking senior to or on a parity with the series of preferred stock as to dividend rights and rights if we liquidate, dissolve or wind up our affairs; and
- any other specific terms, preferences, rights or limitations of, or restrictions on, the preferred stock.

10

TABLE OF CONTENTS

When we issue shares of preferred stock under this prospectus, the shares will fully be paid and nonassessable and will not have, or be subject to, any preemptive or similar rights.

2013 Equity Incentive Plan

Under our 2013 Equity Incentive Plan, we can grant stock options to employees, directors and consultants. The 2013 Equity Incentive Plan also permits us to make grants of incentive stock options, non-qualified stock options, stock appreciation rights, deferred stock awards, restricted stock awards, unrestricted stock awards, performance shares and dividend equivalent rights. We currently have reserved 3,000,000 shares of common stock for the issuance of awards under the 2013 Equity Incentive Plan.

Employee Stock Purchase Plan

Under our employee stock purchase plan, participating employees can authorize us to withhold a portion of their base pay during consecutive six-month payment periods for the purchase of shares of our common stock. At the conclusion of the period, participating employees can purchase shares of our common stock at eight-five percent (85%) of the lower of the fair market value of our common stock at the beginning or end of the period. Shares are issued under the plan for the six-month periods ending June 30 and December 31. Under this plan, 150,000 shares of common stock are authorized for issuance.

Provisions of our Certificate of Incorporation and Bylaws and Delaware Anti-Takeover Law

Certain provisions of the Delaware General Corporation Law and of our Charter and Bylaws could have the effect of delaying, deferring or discouraging another party from acquiring control of us. These provisions, which are summarized below, are expected to discourage certain types of coercive takeover practices and inadequate takeover bids and, as a consequence, they might also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions are also designed in part to encourage anyone seeking to acquire control of us to first negotiate with our Board. These provisions might also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders might otherwise deem to be in their best interests. However, we believe that the advantages gained by protecting our ability to negotiate with any unsolicited and potentially unfriendly acquirer outweigh the disadvantages of discouraging such proposals, including those priced above the then-current market value of our common stock, because, among other reasons, the negotiation of such proposals could improve their terms.

Provisions of our Certificate of Incorporation and Bylaws

Our Charter, our Bylaws and Delaware law contain provisions that could discourage, delay or prevent a third party from acquiring us, even if doing so may be beneficial to our stockholders. In addition, these provisions could limit the price investors would be willing to pay in the future for shares of our common stock. The following are examples of such provisions in our Charter and Bylaws:

only our Board, pursuant to a resolution adopted by a majority of our directors, may call special meetings of our stockholders;

stockholders may not act by written consent and stockholder action must take place at the annual or special meeting of our stockholders;

stockholder proposals and nominations of candidates for election as directors other than nominations made by or at the direction of our Board or a committee of our Board to be brought before any meeting of our stockholders must comply with advance notice procedures;

our Board is classified into three classes, each consisting as nearly as reasonably may be possible of one-third of the total number of directors constituting the entire Board;

our Board will fix the exact number of directors to comprise our Board;

subject to any rights that holders of any series of our undesignated preferred stock may have to elect directors and to fill vacancies on our Board, newly-created directorships and vacancies on our Board may only be filled by a majority of the members of the incumbent board then in office, even if less than a quorum is present, and not by our stockholders;

11

TABLE OF CONTENTS

a director may be removed from office only for cause by the affirmative vote of holders of shares representing at least seventy-five percent (75%) of the votes entitled to be cast on such matter by the then-outstanding shares of all classes and series of our capital stock, voting together as a single class;

our Charter and Bylaws do not provide for cumulative voting in the election of directors;

our Bylaws may be further amended by either (i) the affirmative vote of at least a majority of our entire Board or (ii) the affirmative vote of the holders of at least seventy-five percent (75%) of the combined voting power of the outstanding shares of all classes and series of our capital stock entitled to vote on such amendment, voting together as a single class; and

our Board is authorized to issue, without further action by our stockholders, up to 2,000,000 shares of undesignated preferred stock with rights and preferences, including voting rights, designated from time to time by our Board.

We implemented a Stockholder Rights Plan (the Rights Plan) on October 31, 2013. Pursuant to the Rights Plan, one preferred stock purchase right will be issued for each outstanding share of our common stock. Each right issued will be subject to the terms of the Rights Plan. The Rights Plan is intended to protect our stockholders in the event of an unfair or coercive offer to acquire us and to provide the Board with adequate time to evaluate unsolicited offers; however, it may have anti-takeover effects. In general terms, our Rights Plan works by imposing a significant penalty upon any person or group that acquires twenty percent (20%) or more of our outstanding common stock, without the approval of our Board. The Rights Plan, however, should not affect any prospective offer or willingness to make an offer at a fair price as determined by our Board, nor should it interfere with any merger or other business combination approved by our Board. However, because the rights may substantially dilute the stock ownership of a person or group attempting to take us over without the approval of our Board, our Rights Plan could make it more difficult for a third party to acquire us (or a significant percentage of our outstanding capital stock) without first negotiating with our Board regarding that acquisition.

Additionally, as required by the Delaware General Corporation Law, any amendment of our Charter must first be approved by a majority of our Board and, as required by our Charter, thereafter be approved by a majority of the outstanding shares entitled to vote on the amendment, and a majority of the outstanding shares of each class entitled to vote thereon, voting together as a single class, except that the amendment of the provisions relating to stockholder action, directors, limitation of liability, the amendment of our Bylaws and Charter, forum and transactions with Harvard Bioscience must be approved by not less than seventy-five percent (75%) of the outstanding shares entitled to vote on the amendment, and not less than seventy-five percent (75%) of the outstanding shares of each class entitled to vote thereon as a class. Our Bylaws may be amended by either (i) a vote of at least a majority of our entire Board or (ii) a vote of the holders of at least seventy-five percent (75%) of the combined voting power of the outstanding shares of all classes and series of our capital stock entitled to vote on such amendment, voting together as a single class.

Delaware Anti-Takeover Law

We are subject to the provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a publicly-held Delaware corporation from engaging in a business combination with an interested stockholder for a three-year period following the time that this stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. A business combination includes, among other things, a merger, asset or stock sale or other transaction resulting in a financial benefit to the interested stockholder. An interested stockholder is a person who, together with affiliates and associates, owns, or did own within three years prior to the determination of interested stockholder status, fifteen percent (15%) or more of the corporation's voting stock. Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions:

before the stockholder became interested, the Board approved either the business combination or the transaction

which resulted in the stockholder becoming an interested stockholder;

12

TABLE OF CONTENTS

upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least eight-five percent (85%) of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances; or at or after the time the stockholder became interested, the business combination was approved by the Board of the corporation and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

Description of Warrants

The following description, together with the additional information we may include in any applicable prospectus supplements, summarizes the material terms and provisions of the warrants that we may offer under this prospectus and the related warrant agreements and warrant certificates. While the terms summarized below will apply generally to any warrants that we may offer, we will describe the particular terms of any series of warrants in more detail in the applicable prospectus supplement. If we indicate in the prospectus supplement, the terms of any warrants offered under that prospectus supplement may differ from the terms described below. Specific warrant agreements will contain additional important terms and provisions and will be incorporated by reference as an exhibit to the registration statement, which includes this prospectus.

General

We may issue warrants for the purchase of common stock and/or preferred stock in one or more series. We may issue warrants independently or together with common stock and/or preferred stock, and the warrants may be attached to or separate from these securities.

We will evidence each series of warrants by warrant certificates that we will issue under a separate warrant agreement. We will enter into the warrant agreement with a warrant agent. We will indicate the name and address of the warrant agent in the applicable prospectus supplement relating to a particular series of warrants.

We will describe in the applicable prospectus supplement the terms of the series of warrants, including:

the offering price and aggregate number of warrants offered;
the currency for which the warrants may be purchased;

if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;

if applicable, the date on and after which the warrants and the related securities will be separately transferable; in the case of warrants to purchase common stock or preferred stock, the number of shares of common stock or preferred stock, as the case may be, purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise; the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreement and the warrants;

the terms of any rights to redeem or call the warrants;
any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;

the periods during which, and places at which, the warrants are exercisable;
the manner of exercise;
the dates on which the right to exercise the warrants will commence and expire;

the manner in which the warrant agreement and warrants may be modified;

TABLE OF CONTENTS

federal income tax consequences of holding or exercising the warrants;
the terms of the securities issuable upon exercise of the warrants; and
any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

Description of Units

We may issue units comprised of shares of common stock, shares of preferred stock and warrants in any combination. We may issue units in such amounts and in as many distinct series as we wish. This section outlines certain provisions of the units that we may issue. If we issue units, they will be issued under one or more unit agreements to be entered into between us and a bank or other financial institution, as unit agent. The information described in this section may not be complete in all respects and is qualified entirely by reference to the unit agreement with respect to the units of any particular series. The specific terms of any series of units offered will be described in the applicable prospectus supplement. If so described in a particular supplement, the specific terms of any series of units may differ from the general description of terms presented below. We urge you to read any prospectus supplement related to any series of units we may offer, as well as the complete unit agreement and unit certificate that contain the terms of the units. If we issue units, forms of unit agreements and unit certificates relating to such units will be incorporated by reference as exhibits to the registration statement, which includes this prospectus.

Each unit that we may issue will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date. The applicable prospectus supplement may describe:

the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;

any provisions of the governing unit agreement;

the price or prices at which such units will be issued;

the applicable United States federal income tax considerations relating to the units;

any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units; and

any other terms of the units and of the securities comprising the units.

The provisions described in this section, as well as those described under **Description of Capital Stock** and **Description of Warrants**, will apply to the securities included in each unit to the extent relevant and as may be updated in any prospectus supplements.

Issuance in Series

We may issue units in such amounts and in as many distinct series as we wish. This section summarizes terms of the units that apply generally to all series. Most of the financial and other specific terms of your series will be described in the applicable prospectus supplement.

TABLE OF CONTENTS

Unit Agreements

We will issue the units under one or more unit agreements to be entered into between us and a bank or other financial institution, as unit agent. We may add, replace or terminate unit agents from time to time. We will identify the unit agreement under which each series of units will be issued and the unit agent under that agreement in the applicable prospectus supplement. The following provisions will generally apply to all unit agreements unless otherwise stated in the applicable prospectus supplement:

Modification without Consent

We and the applicable unit agent may amend any unit or unit agreement without the consent of any holder:

to cure any ambiguity; any provisions of the governing unit agreement that differ from those described below; to correct or supplement any defective or inconsistent provision; or to make any other change that we believe is necessary or desirable and will not adversely affect the interests of the affected holders in any material respect.

We do not need any approval to make changes that affect only units to be issued after the changes take effect. We may also make changes that do not adversely affect a particular unit in any material respect, even if they adversely affect other units in a material respect. In those cases, we do not need to obtain the approval of the holder of the unaffected unit; we need only obtain any required approvals from the holders of the affected units.

Modification with Consent

We may not amend any particular unit or a unit agreement with respect to any particular unit unless we obtain the consent of the holder of that unit, if the amendment would:

impair any right of the holder to exercise or enforce any right under a security included in the unit if the terms of that security require the consent of the holder to any changes that would impair the exercise or enforcement of that right; or

reduce the percentage of outstanding units or any series or class the consent of whose holders is required to amend that series or class, or the applicable unit agreement with respect to that series or class, as described below.

Any other change to a particular unit agreement and the units issued under that agreement would require the following approval:

If the change affects only the units of a particular series issued under that agreement, the change must be approved by the holders of a majority of the outstanding units of that series; or

If the change affects the units of more than one series issued under that agreement, it must be approved by the holders of a majority of all outstanding units of all series affected by the change, with the units of all the affected series voting together as one class for this purpose.

These provisions regarding changes with majority approval also apply to changes affecting any securities issued under a unit agreement, as the governing document.

In each case, the required approval must be given by written consent.

Mergers and Similar Transactions Permitted; No Restrictive Covenants or Events of Default

The unit agreements will not restrict our ability to merge or consolidate with, or sell our assets to, another corporation or other entity or to engage in any other transactions. If at any time we merge or consolidate with, or sell our assets substantially as an entirety to, another corporation or other entity, the successor entity will succeed to and assume our obligations under the unit agreements. We will then be relieved of any further obligation under these agreements.

15

TABLE OF CONTENTS

The unit agreements will not include any restrictions on our ability to put liens on our assets, including our interests in our subsidiaries, nor will they restrict our ability to sell our assets. The unit agreements also will not provide for any events of default or remedies upon the occurrence of any events of default.

Governing Law

The unit agreements and the units will be governed by Delaware law.

Form, Exchange and Transfer

We will issue each unit in global i.e., book-entry form only. Units in book-entry form will be represented by a global security registered in the name of a depository, which will be the holder of all the units represented by the global security. Those who own beneficial interests in a unit will do so through participants in the depository's system, and the rights of these indirect owners will be governed solely by the applicable procedures of the depository and its participants. We will describe book-entry securities, and other terms regarding the issuance and registration of the units in the applicable prospectus supplement.

Each unit and all securities comprising the unit will be issued in the same form.

If we issue any units in registered, non-global form, the following will apply to them.

The units will be issued in the denominations stated in the applicable prospectus supplement. Holders may exchange their units for units of smaller denominations or combined into fewer units of larger denominations, as long as the total amount is not changed.

Holders may exchange or transfer their units at the office of the unit agent. Holders may also replace lost, stolen, destroyed or mutilated units at that office. We may appoint another entity to perform these functions or perform them ourselves.

Holders will not be required to pay a service charge to transfer or exchange their units, but they may be required to pay for any tax or other governmental charge associated with the transfer or exchange. The transfer or exchange, and any replacement, will be made only if our transfer agent is satisfied with the holder's proof of legal ownership. The transfer agent may also require an indemnity before replacing any units.

If we have the right to redeem, accelerate or settle any units before their maturity, and we exercise our right as to less than all those units or other securities, we may block the exchange or transfer of those units during the period beginning 15 days before the day we mail the notice of exercise and ending on the day of that mailing, in order to freeze the list of holders to prepare the mailing. We may also refuse to register transfers of or exchange any unit selected for early settlement, except that we will continue to permit transfers and exchanges of the unsettled portion of any unit being partially settled. We may also block the transfer or exchange of any unit in this manner if the unit includes securities that are or may be selected for early settlement.

Only the depository will be entitled to transfer or exchange a unit in global form, since it will be the sole holder of the unit.

Payments and Notices

In making payments and giving notices with respect to our units, we will follow the procedures as described in the applicable prospectus supplement.

TABLE OF CONTENTS

LEGAL MATTERS

Certain legal matters in connection with this offering will be passed upon for us by Burns & Levinson LLP, Boston, Massachusetts. Any underwriters will also be advised about the validity of the securities and other legal matters by their own counsel, which will be named in the prospectus supplement.

EXPERTS

The consolidated financial statements of Harvard Apparatus Regenerative Technology, Inc. as of December 31, 2013 and 2012 and for each of the years in the two-year period ended December 31, 2013, and for the period from February 24, 2009 (inception) to December 31, 2013, have been incorporated by reference herein and in the registration statement in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the information requirements of the Exchange Act and, in accordance therewith, file annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document we file at the SEC's Public Reference Room at 100 F Street, Washington, D.C. 20549. You may call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room. These documents also may be accessed through the SEC's electronic data gathering, analysis and retrieval system, or EDGAR, via electronic means, including the SEC's home page on the Internet (www.sec.gov).

We have the authority to designate and issue more than one class or series of stock having various preferences, conversion and other rights, voting powers, restrictions, limitations as to dividends, qualifications, and terms and conditions of redemption. See Description of Capital Stock. We will furnish a full statement of the relative rights and preferences of each class or series of our stock which has been so designated and any restrictions on the ownership or transfer of our stock to any shareholder upon request and without charge. Written requests for such copies should be directed to Harvard Apparatus Regenerative Technology, Inc., 84 October Hill Road, Suite 11, Holliston, Massachusetts 01746-1371, or by telephone request to (774) 233-7300. Our website is located at <http://www.hartregen.com>. Information contained on our website is not incorporated by reference into this prospectus and, therefore, is not part of this prospectus or any accompanying prospectus supplement.

TABLE OF CONTENTS

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to incorporate by reference the information and reports we file with it, which means that we can disclose important information to you by referring you to these documents. The information incorporated by reference is an important part of this prospectus, and information that we file later with the SEC will automatically update and supersede the information already incorporated by reference. We are incorporating by reference the documents listed below, which we have already filed with the SEC, and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, except as to any portion of any future report or document that is not deemed filed under such provisions, until we sell all of the securities:

Our Annual Report on Form 10-K for the year ended December 31, 2013;

Our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2014, June 30, 2014 and September 30, 2014;

Our Current Reports on Form 8-K filed with the SEC on March 7, 2014, March 31, 2014, May 8, 2014, May 28, 2014, August 8, 2014, October 17, 2014, November 6, 2014, November 26, 2014 and December 1, 2014 (in each case, except for information contained therein which is furnished rather than filed); and

The description of our common stock contained in our registration statement on Form 10-12B filed with the SEC on July 31, 2013 and amended on September 20, 2013 and October 11, 2013.

Upon request, we will provide, without charge, to each person, including any beneficial owner, to whom a copy of this prospectus is delivered a copy of the documents incorporated by reference into this prospectus. You may request a copy of these filings, and any exhibits we have specifically incorporated by reference as an exhibit in this prospectus, at no cost by writing or telephoning us at the following address:

Harvard Apparatus Regenerative Technology, Inc., 84 October Hill Road, Suite 11, Holliston, Massachusetts
01746-1371 Telephone: (774) 233-7300.

This prospectus is part of a registration statement we filed with the SEC. We have incorporated exhibits into this registration statement. You should read the exhibits carefully for provisions that may be important to you.

You should rely only on the information incorporated by reference or provided in this prospectus or any prospectus supplement. We have not authorized anyone to provide you with different information. We are not making an offer of these securities in any state where the offer is not permitted. You should not assume that the information in this prospectus or in the documents incorporated by reference is accurate as of any date other than the date on the front of this prospectus or those documents.

TABLE OF CONTENTS

2,836,880 Shares of Common Stock

PROSPECTUS SUPPLEMENT

**Rodman & Renshaw
a unit of H.C. Wainwright & Co.**

The date of this prospectus supplement is May 17, 2016