PRESSURE BIOSCIENCES INC
Form S-1
December 05, 2011

As filed with the Securities and Exchange Commission on December 5, 2011

Registration No. 333-_____

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM S-1

REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

PRESSURE BIOSCIENCES, INC.
(Exact name of registrant as specified in its charter)

| Massachusetts | 3829 | 04-2652826 |
|---|---|---|
| (State or other jurisdiction of incorporation or organization) | (Primary Standard Industrial Classification Code Number) | (I.R.S. Employer Identification No.) |

14 Norfolk Avenue
South Easton, Massachusetts 02375
(508) 230-1828
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Richard T. Schumacher
President and Chief Executive Officer
Pressure BioSciences, Inc.
14 Norfolk Avenue
South Easton, Massachusetts 02375
(508) 230-1828
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:
Steven R. London, Esq.
Pepper Hamilton LLP
15th Floor, Oliver Street Tower
125 High Street
Boston, MA 02110-1817

(617) 204-5107

Approximate date of commencement of proposed sale to the public: As soon as practicable after this Registration Statement becomes effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 check the following box: x

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering: ¨

If this Form is to be a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering: ¨

If this Form is a post-effective amendment pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering: ¨

Indicate by check mark whether the registrant is a large accelerated filed, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of “large accelerated filer,” “accelerated filer” and “smaller reporting company” in Rule 12b-2 of the Exchange Act. (Check one):

| Large accelerated filer | Accelerated filer | Non-accelerated filer (Do not check if a smaller reporting company) | Smaller reporting company x |
|---|---|---|---|

CALCULATION OF REGISTRATION FEE

| Title of each class of securities to be registered | Proposed Maximum Aggregate Offering Price (1) | Amount of Registration Fee |
|---|---|---|
| Series E Convertible Preferred Stock, $0.01 par value per share | | |
| Common Stock, $0.01 par value per share, issuable upon conversion of Series E Convertible Preferred Stock (2) | | |
| Common Stock issuable in lieu of cash payment of dividends on the Series E Convertible Preferred Stock (2) | | |
| Warrants to purchase Common Stock (2) | | |
| Common Stock issuable upon exercise of Warrants | | |
| Series A Junior Participating Preferred Stock Purchase Rights (3) | | |
| Total | $8,000,000 | $916.80 |

(1)Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act. Pursuant to Rule 416 under the Securities Act of 1933, as amended (the “Securities Act”), the shares being registered hereunder include such indeterminate number of shares of common stock as may be issuable with respect to the shares being registered hereunder as a result of share splits, share dividends, anti-dilution provisions, or similar transactions. No additional registration fee is being paid for these shares.

(2)No additional consideration is payable upon conversion of the Series E Convertible Preferred Stock or upon issuance of the warrants.

(3)This registration statement also relates to the rights to purchase shares of Series A Junior Participating Preferred Stock of the registrant, which, pursuant to the terms of the

registrant's Rights Agreement dated February 27, 2003, as amended, will be attached to all shares of common stock issued until the occurrence of certain events prescribed in the Rights Agreement. The rights will not be exercisable and will be transferred with and only with shares of our common stock until the occurrence of certain events prescribed in the Rights Agreement.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Commission, acting pursuant to Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities, and it is not soliciting an offer to buy these securities, in any state where the offer or sale is not permitted.

PRELIMINARY PROSPECTUS

Subject to Completion, Dated December __, 2011

Pressure BioSciences, Inc.

_____ Shares of ___% Series E Convertible Preferred Stock

(and _____ Shares of Common Stock underlying the ___% Series E Convertible Preferred Stock)

_____ Warrants

(and _____ Shares of Common Stock underlying the Warrants)

We are offering up to ____ shares of ___% Series E convertible preferred stock (the "Series E preferred shares") and warrants to purchase up to _____ shares of common stock to purchasers in this offering. We are also offering up to _____ shares of our common stock issuable upon conversion of the Series E preferred shares and _____ shares of our common stock issuable upon exercise of the warrants. The Series E preferred shares and warrants will be sold in units for a purchase price equal to $____ per unit. Each unit will consist of (1) one Series E preferred share, which is convertible into ___ shares of our common stock at a conversion price of $_.__ per share of common stock, (2) one Class A Warrant to purchase ___ shares of our common stock for every share of common stock underlying the Series E preferred share included in such unit, exercisable at any time for a period of five years after the closing date at an exercise price of $_.__ per share of common stock and (3) one Class B Warrant to purchase ___ shares of our common stock for every share of common stock underlying the Series E preferred share included in such unit, exercisable at any time for a period of one year after the closing date at an exercise price of $_.__ per share of common stock. The conversion price of the Series E preferred shares and the exercise price of the warrants are expected to be between ____% and ____% of the volume weighted average price of our common stock for the [20] trading days prior to the date of pricing. The conversion of the Series E preferred shares and the exercise of the warrants are subject to certain ownership limitations described in this prospectus.

Until _____ __, 2014, the Series E preferred shares will have a stated dividend rate of ___ % per annum, payable quarterly in cash or, at our election and subject to certain conditions described in this prospectus, in shares of our common stock, which are also being offered by this prospectus. Thereafter, each holder of Series E preferred shares will be entitled to receive dividends equal, on an as-if-converted to common stock basis, to and in the same form as dividends actually paid on shares of common stock when, as, and if such dividends are paid on our common stock. We have never paid dividends on our common stock and do not intend to do so for the foreseeable future. The conversion of the Series E preferred shares and the exercise of the warrants are subject to certain ownership limitations described in this prospectus. If certain conditions described in the prospectus are met, we may, at our option, redeem the Series E preferred shares for cash or require the holders to convert the Series E preferred shares into shares of common stock. For a more detailed description of the Series E preferred shares, the warrants, and our shares of common stock, see the section entitled "Description of Securities" beginning on page 23 of this prospectus.

Our common stock is quoted on the NASDAQ Capital Market under the symbol “PBIO.” The last reported sale price of our shares of common stock on December 2, 2011 was $0.55 per share. There is no established public trading market for the Series E preferred shares or the warrants being sold in this offering and we do not expect such a market to develop.

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We have retained Ladenburg Thalmann & Co. Inc. (the "Placement Agent") to act as our exclusive Placement Agent in connection with this offering and to use its "best efforts" to solicit offers to purchase the units. We intend to enter into a Placement Agent agreement with the Placement Agent, relating to the units offered by this prospectus. The Placement Agent is not purchasing or selling any of our units pursuant to this prospectus, nor are we requiring any minimum purchase or sale of any specific number of units. Because there is no minimum offering amount required as a condition to the closing of this offering, the actual public offering amount, Placement Agent fees and proceeds to us are not presently determinable and may be substantially less than the maximum amounts set forth below. See "Plan of Distribution" beginning on page 32 of this prospectus for more information regarding this arrangement.

Investing in our securities involves a high degree of risk. See "Risk Factors" beginning on page 8 of this prospectus for more information.

| | Per Unit | Total |
|---|---|---|
| Public offering price | $- | $- |
| Placement agency fees1 | - | - |
| Proceeds, before expenses, to us2 | - | - |

_____

(1) For the purpose of estimating the Placement Agent's fees, we have assumed that the Placement Agent will receive its maximum commission on all sales made in the offering. The Placement Agent will also be entitled to receive warrants and be reimbursed for certain expenses.

(2) We estimate total expenses of this offering, excluding the Placement Agent's fees and expenses, will be approximately $250,000. For information concerning our obligation to reimburse the Placement Agent for certain of its expenses see "Plan of Distribution" beginning on page 32 of this prospectus.

This offering expires on the earlier of (i) the date upon which all of the units being offered have been sold, or (ii) _____, 2012. We expect that delivery of the units being offered pursuant to this prospectus will be made to purchasers on or about _____, 2012. In either event, the offering may be closed without further notice to you.

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

LADENBURG THALMANN & CO. INC.

The date of this prospectus is _____, 2012.

Barocycler™ NEP2320

Barocycler™ NEP3229

PULSE Tubes and Microtubes with Microcaps

Microtubes in cartridges

Proteosolve Kits

HUB440

The Shredder SG3

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You should rely only on the information contained in this prospectus. We have not, and the Placement Agent has not, authorized anyone to provide you with information different from that contained in this prospectus. If anyone provides you with different or inconsistent information, you should not rely on it. We are offering to sell, and seeking offers to buy, units only in jurisdictions where offers and sales are permitted. You should assume that the information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of units. Our business, financial condition, results of operations, and prospects may have changed since that date.

Some of the industry and market data contained in this prospectus are based on independent industry publications or other publicly available information that we believe are reliable as of their respective dates, while other information is based on our internal sources.

## CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

The statements in this prospectus and in any "free writing prospectus" that we have authorized for use in connection with this offering, contain certain forward-looking statements within the meaning of Section 27A of the Securities Act, as amended, or the Securities Act, Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and the Private Securities Litigation Reform Act of 1995, that are subject to risks and uncertainties. All statements other than statements of historical facts contained herein, including statements regarding our financial condition, operations, plans, objectives, goals, business strategies, future events, capital expenditures, future results, our competitive strengths, and the trends in our industry are forward-looking statements. The words "believe," "may," "could," "estimate," "continue," "anticipate," "intend," "should," "plan," "expect," "appear," "future," "likely," "probabl "potential" and similar expressions, as they relate to us, are intended to identify forward-looking statements.

Forward-looking statements reflect only our current expectations. In any forward-looking statement, where we express an expectation or belief as to future results or events, such expectation or belief is expressed in good faith as of the date of such statement and believed to have a reasonable basis, but there can be no assurance that the statement of expectation or belief will be achieved or accomplished. Our actual results, performance or achievements could differ materially from those expressed in, or implied by, the forward-looking statements due to a number of uncertainties, many of which are unforeseen. Such forward-looking statements include statements relating to:

- our need for, and our ability to raise, additional equity or debt financing on acceptable terms, if at all;
- our need to take additional cost reduction measures, cease operations or sell our operating assets, if we are unable to obtain sufficient additional financing;
- the options we may pursue in light of our financial condition;
- the amount of cash necessary to operate our business;
- the anticipated uses of grant revenue and the potential for increased grant revenue in future periods;
- our plans and expectations with respect to our pressure cycling technology (PCT) operations;
- our belief that PCT has achieved initial market acceptance in the mass spectrometry market;
- the expected increase in number of PCT units installed and the increase in revenues from the sale of consumable products and extended service contracts;
- the expected development and success of new product offerings;
- the potential applications for PCT in, and the demonstration of proof-of-concept of PCT for, pathogen inactivation, protein purification, control of chemical reactions, immunodiagnostics and formalin fixed paraffin embedded tissue preparation, among others;
- the expected expenses of, and benefits and results from, our research and development efforts;
- the expected benefits and results from our collaboration programs, strategic alliances and joint ventures;
- our expectation of obtaining additional research grants from the government in the future;

- our expectations of the results of our development activities funded by government research grants;
- the potential size of the market for biological sample preparation;
- general economic conditions;
- the anticipated future financial performance and business operations of our company;
- our reasons for focusing our resources in the market for genomic, proteomic, lipidomic, and small molecule sample preparation;
- the importance of mass spectrometry as a laboratory tool;
- the advantages of PCT over other current technologies as a method of sample extraction and for other applications;
- the capabilities and benefits of our PCT sample preparation system and consumable products;
- our belief that laboratory scientists will achieve results comparable to those reported to date by certain research scientists who have published or presented publicly on PCT;
- our ability to retain our core group of scientific, administrative, and sales personnel; and
- our ability to expand our customer base in sample preparation and for other applications of PCT.

You should read this prospectus and the documents that we reference herein, as well as the exhibits filed with the registration statement of which this prospectus forms a part, and the registration statement, completely and with the understanding that our actual future results may be materially different from what we expect. In addition, you should refer to the "Risk Factors" section beginning on page 8 of this prospectus. Because of these factors or others, the forward-looking statements in this prospectus and the registration statement may not prove to be accurate. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, if at all. Accordingly, you should not place undue reliance on these forward-looking statements.

You should assume that the information appearing in this prospectus is accurate as of the date on the front cover of this prospectus. All subsequent written and oral forward looking statements attributable to us or the persons acting on our behalf are expressly qualified in their entirety by the applicable cautionary statements. We undertake no obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as may be required by applicable law or regulation. We qualify all of the information presented in this prospectus and the registration statement, and particularly our forward-looking statements, by these cautionary statements.

## PROSPECTUS SUMMARY

This summary highlights information about Pressure BioSciences and this offering contained elsewhere in this prospectus and is qualified in its entirety by the more detailed information and financial statements included elsewhere in this prospectus. You should read this entire prospectus carefully, including "Risk Factors", "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and related notes included elsewhere in this prospectus, before making an investment decision. In this prospectus, unless otherwise specified or the context otherwise requires, the terms "we", "us", "our", "the Company", or "ours" refer to Pressure BioSciences, Inc. and consolidated subsidiary.

### About Pressure BioSciences

We are focused on solving the challenging problems inherent in biological sample preparation, a crucial laboratory step performed by scientists worldwide working in biological life sciences research. Sample preparation is a term that refers to a wide range of activities that precede most forms of scientific analysis. Sample preparation is often complex, time-consuming, and in our belief, one of the most error-prone steps of scientific research. It is a widely used laboratory undertaking, the requirements of which drive what we believe is a large and growing worldwide market. We have developed and patented a novel, enabling technology platform that can control the sample preparation process. It is based on harnessing the unique properties of high hydrostatic pressure. This process, called pressure cycling technology, or PCT, uses alternating cycles of hydrostatic pressure between ambient and ultra-high levels (35,000 psi or greater) to safely, conveniently and reproducibly control the actions of molecules in biological samples, such as cells and tissues from human, animal, plant, and microbial sources.

Our pressure cycling technology uses internally developed instrumentation that is capable of cycling pressure between ambient and ultra-high levels - at controlled temperatures and specific time intervals - to rapidly and repeatedly control the interactions of bio-molecules, such as DNA, RNA, proteins, lipids, and small molecules. Our laboratory instrument, the Barocycler®, and our internally developed consumables product line, include PULSE (Pressure Used to Lyse Samples for Extraction) Tubes, other processing tubes, and application specific kits (which include consumable products and reagents) together make up our PCT Sample Preparation System, or PCT SPS.

We hold 14 United States and 10 foreign patents covering multiple applications of PCT in the life sciences field. Our pressure cycling technology employs a unique approach that we believe has the potential for broad use in a number of established and emerging life sciences areas, including;

- -Biological sample preparation, which consists of sample preparation for genomic, proteomic, lipidomic, metabolomic, and small molecule studies;
- -pathogen inactivation;
- -protein extraction and recovery;
- -control of chemical (particularly enzymatic) reactions; and
- -immunodiagnostics (clinical laboratory testing).

We currently focus the majority of our resources in the area of biological sample preparation, referring to a wide range of activities that precede scientific analysis performed by scientists worldwide working in biological life sciences research. Sample preparation is often complex, time-consuming, and we believe one of the most error-prone steps of scientific research. It is none-the-less a widely used laboratory undertaking whose requirements, we believe, drive a large and growing market, worldwide.

Within the broad field of biological sample preparation, we focus the majority of our product development efforts in three specific areas: mass spectrometry, histology, and forensics.

- Mass Spectrometry. A mass spectrometer is a laboratory instrument used in the analysis of biological samples in life sciences research. We believe that mass spectrometry is a several billion dollar market, and that PCT offers significant advantages in speed and quality compared to current techniques used in the preparation of samples for mass spectrometry analysis.

- Histology. The most commonly used technique worldwide for the preservation of cancer and other tissues for subsequent pathology evaluation is formalin-fixation followed by paraffin-embedding ("FFPE"). We believe that the quality and analysis of FFPE tissues is highly problematic, and that PCT offers significant advantages over current processing methods, including standardization, speed, biomolecule recovery, and safety.

- Forensics. The detection of DNA has become a part of the analysis of forensic samples by laboratories and criminal justice agencies worldwide in their efforts to identify the perpetrators of violent crimes and missing persons. Scientists from the University of North Texas and Florida International University have reported improvements in DNA yield from forensic samples (e.g., bone, hair) when PCT was used in the sample preparation process. We believe that that PCT may be capable of differentially extracting DNA from sperm and (female) epithelial cells in swabs collected from rape victims and stored in rape kits. We believe that there are many completed but untested rape kits that remain untested for reasons such as cost, time, and quality of results. We further believe that the ability to differentially extract DNA from sperm and not epithelial cells could reduce the cost of such testing, while increasing quality, safety, and speed.

Since we began operations as Pressure BioSciences in February 2005, we have installed 203 Barocycler instruments through September 30, 2011, of which 131 have been purchased or are currently being leased by our customers. Our customers include researchers at academic laboratories, government agencies, biotechnology, pharmaceutical and other life sciences companies in the United States, and distribution partners in foreign countries.

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | YTD 2011 |
|---|---|---|---|---|---|---|---|
| Installed units | 5 | 8 | 20 | 41 | 54 | 50 | 25 |

We expect the number of units installed will increase in future periods as we continue to gain commercial awareness of our technology, although we may experience some delays in customer purchases due to current economic conditions in the United States and globally. We continue to expect that some portion of future installations will be for the smaller, lower priced, Barocycler NEP2320 model and some will be placed under lease or short-term rental agreements. Therefore, we expect that the average revenue per installation may continue to fluctuate from period to period as we continue to drive our installed base and commercialize PCT. We also expect that as we continue to expand the installed base of Barocycler instruments in the field, we will realize increasing revenue from the sale of consumable products and extended service contracts. In the short-term, these recurring revenue streams may continue to fluctuate from period to period.

Corporate Information

We were incorporated in the Commonwealth of Massachusetts in August 1978 as Boston Biomedica, Inc. In September 2004, we completed an asset sale of the Boston Biomedica core business units and began to focus exclusively on the development and commercialization of our PCT platform. Following this change in business strategy, we changed our legal name from Boston Biomedica, Inc. to Pressure BioSciences, Inc. and our NASDAQ symbol from BBII to PBIO.

Our principal executive offices are located at 14 Norfolk Avenue, South Easton, Massachusetts 02375. Our telephone number is (508) 230-1828 and our website address is www.pressurebiosciences.com. Information included or referred to on our website is not a part of this prospectus.

## THE OFFERING

Our shares of common stock are quoted on the NASDAQ Capital Market under the symbol “PBIO”. On December 2, 2011, the last sale price of our shares of common stock as reported on the NASDAQ Capital Market was $0.55 per share.

| | |
|---|---|
| Issuer | Pressure BioSciences, Inc. |
| Units | Each unit consists of (1) one Series E convertible preferred share which is convertible into ___ shares of our common stock; (2) one Class A Warrant to purchase ___ shares of our common stock for every share of common stock underlying the Series E preferred share included in such unit; and (3) one Class B Warrant to purchase ___ shares of our common stock for every share of common stock underlying the Series E preferred share included in such unit. |
| Unit Price | $1,000 per unit. |
| Series E Preferred Shares | Each Series E preferred share is convertible, at the option of the holder, into ___ shares of our common stock, has a stated value and liquidation preference of $1,000 per share, and is redeemable at our option so long as certain conditions described in this prospectus are met. We have the right to require the holders to convert the Series E preferred shares in certain circumstances described in this prospectus. Except for specified actions and except as may be provided by Massachusetts law, the Series E preferred shares will not have voting rights. See the section entitled “Description of Series E Preferred Shares” beginning on page 23 of this prospectus. |
| Dividends and Make-Whole Payment | Until _____, 2014, each holder of the Series E preferred shares is entitled to receive dividends at the rate of ___% per annum of the stated value for each Series E preferred share held by such holder payable quarterly on January 1, April 1, July 1 and October 1, beginning on the first such date after the original issue date, and on each conversion date. Except in limited circumstances (including a failure to meet certain conditions related to our equity described in this prospectus under the section entitled “Description of Series E Preferred Shares—Redemption” beginning on page 24), we can elect to pay the dividends in cash or in duly authorized, validly issued, fully paid and non-assessable shares of common stock, or a combination thereof. If the equity conditions are not met, we must pay the dividends in cash. If the equity conditions have been met and we choose to pay the dividends in shares of common stock, the shares of common stock used to pay the dividends will be valued at __% of the average volume weighted average price of our common shares for the 20 consecutive trading days ending on the trading day immediately prior to the applicable dividend payment date. From and after _____, 2014, each holder of Series E preferred shares will be entitled to receive dividends equal, on an as-if-converted to common stock basis, to and in the same form as dividends actually paid on shares of common stock when, as, and if such dividends are paid on such shares of common stock. We have never paid dividends on our shares of common stock and we do not intend to do so for the foreseeable future.<br>In the event a holder converts his, her or its Series E preferred shares prior to _____ , 2014, we must also pay to the holder in cash, or at our option, subject to satisfaction of certain conditions as described in this prospectus, in shares of common stock valued as described above, or a combination of cash and shares of common stock, with respect to the Series E preferred shares so converted, an amount equal to $___ per $1,000 of the stated value of the Series E preferred shares, less the amount of any dividends paid in cash or in shares of common stock on such Series E preferred shares on or before the date of conversion. |
| Prohibition on Down Round Financings | For a period of _____ from the closing of the offering, without the prior written consent of the subscribers in this offering, we will not be permitted to issue any shares of common stock or common share equivalents at an effective price per share below the conversion price of the Series E preferred shares. |

| | |
|---|---|
| Conversion Price of Series E preferred shares | $_.__ per share, subject to adjustment as described in this prospectus. See the section entitled "Description of Series E Preferred Shares" beginning on page 23 of this prospectus. |
| Shares of common stock underlying Series E preferred shares | Based on the conversion price of $_.__ per share, each Series E preferred share is convertible into ___ shares of our common stock and all ____ Series E preferred shares offered hereby would be converted into an aggregate of _____ shares of our common stock. |
| Class A Warrant terms | Each unit includes a Class A Warrant to purchase ___ shares of our common stock for every share of common stock underlying the Series E preferred share included in such unit, which equals __% of the shares of common stock underlying each Series E preferred share. Class A Warrants will entitle the holder to purchase shares of common stock for an exercise price equal to $_.__ per share, subject to adjustment as described in this prospectus. Class A Warrants are exercisable immediately after the date of issuance and expire five years after the date of issuance. See the section entitled "Description of Warrants" beginning on page 26 of this prospectus. |
| Class B Warrant terms | Each unit includes a Class B Warrant to purchase ___ shares of our common stock for every share of common stock underlying the Series E preferred share included in such unit, which equals __% of the shares of common stock underlying each Series E preferred share. Class B Warrants will entitle the holder to purchase shares of common stock for an exercise price equal to $_.__ per share, subject to adjustment as described in this prospectus. Class B Warrants are exercisable immediately after the date of issuance and expire one year after the date of issuance. See the section entitled "Description of Warrants" beginning on page 26 of this prospectus. |
| Shares of common stock outstanding before this offering | 6,723,993 shares. |
| Shares of common stock to be outstanding after this offering including shares of common stock underlying Series E Preferred Shares included in Units | _____ shares, excluding shares issuable upon exercise of the Class A Warrants and Class B Warrants. |
| Use of Proceeds | Assuming all units are sold, we estimate that the net proceeds to us from this offering will be approximately $__ million. We intend to use the net proceeds from this offering to support a comprehensive commercialization strategy of our current and future products, to fund our research and development activities, for general working capital needs, and for the repayment of up to $412,000 in principal amount outstanding under convertible promissory notes. See "Use of Proceeds." |
| Limitations on Exercise or Conversion | Notwithstanding anything herein to the contrary, we will not permit the conversion of the Series E preferred shares or exercise of the Class A Warrants or Class B Warrants by any holder, if after such conversion or exercise such holder would beneficially own more than 4.99% (or 9.99% as elected by the holder pursuant to the terms of the Series E preferred shares or the Class A Warrants or Class B Warrants, as applicable) of the shares of common stock then outstanding. |
| Liquidation Preference | In the event of any liquidation or winding up of Pressure BioSciences, the holders of the Series E preferred shares shall be entitled to receive, prior and in preference to the holders of our common stock and any series of preferred stock ranking junior to the Series E preferred shares, including our Series C Convertible Preferred Stock and our Series D Convertible Preferred Stock, an amount (the "Liquidation Amount") equal to the original purchase price per Series E preferred share |

| | |
|---|---|
| | then held by such holders, plus all accrued but unpaid dividends. The Series E preferred shares will rank junior to all of the existing and future indebtedness of Pressure BioSciences. |
| Risk Factors | You should carefully read and consider the information set forth under "Risk Factors," together with all of the other information set forth in this prospectus, before deciding to invest in the units offered by this prospectus. |

The number of shares of common stock outstanding before and after the offering is based on 6,723,993 shares issued and outstanding as of December 2, 2011 and excludes:

- 1,503,500 shares of common stock issuable upon exercise of options outstanding at December 2, 2011 with a weighted average exercise price of $2.34 per share;
- 399,500 shares of common stock reserved for future grants and awards under our equity incentive plans as of December 2, 2011;
- 4,762,451 shares of common stock issuable upon exercise of outstanding warrants issued prior to this offering;
- _____ shares of common stock issuable upon exercise of the Class A Warrants and Class B Warrants to be issued as part of the units in connection with this offering; and
- 2,024,057 shares of common stock issuable upon conversion of our outstanding Series C Convertible Preferred Stock and Series D Convertible Preferred Stock.

## RISK FACTORS

You should carefully consider the risks described below before making an investment decision. You should also refer to the other information in this prospectus, including our financial statements and the related notes thereto. The risks and uncertainties described below are not the only risks and uncertainties we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations. If any of the following risks actually occur, our business, results of operations and financial condition could suffer. In that event the trading price of our shares of common stock could decline, and you may lose all or part of your investment in the units. The risks discussed below also include forward-looking statements and our actual results may differ substantially from those discussed in these forward-looking statements.

### Risks Related to Our Business

As of December 2, 2011, we had available cash of approximately $443,000. We require additional capital to fund our operations and cannot ensure that additional capital will be available on acceptable terms or at all.

We have experienced negative cash flows from operations from our pressure cycling technology business since we commenced our pressure cycling technology operations. As of December 2, 2011, we had available cash of approximately $443,000 which, based on current projections will be sufficient to fund operations until February 2012. We need substantial additional capital to fund our operations.

We have received an opinion from our independent registered public accounting firm expressing doubt regarding our ability to continue as a going concern.

The audit report issued by our independent registered public accounting firm on our audited consolidated financial statements for the fiscal year ended December 31, 2010 contains an explanatory paragraph regarding our ability to continue as a going concern. The audit report states that our auditing firm has substantial doubt in our ability to continue as a going concern due to the risk that we may not have sufficient cash and liquid assets at December 31, 2010 to cover our operating and capital requirements for the next twelve-month period; and if in that case sufficient cash cannot be obtained, we would have to substantially alter, or possibly even discontinue, operations. The accompanying consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Management has developed a plan to continue operations. This plan includes further reductions in expenses and obtaining equity or debt financing including our most recently completed financing in November 2011, in which we sold units consisting of shares of Series D Convertible Preferred Stock and Series F Warrants for net proceeds of approximately $650,000. Although we have successfully completed equity financings and reduced expenses in the past, we cannot assure you that our plans to address these matters in the future will be successful. Such an opinion from our independent registered accounting firm could adversely affect our ability to obtain additional financing on favorable terms, if at all, as such an opinion may cause investors to have reservations about our long-term prospects, and may adversely affect our relationships with customers. There can be no assurance that our auditing firm will not qualify its opinion in the future. If we cannot successfully continue as a going concern, our stockholders may lose their entire investment in us.

We will need a greater amount of additional capital than we currently expect to need if we experience unforeseen costs or expenses, unanticipated liabilities or delays in implementing our business plan, developing our products and achieving commercial sales.

We need substantial capital for the growth and development of our pressure cycling technology products and services in the sample preparation area, as well as for applications in other areas of life sciences. Our capital requirements will depend on many factors, including but not limited to:

- the problems, delays, expenses, and complications frequently encountered by early-stage companies;

- market acceptance of our pressure cycling technology products and services for sample preparation;
- the success of our sales and marketing programs; and
- changes in economic, regulatory or competitive conditions in the markets we intend to serve.

To satisfy our potential capital requirements to cover the cost to support the commercialization of our pressure cycling technology products and services relating to sample preparation and other life science applications, we need to raise additional funds in the public or private capital markets. We may seek to raise any necessary additional funds through the issuance of warrants, equity or debt financings or executing collaborative arrangements with corporate partners or other sources, which may be dilutive to existing stockholders or otherwise have a material effect on our current or future business prospects. Additional financing may not be available to us on a timely basis, if at all, or on terms acceptable to us. If adequate funds are not available or if we fail to obtain acceptable additional financing, we may be required to:

- severely limit or cease our operations or otherwise reduce planned expenditures and forego other business opportunities, which could harm our business;
- obtain financing with terms that may have the effect of substantially diluting or adversely affecting the holdings or the rights of the holders of our capital stock; or
- obtain funds through arrangements with future collaboration partners or others that may require us to relinquish rights to some or all of our technologies or products.

Our actual results and performance, including our ability to raise additional capital, may be adversely affected by current economic conditions.

Our actual results and performance could be adversely affected by the current economic conditions in the global economy, which pose a risk to the overall demand for our products from our customers who may elect to defer or cancel purchases of, or decide not to purchase, our products in response to continuing tightness in the credit markets, negative financial news and general uncertainty in the economy. In addition, our ability to obtain additional financing, on acceptable terms, if at all, may be adversely affected by the uncertainty in the current economic climate.

We have a history of operating losses, anticipate future losses and may never be profitable.

We have experienced significant operating losses in the area of pressure cycling technology in each period since we began investing resources in pressure cycling technology. These losses have resulted principally from research and development, sales and marketing, and general and administrative expenses associated with the development of our pressure cycling technology business. We expect to continue to incur operating losses until sales of our pressure cycling technology products increase substantially. We cannot be certain when, if ever, we will become profitable. Even if we were to become profitable, we might not be able to sustain such profitability on a quarterly or annual basis.

Our financial results depend on revenues from our pressure cycling technology products and services, which has a limited operating history, and from government grants.

We currently rely on revenues from our pressure cycling technology products and services in the sample preparation area and from revenues derived from grants awarded to us by governmental agencies, such as the National Institutes of Health. Our limited sales and operating history may not be adequate to enable you to fully assess our ability to achieve market acceptance of our product offering. Competition for government grants is very intense, and we can

provide no assurance that we will continue to be awarded grants in the future. If we are unable to increase revenues from sales of our pressure cycling technology products and services and government grants, our business will fail.

Our business may be harmed if we encounter problems, delays, expenses, and complications that often affect early-stage companies.

We are an early-stage company and our pressure cycling technology business has a relatively limited operating history. Early-stage companies may encounter problems, delays, expenses and complications, many of which may be beyond our control or may harm our business or prospects. These include:

- unanticipated problems and costs relating to the development, testing, production, marketing, and sale of our products;
- delays and costs associated with our ability to attract and retain key personnel;
- availability of adequate financing; and
- competition.

We cannot guarantee that we will successfully complete the transition from an early-stage company to the commercialization of our pressure cycling technology products and services.

We may be unable to obtain market acceptance of our pressure cycling technology products and services.

Many of our initial sales of our pressure cycling technology products and services have been to our collaborators, following their use of our products in studies undertaken in sample preparation for genomics, proteomics and small molecules studies. Our technology requires scientists and researchers to adopt a method of sample extraction that is different than existing techniques. Our PCT sample preparation system is also more costly than existing techniques. Our ability to obtain market acceptance will depend, in part, on our ability to demonstrate to our potential customers that the benefits and advantages of our technology outweigh the increased cost of our technology compared to existing methods of sample extraction. If we are unable to demonstrate the benefits and advantages of our products and technology as compared to existing technologies, we will not gain market acceptance and our business will fail.

The sales cycle of our pressure cycling technology products is lengthy. We have incurred and may continue to incur significant expenses and we may not generate any significant revenue related to those products.

Many of our current and potential customers have required between three and six months or more to test and evaluate our pressure cycling technology products. This increases the possibility that a customer may decide to cancel its order or otherwise change its plans, which could reduce or eliminate our sales to that potential customer. As a result of this lengthy sales cycle, we have incurred and may continue to incur significant research and development, selling and marketing, and general and administrative expense related to customers from whom we have not yet generated any revenue from our products, and from whom we may never generate the anticipated revenue if a customer is not satisfied with the results of the evaluation of our products or if a customer cancels or changes its plans.

Our business could be harmed if our products contain undetected errors or defects.

We are continuously developing new, and improving our existing, pressure cycling technology products in sample preparation and we expect to do so in other areas of life sciences depending upon the availability of our resources. Newly introduced products can contain undetected errors or defects. In addition, these products may not meet their performance specifications under all conditions or for all applications. If, despite internal testing and testing by our collaborators, any of our products contain errors or defects or fail to meet customer specifications, then we may be required to enhance or improve those products or technologies. We may not be able to do so on a timely basis, if at all,

and may only be able to do so at considerable expense. In addition, any significant reliability problems could result in adverse customer reaction, negative publicity or legal claims and could harm our business and prospects.

Our success may depend on our ability to manage growth effectively.

We expect our operations to grow at a rapid pace as we further commercialize our pressure cycling technology in sample preparation and other areas of life sciences. Our failure to manage growth effectively could harm our business and prospects. Given our limited resources and personnel, growth of our business could place significant strain on our management, information technology systems, sources of manufacturing capacity and other resources. To properly manage our growth, we may need to hire additional employees and identify new sources of manufacturing capabilities. Failure to effectively manage our growth could make it difficult to manufacture our products and fill orders, as well as lead to declines in product quality or increased costs, any of which would adversely impact our business and results of operations.

Our success is substantially dependent on the continued service of our senior management.

Our success is substantially dependent on the continued service of our senior management. We do not have long-term employment agreements with our key employees. The loss of the services of any of these individuals could make it more difficult to successfully operate our business and achieve our business goals. In addition, our failure to retain existing engineering, research and development and sales personnel could harm our product development capabilities and customer and employee relationships, delay the growth of sales of our products and could result in the loss of key information, expertise or know-how.

We may not be able to hire or retain the number of qualified personnel, particularly engineering and sales personnel, required for our business, which would harm the development and sales of our products and limit our ability to grow.

Competition in our industry for senior management, technical, sales, marketing, finance and other key personnel is intense. If we are unable to retain our existing personnel, or attract and train additional qualified personnel, either because of competition in our industry for such personnel or because of insufficient financial resources, our growth may be limited. Our success also depends in particular on our ability to identify, hire, train and retain qualified engineering and sales personnel with experience in design, development and sales of laboratory equipment.

Our reliance on a single third party for all of our manufacturing, and certain of our engineering, and other related services could harm our business.

We currently rely on Source Scientific, LLC, a third party contract manufacturer, to manufacture our PCT instrumentation, provide engineering expertise, and manage the majority of our sub-contractor supplier relationships. Because of our dependence on one manufacturer, our success will depend, in part, on the ability of Source Scientific to manufacture our products cost effectively, in sufficient quantities to meet our customer demand, if and when such demand occurs, and meeting our quality requirements. If Source Scientific experiences manufacturing problems or delays, or if Source Scientific decides not to continue to provide us with these services, our business may be harmed. While we believe other contract manufacturers are available to address our manufacturing and engineering needs, if we find it necessary to replace Source Scientific, there will be a disruption in our business and we would incur additional costs and delays that would harm our business.

Our failure to manage current or future alliances or joint ventures effectively may harm our business.

We have entered into business relationships with three distribution partners, and we may enter into additional alliances, joint ventures or other business relationships to further develop, market and sell our pressure cycling technology product line. We may not be able to:

- identify appropriate candidates for alliances, joint ventures or other business relationships;

- assure that any candidate for an alliance, joint venture or business relationship will provide us with the support anticipated;

- successfully negotiate an alliance, joint venture or business relationship on terms that are advantageous to us; or

- successfully manage any alliance or joint venture.

Furthermore, any alliance, joint venture or other business relationship may divert management time and resources. Entering into a disadvantageous alliance, joint venture or business relationship, failing to manage an alliance, joint venture or business relationship effectively, or failing to comply with any obligations in connection therewith, could harm our business and prospects.

We may not be successful in growing our international sales.

We cannot guarantee that we will successfully develop our international sales channels to enable us to generate significant revenue from international sales. We currently have three international distribution agreements that together cover Japan, Austria, and Germany. We have generated limited sales to date from international sales and cannot guarantee that we will be able to increase our sales. As we expand, our international operations may be subject to numerous risks and challenges, including:

- multiple, conflicting and changing governmental laws and regulations, including those that regulate high pressure equipment;
- reduced protection for intellectual property rights in some countries;
- protectionist laws and business practices that favor local companies;
- political and economic changes and disruptions;
- export and import controls;
- tariff regulations; and
- currency fluctuations.

Our operating results are subject to quarterly variation. Our operating results may fluctuate significantly from period to period depending on a variety of factors, including the following:

- our ability to increase our sales of our pressure cycling technology products for sample preparation on a consistent quarterly or annual basis;
- the lengthy sales cycle for our products;
- the product mix of the Barocycler instruments we install in a given period, and whether the installations are completed pursuant to sales, rental or lease arrangements, and the average selling prices that we are able to command for our products;
- our ability to manage our costs and expenses;
- our ability to continue our research and development activities without unexpected costs and expenses; and
- our ability to comply with state and federal regulations without incurring unexpected costs and expenses.

Our instrumentation operates at high pressures and may therefore become subject to certain regulation in the European Community. Regulation of high pressure equipment may limit or hinder our development and sale of future instrumentation.

Our Barocycler instruments operate at high pressures. If our Barocycler instruments exceed certain pressure levels, our products may become subject to the European Pressure Equipment Directive, which requires certain pressure equipment meet certain quality and safety standards. We do not believe that we are subject to this directive because our Barocycler instruments are currently below the threshold documented in the text of the directive. If our interpretation were to be challenged, we could incur significant costs defending the challenge, and we could face production and selling delays, all of which could harm our business.

We expect that we will be subject to regulation in the United States, such as the Food and Drug Administration (FDA), and overseas, if and when we begin to invest more resources in the development and commercialization of PCT in applications outside of sample preparation.

Our current pressure cycling technology products in the area of sample preparation are not regulated by the FDA. Applications in which we intend to develop and commercialize pressure cycling technology, such as protein purification, pathogen inactivation and immunodiagnostics, are expected to require regulatory approvals or clearances from regulatory agencies, such as the FDA, prior to commercialization. We expect that obtaining these approvals or clearances will require a significant investment of time and capital resources and there can be no assurance that such investments will receive approvals or clearances that would allow us to commercialize the technology for these applications.

If we are unable to protect our patents and other proprietary technology relating to our pressure cycling technology products, our business will be harmed.

Our ability to further develop and successfully commercialize our products will depend, in part, on our ability to enforce our patents, preserve our trade secrets, and operate without infringing the proprietary rights of third parties. We currently have 14 United States patents issued and several pending patent applications for our pressure cycling technology. Several of these have been followed up with foreign applications, for which three patents have been issued in Europe and three patents have been issued in Australia, two in Japan, and two in Canada. We expect to file additional foreign applications in the future relating to our pressure cycling technology, and we will file additional United States applications as we develop new patentable intellectual property. The patents which have been issued expire between 2015 and 2027.

There can be no assurance that:

- any patent applications filed by us will result in issued patents;
- patent protection will be secured for any particular technology;
- any patents that have been or may be issued to us will be valid or enforceable;
- any patents will provide meaningful protection to us;
- others will not be able to design around our patents; or
- our patents will provide a competitive advantage or have commercial value.

The failure to obtain adequate patent protection would have a material adverse effect on us and may adversely affect our ability to enter into, or affect the terms of, any arrangement for the marketing or sale of any product.

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Our patents may be challenged by others.

We could incur substantial costs in patent proceedings, including interference proceedings before the United States Patent and Trademark Office, and comparable proceedings before similar agencies in other countries, in connection with any claims that may arise in the future. These proceedings could result in adverse decisions about the patentability of our inventions and products, as well as about the enforceability, validity, or scope of protection afforded by the patents.

If we are unable to maintain the confidentiality of our trade secrets and proprietary knowledge, others may develop technology and products that could prevent the successful commercialization of our products.

We rely on trade secrets and other unpatented proprietary information in our product development activities. To the extent we rely on trade secrets and unpatented know-how to maintain our competitive technological position, there can be no assurance that others may not independently develop the same or similar technologies. We seek to protect our trade secrets and proprietary knowledge, in part, through confidentiality agreements with our employees, consultants, advisors and contractors. These agreements may not be sufficient to effectively prevent disclosure of our confidential information and may not provide us with an adequate remedy in the event of unauthorized disclosure of such information. If our employees, consultants, advisors, or contractors develop inventions or processes independently that may be applicable to our products, disputes may arise about ownership of proprietary rights to those inventions and processes. Such inventions and processes will not necessarily become our property, but may remain the property of those persons or their employers. Protracted and costly litigation could be necessary to enforce and determine the scope of our proprietary rights. Failure to obtain or maintain trade secret protection, for any reason, could harm our business.

If we infringe on the intellectual property rights of others, our business will be harmed.

It is possible that the manufacture, use or sale of our pressure cycling technology products or services may infringe patent or other intellectual property rights of others. We may be unable to avoid infringement of the patent or other intellectual property rights of others and may be required to seek a license, defend an infringement action, or challenge the validity of the patents or other intellectual property rights in court. We may be unable to secure a license on terms and conditions acceptable to us, if at all. Also, we may not prevail in any patent or other intellectual property rights litigation. Patent or other intellectual property rights litigation is costly and time-consuming, and there can be no assurance that we will have sufficient resources to bring any possible litigation related to such infringement to a successful conclusion. If we do not obtain a license under such patents or other intellectual property rights, or if we are found liable for infringement, or if we are unsuccessful in having such patents declared invalid, we may be liable for significant monetary damages, may encounter significant delays in successfully commercializing and developing our pressure cycling technology products, or may be precluded from participating in the manufacture, use, or sale of our pressure cycling technology products or services requiring such licenses.

We may be unable to adequately respond to rapid changes in technology and the development of new industry standards.

The introduction of products and services embodying new technology and the emergence of new industry standards may render our existing pressure cycling technology products and related services obsolete and unmarketable if we are unable to adapt to change. We may be unable to allocate the funds necessary to improve our current products or introduce new products to address our customers' needs and respond to technological change. In the event that other companies develop more technologically advanced products, our competitive position relative to such companies would be harmed.

We may not be able to compete successfully with others that are developing or have developed competitive technologies and products.

A number of companies have developed, or are expected to develop, products that compete or will compete with our products. We compete with companies that have existing technologies for the extraction of nucleic acids, proteins and small molecules from cells and tissues, including methods such as mortar and pestle, sonication, rotor-stator homogenization, French press, bead beating, freezer milling, enzymatic digestion, and chemical dissolution.

We are aware that there are additional companies pursuing new technologies with similar goals to the products developed or being developed by us. Some of the companies with which we now compete, or may compete in the future, have or may have more extensive research, marketing, and manufacturing capabilities, more experience in genomics and proteomics sample preparation, protein purification, pathogen inactivation, immunodiagnostics, and DNA sequencing and significantly greater technical, personnel and financial resources than we do, and may be better positioned to continue to improve their technology to compete in an evolving industry. To compete, we must be able to demonstrate to potential customers that our products provide improved performance and capabilities. Our failure to compete successfully could harm our business and prospects.

Provisions in our articles of organization and bylaws and our shareholder rights agreement may discourage or frustrate shareholders' attempts to remove or replace our current management.

Our articles of organization and bylaws contain provisions that may make it more difficult or discourage changes in our management that our stockholders may consider to be favorable. These provisions include:

- a classified board of directors;
- advance notice for stockholder nominations to the board of directors;
- limitations on the ability of stockholders to remove directors; and
- a provision that allows a majority of the directors to fill vacancies on the board of directors.

Our shareholders rights agreement, or "poison pill", may also have the effect of discouraging or preventing a change in control.

These provisions could prevent or frustrate attempts to make changes in our management that our stockholders consider to be beneficial and could limit the price that our stockholders might receive in the future for shares of our common stock.

The costs of compliance with the reporting obligations of the Exchange Act, and with the requirements of the Sarbanes-Oxley Act of 2002 and the Dodd-Frank Wall Street Reform and Consumer Protection Act, may place a strain on our limited resources and our management's attention may be diverted from other business concerns.

As a result of the regulatory requirements applicable to public companies, we incur legal, accounting, and other expenses that are significant in relation to the size of our company. In addition, the Sarbanes-Oxley Act of 2002 and the Dodd-Frank Wall Street Reform and Consumer Protection Act, as well as rules subsequently implemented by the SEC and NASDAQ, have required changes in corporate governance and financial disclosure practices of public companies, some of which are currently applicable to us and others will or may become applicable to us in the future. These rules and regulations will increase our legal and financial compliance costs and may make some activities more time-consuming. These requirements may place a strain on our systems and on our management and financial resources.

Risks Related to Share Ownership

The holders of our common stock could suffer substantial dilution as the result of the private placements and a registered direct offering we completed in 2009, 2010 and 2011.

In connection with the private placements we completed in 2009, 2010 and 2011, we issued shares of Series A Convertible Preferred Stock, shares of Series B Convertible Preferred Stock and shares of Series C Convertible Preferred Stock, and in connection with a registered direct offering completed in 2011, we issued shares of Series D Convertible Preferred Stock. In connection with those private placements and registered direct offering, we also issued warrants to purchase shares of Series A Convertible Preferred Stock, warrants to purchase shares of Series B Convertible Preferred Stock, and warrants to purchase shares of common stock. Each share of Series A Convertible

Preferred Stock, Series B Convertible Preferred Stock and Series C Convertible Preferred Stock is convertible into 10 shares of common stock and each share of Series D Convertible Preferred Stock is convertible into 1,538.46 shares of common stock. As of December 2, 2011, there were no shares of Series A Convertible Preferred Stock or Series B Convertible Preferred Stock issued and outstanding. If all of the outstanding shares of Series C Convertible Preferred Stock and Series D Convertible Preferred Stock, together with our outstanding warrants issued in connection with our private placements and registered direct offering in 2009, 2010 and 2011, were converted or exercised into shares of our common stock, an additional 6,344,886 shares of common stock would be issued and outstanding. The additional issuance of common stock would cause immediate and substantial dilution to our existing stockholders, and could cause a significant reduction in the market price of our common stock.

There is no public market for the Series E preferred shares or warrants to purchase shares of common stock to be sold in this offering.

There is no established public trading market for the Series E preferred shares or the Class A Warrants or Class B Warrants being sold in this offering, and we do not expect a market to develop. In addition, we do not intend to apply for listing the Series E preferred shares or the Class A Warrants or Class B Warrants on any securities exchange. Without an active market, the liquidity of these securities will be limited.

As a new investor, you will incur substantial dilution as a result of this offering and future equity issuances, and as result, our share price could decline.

The per share common stock equivalent conversion price of the Series E preferred shares is substantially higher than the net tangible book value per share of our outstanding shares of common stock. Our pro forma net tangible book value as of September 30, 2011 was ($532) or ($0.00) per share of common stock (assuming the conversion of all of our issued and outstanding shares of Series C Convertible Preferred Stock and Series D Convertible Preferred Stock issued in November 2011) (and excluding shares of common stock issuable upon exercise of all outstanding options and warrants). Net tangible book value per share represents total tangible assets less total liabilities, divided by the number of shares of common stock issued and outstanding. After giving effect to the sale of _____ Series E preferred shares in this offering and assuming the conversion of all the Series E preferred shares sold in the offering (and excluding shares of common stock issuable upon exercise of all outstanding options and warrants), our as adjusted pro forma net tangible book value as of September 30, 2011 would have been $_____, or $_____ per share. This represents an immediate dilution in net tangible book value of $_____ per share to existing common stockholders and an immediate dilution in net tangible book value of $_____ per share to investors in this offering (on an as-if-converted, per share common stock equivalent basis).

In addition to this offering, subject to market conditions and other factors, it is likely that we will pursue additional capital to finance our operations and the development, manufacture and marketing of other products under development and new product opportunities. Accordingly, we may conduct future offerings of equity or debt securities. The exercise of outstanding options and warrants and future equity issuances, including future public offerings or future private placements of equity securities and any additional shares issued in connection with acquisitions, may result in dilution to investors. In addition, the market price of our shares of common stock could fall as a result of resales of any of these shares of common stock due to an increased number of shares available for sale in the market.

Sales of a significant number of shares of our common stock in the public market, or the perception of such possible sales, could depress the market price of our common stock.

Sales of a substantial number of shares of our common stock or other equity-related securities in the public markets, including in an offering of our common stock or preferred stock, could depress the market price of our common stock

and impair our ability to raise capital through the sale of additional equity or equity-related securities. We cannot predict the effect that future sales of our common stock or other equity-related securities would have on the market price of our common stock.

Our share price could be volatile and our trading volume may fluctuate substantially.

The price of our shares of common stock has been and may in the future continue to be extremely volatile, with the sale price fluctuating from a low of $0.51 to a high of $2.29 since December 31, 2009. Many factors could have a significant impact on the future price of our shares of common stock, including:

- our inability to raise additional capital to fund our operations, whether through the issuance of equity securities or debt;
- our failure to successfully implement our business objectives;
- compliance with ongoing regulatory requirements;
- market acceptance of our products;
- technological innovations and new commercial products by our competitors;
- changes in government regulations;
- general economic conditions and other external factors;
- actual or anticipated fluctuations in our quarterly financial and operating results;
- the degree of trading liquidity in our shares of common stock; and
- our ability to meet the minimum standards required for remaining listed on the NASDAQ Capital Market.

A decline in the price of our shares of common stock could affect our ability to raise further working capital and adversely impact our ability to continue operations.

A decline in the price of our shares of common stock could result in a reduction in the liquidity of our common stock and a reduction in our ability to raise capital. Because a significant portion of our operations has been and will continue to be financed through the sale of equity securities, a decline in the price of our shares of common stock could be especially detrimental to our liquidity and our operations. Such reductions and declines may force us to reallocate funds from other planned uses and may have a significant negative effect on our business plans and operations, including our ability to continue our current operations. If the price for our shares of common stock declines, it may be more difficult to raise additional capital. If we are unable to raise sufficient capital, and we are unable to generate funds from operations sufficient to meet our obligations, we will not have the resources to continue our operations.

The market price for our shares of common stock may also be affected by our ability to meet or exceed expectations of analysts or investors. Any failure to meet these expectations, even if minor, may have a material adverse effect on the market price of our shares of common stock.

If we issue additional securities in the future, it will likely result in the dilution of our shares of existing stockholders.

Our restated articles of organization, as amended, authorize the issuance of up to 20,000,000 shares of common stock and 1,000,000 shares of preferred stock. As of December 2, 2011 we had 6,723,993 shares of common stock issued and outstanding, 88,098 shares of Series C Convertible Preferred Stock issued and outstanding, which shares of Series C Convertible Preferred Stock are convertible into 880,980 shares of common stock and 743 shares of Series D Convertible Preferred Stock issued and outstanding, which shares of Series D Convertible Preferred Stock are

convertible into 1,143,077 shares of common stock. As of December 2, 2011, we had options and warrants to purchase an aggregate of approximately 6,265,951 shares of our common stock outstanding, and had an additional 399,500 shares of common stock reserved for future awards that we may grant under our equity compensation plans. We have submitted a proposal to our stockholders for approval of an amendment to our restated articles of

organization, as amended, to increase the number of our authorized shares of common stock in order to issue additional shares of common stock in the future. From time to time we also may increase the number of shares available for issuance in connection with our equity compensation plans and we may issue awards to our employees and others who provide services to us outside the terms of our equity compensation plans. Our board of directors may fix and determine the designations, rights, preferences or other variations of each class or series of preferred stock and may choose to issue some or all of such shares to provide additional financing in the future.

The issuance of any securities for acquisition, licensing or financing efforts, upon conversion of any preferred stock or exercise of warrants, pursuant to our equity compensation plans, or otherwise may result in a reduction of the book value and market price of the outstanding shares of our common stock. If we issue any such additional securities, such issuance will cause a reduction in the proportionate ownership and voting power of all current stockholders. Further, such issuance may result in a change in control of our Company.

Financial Industry Regulatory Authority (FINRA) sales practice requirements may also limit a stockholder's ability to buy and sell our common stock.

FINRA has adopted rules that require that in recommending an investment to a customer, a broker-dealer must have reasonable grounds for believing that the investment is suitable for that customer. Prior to recommending speculative low-priced securities to their non-institutional customers, broker-dealers must make reasonable efforts to obtain information about the customer's financial status, tax status, investment objectives and other information. Under interpretations of these rules, FINRA believes that there is a high probability that speculative low-priced securities will not be suitable for at least some customers. FINRA requirements make it more difficult for broker-dealers to recommend that their customers buy our common stock, which may limit your ability to buy and sell our common stock and have an adverse effect on the market for our shares.

We have never paid dividends on our common stock and do not anticipate paying any in the foreseeable future.

We have never declared or paid a cash dividend on our common stock and we do not expect to pay cash dividends on our common stock in the foreseeable future.

The Series E Preferred Shares being offered pursuant to this prospectus, as well as our shares of Series C Convertible Preferred Stock and Series D Convertible Preferred Stock, are entitled to certain rights, privileges and preferences over our common stock, including the right to receive dividends, in the case of the Series C Convertible Preferred Stock, and a preference upon a liquidation of our company, which will reduce amounts available for distribution to our common stockholders.

The Series E preferred shares have a stated dividend rate of ___% per annum, which dividends are payable quarterly in cash, or subject to certain conditions, in shares of our common stock (or a combination thereof). In addition, the holders of our shares of Series C Convertible Preferred Stock are entitled to receive a cumulative dividend at the rate of 5% per annum of the purchase price paid for the Series C Convertible Preferred Stock, payable, either in cash or in shares of common stock at our option, semi-annually within 45 days of each of June 30th and December 31st, which commenced on June 30, 2011. If we elect to pay the dividends in cash, we will have less cash available for operations, and less cash available to the holders of common stock upon a liquidation of our company. A payment of dividends in common stock will have a dilutive effect on our common stockholders. Further, the shares of Series C Convertible Preferred Stock and Series D Convertible Preferred Stock and the Series E preferred shares are entitled to payment prior to payment to the holders of common stock in the event of liquidation of the Company.

Our common stock may be delisted from The NASDAQ Capital Market, which could negatively impact the price of our common stock, liquidity for our stockholders and our ability to access the capital markets.

Our common stock is listed on The NASDAQ Capital Market. On October 4, 2011, we received written notification from the Listing Qualifications Department of the NASDAQ Stock Market LLC, or NASDAQ, stating that our common stock is subject to delisting from The NASDAQ Capital Market, pending our opportunity to request a hearing before a NASDAQ Listing Qualifications Panel. We had previously received letters from NASDAQ on April 13, 2011, advising us that our stockholders' equity for the year ended December 31, 2010 had fallen below the minimum requirement for continued inclusion on The NASDAQ Capital Market and on August 15, 2011, advising

us that, for the previous 30 consecutive business days, the bid price of our common stock had closed below the minimum $1.00 per share requirement for continued inclusion on The NASDAQ Capital Market. We attended a hearing before the NASDAQ Listing Qualifications Panel on November 17, 2011 to consider further our plan to bring the Company into compliance with the stockholders' equity listing standard and the minimum $1.00 per share requirement. We expect our shares of common stock will continue to be listed on The NASDAQ Capital Market until a final decision is rendered by The NASDAQ Listing Qualifications Panel subsequent to the hearing.

If NASDAQ does not accept our plan to bring our company into compliance with the stockholders' equity listing standard, if we fail to come into compliance with the minimum $1.00 per share requirement for continued inclusion on The NASDAQ Capital Market or if we fail to comply with any other listing standards applicable to issuers listed on The NASDAQ Capital Market, our common stock will be delisted from The NASDAQ Capital Market.

If we are unsuccessful in maintaining our NASDAQ listing, then we may pursue listing and trading of our shares of common stock on the Over-The-Counter Bulletin Board or another securities exchange or association with different listing standards than NASDAQ. We anticipate the change in listings may result in a reduction in some or all of the following, each of which could have a material adverse effect on our shareholders:

- the liquidity of our shares of common stock;
- the market price of our shares of common stock;
- our ability to obtain financing for the continuation of our operations;
- the number of institutional and other investors that will consider investing in our shares of common stock;
- the number of market markers in our shares of common stock;
- the availability of information concerning the trading prices and volume of our shares of common stock; and
- the number of broker-dealers willing to execute trades in our shares of common stock.

Furthermore, if our shares of common stock were removed from listing with the NASDAQ Capital Market and we are unsuccessful in listing our shares of common stock on another national securities exchange, the shares may be subject to the so-called "penny stock" rules. The SEC has adopted regulations that define a penny stock to be any equity security that has a market price per share of less than $5.00, subject to certain exceptions, such as any securities listed on a national securities exchange. For any transaction involving a penny stock, unless exempt, the rules impose additional sales practice requirements on broker-dealers, subject to certain exceptions. If our shares of common stock were delisted and determined to be a penny stock, a broker-dealer may find it more difficult to trade our shares of common stock and an investor may find it more difficult to acquire or dispose of our shares of common stock on the secondary market. Investors in penny stocks should be prepared for the possibility that they may lose their whole investment.

## USE OF PROCEEDS

Assuming all units are sold, we estimate that the net proceeds to us from this offering will be approximately $__ million. However, the offering does not specify any minimum sale of any specific number of units as a result of which the net proceeds actually received by us may be considerably less than this estimate. We intend to use the net proceeds from this offering to support a comprehensive commercialization strategy of our current and future products, to fund our research and development activities, for general working capital needs, and for the repayment of up to

$412,000 of the aggregate principal amount outstanding under convertible promissory notes.

As of December 2, 2011, our outstanding indebtedness, in the aggregate principal amount of $412,000, consisted of convertible promissory notes with an interest rate of 20% per annum and having an aggregate principal amount of

$200,000 due on February 3, 2012, $100,000 due on March 7, 2012, and $112,000 due on March 29, 2012. The proceeds from these convertible promissory notes were used for general working capital purposes.

We cannot estimate precisely the allocation of the net proceeds from this offering among these uses. The amounts and timing of the expenditures may vary significantly, depending on numerous factors, including the amount of cash used in our operations. Accordingly, our management will have broad discretion in the application of the net proceeds of this offering. We reserve the right to change the use of proceeds as a result of certain contingencies such as competitive developments and other factors. Pending the uses described above, we may temporarily invest the net proceeds of this offering in short- and medium-term interest-bearing obligations, investment-grade instruments, bank certificates of deposit and government securities until we use them for their stated purpose.

## DETERMINATION OF OFFERING PRICE

Some of the factors considered in determining the offering price of the units were the history and prospects of Pressure BioSciences and comparable companies, similar prior offerings of comparable companies, our management, our capital structure, and currently prevailing general conditions in equity securities markets, including current market valuations of publicly traded companies considered comparable to our company. We cannot assure you, however, that the price at which the units, Series E preferred shares, shares of common stock or Class A or Class B Warrants will sell in the public market after this offering will not be lower than the current offering price or that an active trading market in our units, Series E preferred shares, shares of common stock or Class A or Class B Warrants will develop and continue after this offering.

## DILUTION

Our pro forma net tangible book value (deficit) as of September 30, 2011 was ($532) or ($0.00) per share of common stock (assuming the conversion of all of our issued and outstanding shares of Series C Convertible Preferred Stock and Series D Convertible Preferred Stock issued in November 2011) (and excluding shares of common stock issuable upon exercise of all outstanding options and warrants). Net tangible book value per share represents total tangible assets less total liabilities, divided by the number of shares of common stock issued and outstanding. After giving effect to the sale of _____ Series E preferred shares in this offering and assuming the conversion of all the Series E preferred shares sold in the offering (and excluding shares of common stock issuable upon exercise of all outstanding options and warrants, including the Series A Warrants and the Series B Warrants sold in this offering), our as adjusted pro forma net tangible book value as of September 30, 2011 would have been $_____, or $_____ per share. This represents an immediate increase in net tangible book value of $_____ per share to existing common stockholders and an immediate dilution in net tangible book value of $_____ per share to investors in this offering (on an as-if-converted, per share common stock equivalent basis). The following table illustrates this calculation.

| | | | |
|---|---|---|---|
| Series E preferred shares conversion price (on a per share common stock equivalent basis) | | | $ |
| Pro forma net tangible book value per share as of September 30, 2011 | $ | (____) | $ |
| Increase per share attributable to this offering | $ | _____ | $ |
| As adjusted pro forma tangible book value per share after this offering | | | $ |
| Dilution per share to new investors in this offering (on a per share common stock equivalent basis) | | | $ |

The number of shares of common stock outstanding used in the table and calculations above is based on 6,353,016 shares outstanding as of September 30, 2011 and includes 880,980 shares of common stock reserved for issuance upon conversion of outstanding shares of Series C Convertible Preferred Stock and 1,296,923 shares of common stock reserved for issuance upon conversion of outstanding shares of Series D Convertible Preferred Stock which were

issued in November 2011, and excludes: 1,503,500 shares of common stock reserved for issuance upon exercise of outstanding stock options, at a weighted average exercise price of $2.34 per share; 4,762,451 shares of common stock reserved for issuance upon exercise of outstanding warrants to purchase our common stock, at a weighted average exercise price of $1.35 per share; and ____ shares of common stock to be reserved for issuance upon exercise of the Series A Warrants and Series B Warrants sold in this offering.

## DIVIDEND POLICY

We have not declared or paid cash dividends on our shares of common stock and do not anticipate paying any cash dividends on our shares of common stock in the foreseeable future. We expect to retain future earnings, if any, to fund the development and growth of our business. Our board of directors will determine future dividends on our shares of common stock, if any. The Series E preferred shares included in this offering have a stated dividend rate of ___% per annum as described in the section "Description of Securities". In addition, we are required to pay a dividend on our Series C Convertible Preferred Stock at the rate of 5% per annum of the purchase price paid for the Series C Convertible Preferred Stock, payable, either in cash or in shares of common stock at our option, semi-annually within 45 days of each of June 30 and December 31.

## CAPITALIZATION

The following table sets forth our capitalization as of September 30, 2011:

- on an actual basis;
- on a pro forma basis to reflect the conversion of all remaining issued and outstanding shares of Series A Convertible Preferred Stock and Series B Convertible Preferred Stock by December 2, 2011;
- on a pro forma basis to reflect the November 2011 sale of 843 shares of Series D Convertible Preferred Stock (and assuming the conversion of all of the Series D Convertible Preferred Stock);
- on a pro forma as adjusted basis to reflect the sale of _____ Series E preferred shares in this offering and assuming the conversion of all the Series E preferred shares sold in the offering (and excluding shares of common stock issuable upon exercise of the Class A warrants and Class B warrants), after deducting the Placement Agent's fees and other estimated offering related expenses payable by us.

The offering does not specify any minimum purchase or sale of any specific number of units. As a result, our actual total capitalization following completion of the offering may be significantly less than the "Pro forma as adjusted" total capitalization reflected in the below table.

You should read the information in this table together with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and the accompanying notes included elsewhere in this prospectus.

| | (Unaudited) September 30, 2011 | | |
|---|---|---|---|
| | Actual | Pro forma | Pro forma as adjusted |
| Cash and cash equivalents | $296,970 | $782,060 | |
| Shareholders' equity: | | | |
| Series A convertible preferred stock, $.01 par value; 313,960 shares authorized; 15,571 shares issued and outstanding on September 30, 2011, none issued and outstanding pro forma | 155 | - | |
| Series B convertible preferred stock, $.01 par value; 279,256 shares authorized; 1,348 shares issued and outstanding on September 30, 2011, none issued and outstanding pro forma | 13 | - | |
| Series C convertible preferred stock, $.01 par value; 303,125 shares authorized; 88,098 shares issued and outstanding on September 30, 2011; 88,098 shares authorized pro forma | 881 | 881 | |
| Series D convertible preferred stock, $.01 par value; 850 shares authorized, none issued and outstanding at September 30, 2011, 843 shares issued and outstanding pro forma | - | 843 | |
| Series E convertible preferred stock, $.01 par value; 279,256 shares authorized; none issued and outstanding at September 30, 2011 and pro forma, and _____ issued and outstanding pro forma as adjusted | - | - | |
| Common stock, $.01 par value; 20,000,000 shares authorized; 6,353,016 shares issued and outstanding on September 30, 2011, 8,036,260 shares issued and outstanding pro forma | 63,530 | 14,661 | |
| Warrants to acquire preferred stock and common stock | 1,823,852 | | |
| Additional paid-in capital | 12,802,217 | 869,462 | |
| Accumulated deficit | (14,545,260) | (418,148 ) | |
| Total shareholders' equity | 145,388 | 467,699 | |
| Total capitalization | $145,388 | $467,699 | |

The number of shares of common stock outstanding used in the table and calculations above is based on 6,353,016 shares outstanding as of September 30, 2011 and includes 169,190 shares of common stock reserved for issuance upon conversion of outstanding shares of Series A Convertible Preferred Stock and Series B Convertible Preferred Stock (all of which shares of Series A Convertible Preferred Stock and Series B Convertible Preferred Stock were converted into shares of common stock as of December 2, 2011), 880,980 shares of common stock reserved for issuance upon conversion of outstanding shares of Series C Convertible Preferred Stock and 1,296,923 shares of common stock reserved for issuance upon conversion of outstanding shares of Series D Convertible Preferred Stock which were issued in November 2011, and excludes: 1,503,500 shares of common stock reserved for issuance upon exercise of outstanding stock options, at a weighted average exercise price of $2.34 per share; 4,762,451 shares of common stock

reserved for issuance upon exercise of outstanding warrants to purchase our common stock, at a weighted average exercise price of $1.35 per share; and _____ shares of common stock to be reserved for issuance upon exercise of the Series A Warrants and the Series B Warrants sold in this offering.

## DESCRIPTION OF SECURITIES

This prospectus relates to the sale of units. Each unit includes (1) one Series E preferred share, (2) one Class A Warrant to purchase ___ shares of our common stock for every share of common stock underlying the Series E preferred share included in such unit and (3) one Class B Warrant to purchase ___ shares of our common stock for every share of common stock underlying the Series E preferred share included in such unit. The terms of the Series E preferred shares are described below under the caption "Description of Series E Preferred Shares." The terms of the Class A Warrants and the Class B Warrants are described below under the caption "Description of Warrants."

### Authorized Capital

As of December 2, 2011, we were authorized to issue 20,000,000 shares of common stock, $.01 par value, and 1,000,000 shares of preferred stock, $.01 par value. Of the 1,000,000 shares of preferred stock, 20,000 shares have been designated as Series A Junior Participating Preferred Stock, 313,960 shares have been designated as Series A Convertible Preferred Stock, 279,251 shares have been designated as Series B Convertible Preferred Stock, 88,098 shares have been designated as Series C Convertible Preferred Stock and 850 shares have been designated as Series D Convertible Preferred Stock. As of December 2, 2011, there were 6,723,993 shares of common stock issued and outstanding, 88,098 shares of Series C Convertible Preferred Stock outstanding and 743 shares of Series D Convertible Preferred Stock issued and outstanding. As of December 2, 2011, there were no shares of Series A Junior Participating Preferred Stock, Series A Convertible Preferred Stock or Series B Convertible Preferred Stock issued and outstanding.

In December 2011, we have submitted a proposal to our stockholders for their approval to amend our restated articles of organization, as amended, to increase the number of our authorized shares of common stock from 20,000,000 to 50,000,000.

### Description of Shares of Capital Stock

#### Common Stock

The holders of our common stock are entitled to one vote per share on all matters to be voted on by shareholders and are entitled to receive such dividends, if any, as may be declared from time to time by our board of directors from funds legally available therefor. The holders of our common stock do not have cumulative voting rights in the election of directors. Upon our liquidation or dissolution, subject to the liquidation preferences of the holders of our Series A Convertible Preferred Stock, Series B Convertible Preferred Stock, Series C Convertible Preferred Stock, Series D Convertible Preferred Stock and Series E preferred shares to be sold in this offering if any are issued and outstanding at the time of our liquidation or dissolution, the holders of our common stock are entitled to receive all assets available for distribution to the shareholders. Shares of our common stock have no preemptive or other subscription rights, and there are no conversion rights or redemption or sinking fund provisions with respect to such shares.

#### Preferred Stock

A total of 297,691 shares of preferred stock have not yet been designated to any class or series. Our board of directors may, without future action of our shareholders, issue any undesignated shares of preferred stock in one or more classes or series and fix the rights and preferences thereof, including the dividend rights, dividend rates, conversion rights, voting rights, terms of redemption (including sinking fund provisions), redemption price or prices, liquidation preferences and the number of shares constituting any class or series, or the designations of such class or series. The voting and other rights of the holders of our common stock may be subject to and adversely affected by, the rights of

holders of any preferred stock that are currently issued or that may be issued in the future.

Description of Series E Preferred Shares

Our restated articles of organization authorize 1,000,000 shares of preferred stock. Our board of directors is authorized, without further stockholder action, to establish various classes or series of shares of preferred stock from

time to time and to determine the rights, preferences and privileges of any unissued class or series including, among other matters, any dividend rights, dividend rates, conversion rights, voting rights, terms of redemption (including sinking fund provisions), redemption price or prices, liquidation preferences, the number of shares constituting any such class or series, and the designation of such class or series, and to issue any such shares. Our board of directors may, without shareholder approval, issue additional classes or series of shares of preferred stock with voting and conversion rights which could adversely affect the voting power of the holders of the shares of common stock or the Series E preferred shares, except as prohibited by the certificate of designation of preferences, rights and limitations of Series E preferred shares, or certificate of designation.

In connection with the completion of this offering, we expect our board of directors to adopt resolutions which would authorize ____ shares of a new class of shares designated ___% Series E Convertible Preferred Shares (the “Series E preferred shares”). The material terms and provisions of the Series E preferred shares are summarized below. For the complete terms of the Series E preferred shares, you should refer to the form of certificate of designation of ___% Series E convertible preferred shares which has been filed as an exhibit to the registration statement of which this prospectus is a part.

Voting Rights

As long as any Series E preferred shares are outstanding, we will not, without the affirmative vote of the holders of a majority of the then outstanding Series E preferred shares, (1) alter or change adversely the powers, preferences or rights given to the Series E preferred shares or alter or amend the certificate of designation, (2) authorize or create any class of shares ranking as to dividends, redemption or distribution of assets upon liquidation senior to, or otherwise pari passu with, the Series E preferred shares, (3) amend our restated articles of organization, as amended, in any manner that adversely affects any rights of the holders of Series E preferred shares, (4) increase the number of authorized Series E preferred shares, or (5) enter into any agreement with respect to any of the foregoing. Except for these specifications, and except as required by Massachusetts law, holders of the Series E preferred shares will not have rights to vote on any matters, questions or proceedings, including the election of directors.

Redemption

We will have the right to redeem the Series E preferred shares for a cash payment equal to ____ of the stated value of the Series E preferred shares, if the volume weighted average price of our common shares for any period of 20 consecutive trading days beginning after the original issue date exceeds ___% of the then effective conversion price. If the optional redemption occurs prior to the three-year anniversary of the original issue date, our right to redeem the Series E preferred shares will be subject to conditions, referred to as "Equity Conditions". These Equity Conditions apply to both redemption and conversion, except where otherwise noted. The Equity Conditions are as follows: (a) we must have timely honored all previously requested or required conversions, if any, (b) we must have paid all liquidated damages and other amounts owing to the applicable holder in respect of Series E preferred shares, (c)(i) there must be an effective registration statement pursuant to which we may issue conversion shares (and, as applicable, shares of common stock issued in satisfaction of any required make-whole payment (described below) and in lieu of cash payment of dividends) or (ii) with respect to conversions that occur after _____, 2014, all of the conversion shares may be issued to the holder pursuant to Section 3(a)(9) of the Securities Act of 1933, as amended, and immediately resold without restriction, (d) our common stock must be trading on a "trading market" (as defined in the certificate of designation) and all of the shares of common stock issuable pursuant to the terms of the Series E preferred shares and the Class A Warrants and Class B Warrants must be listed or quoted for trading on such trading market (and we must believe, in good faith, that trading of our common stock on a trading market will continue uninterrupted for the foreseeable future), (e) there must be a sufficient number of authorized, but unissued and otherwise unreserved, shares of common stock for the issuance of all of the shares of common stock then issuable pursuant to this offering, (f) only in the case of conversion and not in the case of redemption, the issuance of the

shares of common stock in question to the applicable holder would not violate the beneficial ownership limitations described below, (g) the applicable shareholder must not be in possession of any information provided by us that constitutes, or may constitute, material non-public information, and (h) the average daily trading volume for a period of 20 consecutive trading days prior to the applicable date in question must exceed _____ shares (subject to adjustment for forward and reverse share splits, dividends, and the like). Holders of Series E preferred shares will receive 10 trading days prior notice of any redemption and will have the ability to convert the Series E preferred shares into shares of common stock during this notice period, subject to the limitation on conversion described

below. There are no restrictions on our repurchase or redemption of shares while there is any arrearage in the payment of dividends.

Conversion

Subject to certain ownership limitations as described below, the Series E preferred shares are convertible at any time at the option of the holder into shares of our common stock at a conversion ratio determined by dividing the stated value of the Series E preferred shares (or $1,000) by a conversion price of $_____ per share. Accordingly, each Series E preferred share is convertible into _____ shares of common stock. The conversion price is subject to adjustment in the case of stock splits, stock dividends, combinations of shares and similar recapitalization transactions.

If the volume weighted average price for 20 trading days during any consecutive 30 trading day period beginning after the original issue date (a "Threshold Period"), exceeds [___%] of the then effective conversion price, we may deliver a written notice (a “forced conversion notice”) to all holders of Series E preferred shares requiring each holder to convert all or part of such holder's Series E preferred shares plus all accrued but unpaid dividends thereon and all liquidated damages and other amounts due in respect of the Series E preferred shares, into shares of common stock at the then current conversion ratio. We may not deliver a forced conversion notice, and such notice shall not be effective if delivered, unless all of the Equity Conditions (other than the condition relating to the payment of liquidated damages and other amounts owing to the holder) have been met on each of at least 20 trading days during the applicable Threshold Period and through the trading day after the date that conversion shares issuable pursuant to a forced conversion are actually delivered to the holders pursuant to a forced conversion notice. Any forced conversion notice shall be applied ratably to all of the holders of Series E preferred shares based on each holder's initial purchases of Series E preferred shares, provided that any voluntary conversions by a holder shall be applied against such holder's pro rata allocation, thereby decreasing the aggregate amount forcibly converted if less than all of the Series E preferred shares are forcibly converted.

Subject to limited exceptions, a holder of Series E preferred shares will not have the right to convert, and we will not have the right to force such holder to convert, any portion of his, her, or its Series E preferred shares if the holder, together with its affiliates, would beneficially own in excess of 4.99% (or 9.99% as elected by the holder pursuant to the terms of the certificate of designation) of the number of our shares of common stock outstanding immediately after giving effect to his, her, or its conversion.

Dividends and Make-Whole Payments

Until _____, 2014, each holder of the Series E preferred shares is entitled to receive dividends at the rate of ___% per annum of the stated value for each Series E preferred share held by such holder payable quarterly on January 1, April 1, July 1 and October 1, beginning on the first such date after the original issue date. Except in limited circumstances (including a failure to meet the Equity Conditions), we can elect to pay the dividends in cash or in duly authorized, validly issued, fully paid and non-assessable shares of common stock, or a combination thereof. If the Equity Conditions are not met, we must pay the dividends in cash. If the Equity Conditions have been met and we choose to pay the dividends in shares of common stock, the shares of common stock used to pay the dividends will be valued at __% of the average volume weighted average price for the 20 consecutive trading days ending on the trading day immediately prior to the applicable dividend payment date. From and after _____, 2014, each holder of Series E preferred shares will be entitled to receive dividends equal, on an as-if-converted to common stock basis, to and in the same form as dividends actually paid on shares of common stock when, as, and if such dividends are paid on shares of common stock. We have never paid dividends on our common stock and we do not intend to do so for the foreseeable future.

In the event a holder converts his, her or its Series E preferred shares prior to _____, 2014, we must also pay to the holder in cash, or at our option, subject to satisfaction of the Equity Conditions, in shares of common stock valued as described above, or a combination of cash and shares of common stock, with respect to the Series E preferred shares so converted, an amount equal to $_____ per $1,000 of the stated value of the Series E preferred shares, less the amount of any dividends paid in cash or in shares of common stock on such Series E preferred shares on or before the date of conversion.

Liquidation

The Series E preferred shares would rank, with respect to rights upon liquidation, dissolution, or winding-up of the Company, (1) senior to our common stock, (2) senior to any series of preferred shares ranked junior to the Series E preferred shares, and (3) junior to all of our existing and future indebtedness. Upon any liquidation, dissolution or winding up of the Company after payment or provision for payment of debts and other liabilities of the Company, and before any distribution or payment is made to the holders of any junior securities, the holders of Series E preferred shares shall first be entitled to be paid out of the assets of the Company available for distribution to its shareholders an amount equal to $1,000 per share, after which any remaining assets of the Company shall be distributed among the holders of the other classes or series of shares in accordance with our articles of organization.

Description of Class A Warrants and Class B Warrants

The material terms and provisions of the Class A Warrants and Class B Warrants being offered pursuant to this prospectus are summarized below. However, this summary of some provisions of the Class A Warrants and Class B Warrants is not complete. For the complete terms of the Class A Warrants and Class B Warrants, you should refer to the form of the Class A Warrants and Class B Warrants filed as exhibits to the registration statement of which this prospectus is a part.

Each unit includes one Class A Warrant to purchase ____ shares of common stock for every share of common stock underlying the Series E preferred share included in such unit and one Class B Warrant to purchase ____ shares of common stock for every share of common stock underlying the Series E preferred share included in such unit. Class A Warrants will entitle the holder to purchase shares of common stock for an exercise price equal to $_____ per share. Subject to certain limitations as described below, the Class A Warrants are exercisable at the option of the holder beginning immediately after the date of issuance and will expire and entitle the holder to a cashless exercise on the fifth anniversary following the date of issuance. Class B Warrants will entitle the holder to purchase shares of common stock for an exercise price equal to $_____ per share. Subject to certain limitations as described below, the Class B Warrants are exercisable at the option of the holder immediately after the date of issuance and will expire and entitle the holder to a cashless exercise one year following the date of issuance.

Subject to limited exceptions, a holder of warrants will not have the right to exercise any portion of its Class A Warrants or Class B Warrants if the holder, together with his, her or its affiliates, would beneficially own in excess of 4.99% (or 9.99% as elected by the holder pursuant to the terms of the warrant) of the number of our shares of common stock outstanding immediately after giving effect to such exercise.

The exercise price and the number of shares issuable upon exercise of the Class A Warrants and the Class B Warrants is subject to appropriate adjustment in the event of recapitalization events, stock dividends, stock splits, share combinations, reclassifications, reorganizations or similar events affecting our common stock, and also upon any distributions of assets, including cash, shares or other property to our shareholders. The warrant holders must pay the exercise price in cash upon exercise of the warrants unless such holders are utilizing the cashless exercise provisions of the warrants. After the close of business on the applicable expiration date, unexercised warrants will become void.

In addition, the Series A Warrants and the Series B Warrants will expire in the event we consummate a merger or consolidation with or into another person or other reorganization event in which our shares of common stock are converted or exchanged for securities, cash or other property, or we sell, lease, license or otherwise dispose of all or substantially all of our assets or we or another person acquire 50% or more of our outstanding common stock, then following such event, the holders of the warrants will be entitled to receive upon exercise of the warrants the same kind and amount of securities, cash or property which the holders would have received had they exercised the warrants immediately prior to such fundamental transaction. Any successor to us or surviving entity shall assume the

obligations under the warrants.

Upon a holder’s exercise of a warrant, we will issue the shares of common stock issuable upon exercise of the warrant within three business days following our receipt of notice of exercise and payment of the exercise price, subject to surrender of the warrant.

Prior to the exercise of any warrants to purchase shares of common stock, holders of the warrants will not have any of the rights of holders of the shares of common stock purchasable upon exercise, including the right to vote or to receive any payments of dividends on the shares of common stock purchasable upon exercise.

Shareholder Rights Plan

On February 27, 2003, our board of directors declared a dividend of one preferred share purchase right (a "Right") for each outstanding share of common stock on March 21, 2003 (the "Record Date") to the stockholders of record on that date. After March 21, 2003, a Right will be attached to each share of common stock issued by our company, including with each share of common stock issued upon conversion of the Series E preferred shares and upon exercise of the Series A Warrants and Series B Warrants sold in this offering. Each Right gives the holder the right to purchase from us one one-thousandth of a share of our Series A Junior Participating Preferred Stock (the "Preferred Shares"), at a price of $45.00 per one one-thousandth of a Preferred Share (the "Purchase Price"), subject to adjustment. Selected terms and provisions of the Rights are summarized below. For a complete description and terms of the Rights, you should refer to the Rights Agreement, dated as of February 27, 2003, between the Company and Computershare Trust Company, Inc., as amended by Amendment No. 1 to Rights Agreement dated April 16, 2004 and Amendment No. 2 to Rights Agreement dated November 8, 2011 (the "Rights Agreement"), which is filed as an exhibit to the registration statement of which this prospectus is a part.

Until the earlier to occur of (i) 10 days following a public announcement that a person or group of affiliated or associated persons has acquired beneficial ownership of 15% or more of the outstanding shares of common stock or any person or group who as of February 27, 2003 beneficially owned 15% or more of the outstanding shares of common stock acquired beneficial ownership of any additional shares of common stock (with certain exceptions, an "Acquiring Person") or (ii) 10 business days (or such later date as may be determined by action of our board of directors prior to such time as any person becomes an Acquiring Person) following the beginning of, or announcement of an intention to make, a tender offer or exchange offer the completion of which would result in the beneficial ownership by a person or group of 15% or more of such outstanding shares of common stock (the earlier of such dates being called the "Distribution Date"), the Rights will be evidenced by a summary of rights attachment to the common stock certificates that gave rise to the Rights.

The Rights Agreement provides that, until the Distribution Date, the Rights will be transferred with and only with the shares of common stock. Until the Distribution Date (or earlier redemption or expiration of the Rights), new common stock certificates issued after the Record Date or upon transfer or new issuance of shares of common stock will contain a note incorporating the Rights Agreement by reference. Until the Distribution Date (or earlier redemption or expiration of the Rights), the surrender or transfer of any certificates for shares of common stock outstanding as of the Record Date, even without such a note or a copy of the summary of rights being attached to the certificate, will also constitute the transfer of the Rights associated with the shares of common stock represented by such certificate. As soon as practicable following the Distribution Date, separate certificates evidencing the Rights ("Right Certificates") will be mailed to holders of record of the shares of common stock as of the close of business on the Distribution Date and such separate Right Certificates alone will evidence the Rights.

The Rights are not exercisable until the Distribution Date. The Rights will expire on February 27, 2013 (the "Final Expiration Date"), unless the Final Expiration Date is advanced or extended or unless we redeem or exchange the Rights at an earlier time, in each case, as described below.

The purchase price payable, and the number of Preferred Shares or other securities or property issuable, upon exercise of the Rights are subject to adjustment from time to time to prevent dilution (i) in the event of a stock dividend on, or a subdivision, combination or reclassification of, the Preferred Shares, (ii) upon the grant to holders of the Preferred Shares of certain rights or warrants to subscribe for or purchase Preferred Shares at a price, or securities convertible

into Preferred Shares with a conversion price, less than the then current market price of the Preferred Shares or (iii) upon the distribution to holders of the Preferred Shares of evidences of indebtedness or assets (excluding regular periodic cash dividends paid out of earnings or retained earnings or dividends payable in Preferred Shares) or of subscription rights or warrants (other than those referred to above).

The number of outstanding Rights and the number of one one-thousandths of a Preferred Share issuable upon exercise of each Right are also subject to adjustment in the event of a stock split of the common stock or a stock

dividend on the common stock payable in shares of common stock or subdivisions, consolidations or combinations of the common stock occurring, in any such case, prior to the Distribution Date.

Preferred Shares purchasable upon exercise of the Rights will not be redeemable. Each holder of Preferred Shares will receive a quarterly dividend payment of 1,000 times the dividend declared per share of common stock. If we liquidate, the holders of the Preferred Shares will be entitled to an aggregate payment of 1,000 times the aggregate payment made per share of common stock. Each Preferred Share will have 1,000 votes, voting together with the common stock. If we merge, consolidate or are a party to another transaction where shares of common stock are exchanged, each holder of Preferred Shares will have the right to receive 1,000 times the amount received per share of common stock. These rights are protected by customary antidilution provisions.

Because of the Preferred Shares' dividend, liquidation and voting rights, the value of the one one-thousandth of a Preferred Share purchasable upon exercise of each Right should be similar in value to one share of our common stock.

If any person becomes an Acquiring Person, each holder of a Right, other than Rights beneficially owned by the Acquiring Person and its affiliates and associates (which will thereafter be void), will thereafter have the right to receive upon exercise that number of shares of common stock having a market value of two times the exercise price of the Right. If, at any time after a Person becomes an Acquiring Person, we are acquired in a merger or other business combination transaction or 50% or more of our consolidated assets or earning power are sold, proper provision will be made so that each holder of a Right will thereafter have the right to receive, upon the exercise thereof at the then current exercise price of the Right, that number of shares of common stock of the person with whom we have engaged in the transaction described above (or its parent) which at the time of such transaction will have a market value of two times the exercise price of the Right.

If we do not have sufficient shares of authorized common stock to issue the number of shares of common stock required, or if our board of directors chooses, we will deliver upon payment of the exercise price of a Right an amount of cash or securities or other assets equivalent in value to the shares of common stock issuable upon exercise of a Right; provided that, if we fail to meet this obligation within 30 days following the first occurrence of an event triggering the right to purchase shares of common stock, we must deliver, upon exercise of a Right but without requiring payment of the exercise price then in effect, shares of common stock (to the extent available) and then, if necessary, Preferred Shares (to the extent available) and then, if necessary, cash equal in value to the difference between the value of the shares of common stock otherwise issuable upon the exercise of a Right and the exercise price then in effect. Our board of directors may extend the 30-day period described above for up to an additional 60 days to permit the taking of action that may be necessary to authorize sufficient additional shares of common stock to permit the issuance of shares of common stock upon the exercise in full of the Rights.

At any time after any person becomes an Acquiring Person and before the acquisition by any person or group of a majority of the outstanding shares of common stock, our board of directors may exchange the Rights (other than Rights owned by such person or group which have become void), in whole or in part, for shares of common stock or Preferred Shares at an exchange ratio of one share of common stock, or a fractional Preferred Share (or other preferred stock) of the same value as a share of common stock, per Right (subject to adjustment).

With some exceptions, no adjustment in the Purchase Price will be required until cumulative adjustments require an adjustment of at least 1% in such Purchase Price. No fractional Preferred Shares or shares of common stock will be issued (other than fractions that are integral multiples of one one-thousandth of a Preferred Share, which may, at our election, be evidenced by depositary receipts) and instead, an adjustment in cash will be made based on the current market price of the Preferred Shares or the shares of common stock.

At any time before any person becomes an Acquiring Person, our board of directors may redeem the Rights in whole, but not in part, at a price of $0.001 per Right (the "Redemption Price") payable, at our option, in cash, shares of common stock or such other form of consideration as our board of directors may choose. The redemption of the Rights may be made effective at the time and in the manner that our board of directors in its sole discretion may choose. Immediately upon any redemption of the Rights, the right to exercise the Rights will terminate and the only right of the holders of Rights will be to receive the Redemption Price.

For so long as the Rights are then redeemable, we may amend the Rights Agreement in any manner except that we may not change the Redemption Price. After the Rights are no longer redeemable, we may amend the Rights Agreement in any manner that does not negatively affect the interests of Rights holders, except that we may not change the Redemption Price.

Until a Right is exercised, the Right holder will have no rights as our stockholder, including, without limitation, the right to vote at our meetings or to receive dividends from us.

Massachusetts Law

Massachusetts Anti-Takeover and Related Statutes

Control Share Acquisition Law. Under Chapter 110D of the Massachusetts General Laws governing "control share acquisitions," any shareholder of certain publicly-held Massachusetts corporations who acquires certain ranges of voting power — one-fifth or more but less than one-third of all voting power, one-third or more but less than a majority of all voting power, or a majority or more of all voting power — may not (except in certain transactions) vote such stock unless the shareholders (excluding the shares held by the interested shareholders) of the corporation so authorize. As permitted by Chapter 110D, our amended and restated by-laws, as amended, include a provision which excludes us from the applicability of that statute.

Business Combination Statute. Chapter 110F of the Massachusetts General Laws, entitled "Business Combinations with Interested Shareholders," applies to publicly-held Massachusetts corporations with 200 or more shareholders of record. Generally, this statute prohibits such Massachusetts corporations from engaging in a "business combination" with an "interested shareholder" for a period of three years following the date of the transaction in which the person becomes an interested shareholder unless (a) the interested shareholder obtains the approval of the corporation's board of directors prior to becoming an interested shareholder; (b) the interested shareholder acquires at least 90% of the voting stock of the corporation (excluding shares held by certain affiliates of the corporation) outstanding at the time he becomes an interested shareholder; or (c) the business combination is both approved by the board of directors and authorized at an annual or special meeting of shareholders by the holders of at least two-thirds of the outstanding voting stock of the corporation (excluding shares held by the interested shareholder). An "interested shareholder" is a person who, together with affiliates and associates, owns (or at any time within the prior three years did own) 5% or more of the outstanding voting stock of the corporation. A "business combination" includes, among other transactions, a merger, stock or asset sale and other transactions resulting in a financial benefit to the shareholder. Our restated articles of organization, as amended, and amended and restated by-laws, as amended, do not expressly provide for opting out of the provisions of Chapter 110F. As a result, the application of this statute to us could discourage or make it more difficult for any person or group of persons to attempt to obtain control over us. We may at any time amend our restated articles of organization, as amended, or amended and restated by-laws, as amended, to elect not to be governed by Chapter 110F, by a vote of the holders of a majority of our outstanding common stock, but such an amendment would not be effective for 12 months and would not apply to a business combination with any person who became an interested shareholder prior to the date of the amendment.

Certain Provisions of Our Restated Articles of Organization, as amended, Amended and Restated By-Laws, as amended, and Shareholder Rights Plan

Our restated articles of organization, as amended, include several provisions which may render more difficult an unfriendly tender offer, proxy contest, merger or other change in control of our ownership.

Preferred Stock. Our restated articles of organization, as amended, permit our board of directors to issue preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof, without further vote or

action by the shareholders. The issuance of preferred stock may have the effect of delaying, deferring or preventing our change in control and may adversely affect the voting and other rights of the holders of our common stock. See "Preferred Stock" and "Shareholders Rights Plan" above.

Classification of Board of Directors. Our restated articles of organization, as amended, provide for the classification of our board of directors into three classes, with the classes being elected for staggered three-year terms. At each annual meeting of shareholders, directors will be elected to succeed those in the class whose term then expires, and each elected director shall serve for a term expiring at the third succeeding annual meeting of shareholders after such director's election, and until the director's successor is elected and qualified. Thus, directors stand for election only once in three years. This provision also restricts the ability of shareholders to enlarge the board of directors. Changes in the number of directors may be effected by a vote of a majority of the Continuing Directors (as defined in our restated articles of organization, as amended) or by the shareholders by vote of at least 80% of our outstanding common stock, voting as a single class. Under this provision, directors may only be removed with or without cause by the affirmative vote of the holders of at least 80% of the combined voting power of the outstanding shares of our common stock, voting together as a single class, or upon the vote of a majority of the Continuing Directors.

Fair Price Provision. Our restated articles of organization, as amended, contain a "Fair Price Provision" that is intended to protect shareholders who do not tender their shares in a takeover bid by guaranteeing them a minimum price for their shares in any subsequent attempt to purchase such remaining shares at a price lower than the acquirer's original acquisition price. The Fair Price Provision requires the affirmative vote of the holders of at least 80% of our outstanding common stock for certain business combinations with a Related Person (as defined in our restated articles of organization, as amended), unless specified price criteria and procedural requirements are met or the business combination is approved by a majority of the Continuing Directors. Continuing Director is defined in our restated articles of organization, as amended, to include any director (i) who is not an affiliate of any beneficial owner of 5% of the voting power of our outstanding voting stock, and (ii) who served as a director before such beneficial owner acquired his 5% beneficial ownership interest. Any successor of a Continuing Director who is unaffiliated with a 5% beneficial owner and who is recommended to succeed a Continued Director by a majority of the Continuing Directors is also a Continuing Director. A Related Person includes a person who, together with affiliates and associates, beneficially owns more than 5% our outstanding common stock.

Shareholder Rights Plan. Under the Rights Agreement described above, each outstanding share of common stock has attached to it one purchase right which entitles the holder to purchase from us one one-thousandth of a share of Series A Junior Participating Preferred Stock at a price of $45.00, subject to adjustment. This could prevent or delay a change in control of our ownership.

Indemnification Provision. Our restated articles of organization, as amended, provide that we may, either in our bylaws or by contract, provide for the indemnification of our directors, officers, employees and agents, by whomever elected or appointed, to the fullest extent permitted by applicable law, as it may be amended from time to time. Our amended and restated bylaws, as amended, authorize us to indemnify our directors, officers, employees, and agents. Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers or persons controlling the registrant pursuant to the foregoing provisions, the registrant has been informed that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is therefore unenforceable.

## MARKET FOR COMMON EQUITY AND RELATED STOCKHOLDER MATTERS

### Market Information

Our common stock is presently quoted on The NASDAQ Capital Market under the symbol “PBIO.” On December 2, 2011, the last reported sale price of our common stock on The NASDAQ Capital Market was $0.55 per share. The market for our common stock is limited and volatile. The following table sets forth the range of high and low bid quotations or high and low closing prices, as applicable, for our common stock for each of the periods indicated as reported by The NASDAQ Capital Market. The prices quoted on The NASDAQ Capital Market reflect inter-dealer

prices, without retail mark-up, mark-down or commissions. The NASDAQ Capital Market prices listed below may not represent actual transaction prices. There is no established public trading market for the Series E preferred shares or the Class A Warrants or the Class B Warrants and we do not expect a market to develop.

| | Year Ended December 31, 2011 | |
|---|---|---|
| | High | Low |
| First Quarter | $1.53 | $1.11 |
| Second Quarter | $1.25 | $0.91 |
| Third Quarter | $1.15 | $0.62 |
| Fourth Quarter (through December 2, 2011) | $0.96 | $0.51 |

| | Year Ended December 31, 2010 | |
|---|---|---|
| | High | Low |
| First Quarter | $1.97 | $1.36 |
| Second Quarter | $1.84 | $1.02 |
| Third Quarter | $1.77 | $1.09 |
| Fourth Quarter | $2.29 | $1.24 |

| | Year Ended December 31, 2009 | |
|---|---|---|
| | High | Low |
| First Quarter | $1.23 | $0.55 |
| Second Quarter | $2.10 | $0.80 |
| Third Quarter | $1.85 | $1.31 |
| Fourth Quarter | $1.80 | $1.32 |

The table above shows only historical comparisons. The comparisons may not provide meaningful information to you in determining whether to purchase our Series E preferred shares and Class A Warrants and Class B Warrants because our Series E preferred shares and Class A Warrants and Class B Warrants are not traded on any exchange. You are urged to obtain current market quotations for our common stock and to review carefully the other information contained in this prospectus and the registration statement of which this prospectus is a part.

Holders of Record

As of December 2, 2011, there were approximately 229 holders of record of shares of our common stock.

Dividend Policy

Since our incorporation in Massachusetts in August 1978, we have not paid or declared any cash dividends on our common stock. We currently intend to retain any earnings for future growth and, therefore, do not expect to pay cash dividends on our common stock in the foreseeable future. However, we are required to pay a dividend on our Series C Convertible Preferred Stock at the rate of 5% per annum of the purchase price paid for the Series C Convertible Preferred Stock, payable, either in cash or in shares of common stock at our option, semi-annually within 45 days of each of June 30 and December 31. In addition, the Series E preferred shares included in this offering have a stated dividend rate of ___% per annum as described in the section “Description of Securities.”

Equity Compensation Plan

We maintain a number of equity compensation plans for employees, officers, directors and other entities and individuals whose efforts contribute to our success. The table below sets forth certain information as of our fiscal year ended December 31, 2010 regarding the shares of our common stock available for grant or granted under our equity compensation plans.

| Plan Category | Number of securities to be issued upon exercise of outstanding options | Weighted-average exercise price of outstanding options | Number of securities remaining available for future issuance under equity compensation plans |
|---|---|---|---|
| Equity compensation plans approved by security holders(1) | 1,605,603 | $ 2.49 | 433,397 |

_____

(1) Includes the following plans: 1999 Non-Qualified Stock Option Plan and 2005 Equity Incentive Plan.

For additional information regarding our equity compensation plans, please see Note 8 in the Notes to Consolidated Financial Statements for the fiscal year ended December 31, 2010 included elsewhere in this prospectus.

## PLAN OF DISTRIBUTION

Ladenburg Thalmann & Co. Inc., which we refer to herein as the Placement Agent, has agreed to act as our exclusive Placement Agent in connection with this offering subject to the terms and conditions of the Placement Agency Agreement dated _____. The Placement Agent is not purchasing or selling any units offered by this prospectus nor is it required to arrange the purchase or sale of any specific number or dollar amount of units, but has agreed to use its best efforts to arrange for the sale of all of the units offered hereby. Therefore, we will enter into a purchase agreement directly with investors in connection with this offering and we may not sell the entire amount of units offered pursuant to this prospectus. There can be no assurance that we will sell the entire amount of units offered pursuant to this prospectus.

Confirmations and definitive prospectuses will be delivered, or otherwise made available, to all purchasers who agree to purchase units, informing the purchasers of the closing date as to such units. Purchasers will also be informed of the date and manner in which they must transmit the purchase price for their units.

On such closing date, the following will occur:

- we will receive funds in the amount of the aggregate purchase price of the units being sold by us on such closing date;
- we will deliver Series E preferred shares and the Class A Warrants and Class B Warrants being sold on such closing date; and
- we will pay the Placement Agent, a Placement Agent fee in accordance with the terms of our Placement Agency Agreement.

We have agreed to pay the Placement Agent a Placement Agent's cash fee equal to 9.0% of the gross proceeds of the offering. The maximum aggregate gross proceeds of the offering is $_____. The additional $_____ of securities being registered pursuant to this prospectus are for shares of common stock issuable in lieu of cash dividend and make-whole payments on the Series E preferred shares, as described in the section titled "Description of

Series E Preferred Shares – Dividends and Make-Whole Payments". We will receive no proceeds from the issuance of such shares of common stock and the Placement Agent shall receive no commission on such issuance. Subject to compliance with FINRA Rule 5110(f)(2)(D), we have also agreed to reimburse the Placement Agent's expenses up to a maximum of 0.5% of the gross proceeds raised in the offering, but in no event more than $60,000.

We have also agreed to issue the Placement Agent warrants to purchase shares of our common stock. The warrants will entitle the Placement Agent to purchase the number of shares of common stock equal to 3.0% of the number of shares of common stock to which the Series E preferred shares are convertible. The warrants will be exercisable at a price per share equal to 125% of the conversion price per share of the Series E preferred shares or $_____ per share. The warrants will be exercisable for 5 years following the closing of the offering. The warrants will also

have customary piggyback registration rights. Pursuant to FINRA Rule 5110(g)(1), neither the Placement Agent warrants nor any shares of common stock issued upon exercise of the Placement Agent warrants may be sold, transferred, assigned, pledged, or hypothecated, or be subject to any hedging, short sale, derivative, put, or call transaction that would result in the effective economic disposition of such securities by any person for a period of 180 days immediately following the date hereof, except the transfer of any security:

- by operation of law or by reason of our reorganization;
- to any FINRA member firm participating in the offering and the officers and partners thereof, if all securities so transferred remain subject to the lock-up restriction described above for the remainder of the time period;
- if the aggregate amount of our securities held by the Placement Agent or related person does not exceed 1% of the securities being offered;
- 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 participating members in the aggregate do not own more than 10% of the equity in the fund; or
- the exercise or conversion of any security, if all securities received remain subject to the lock-up restriction set forth above for the remainder of the time period.

The following table shows the per unit and total Placement Agent's fees we will pay to the Placement Agent in connection with the sale of the Series E Preferred shares and the Series A Warrants and Series B Warrants offered pursuant to this prospectus assuming the purchase of all of the units offered hereby.

| | | |
|---|---|---|
| Per unit Placement Agent's fees | $ | - |
| Maximum offering total | $ | - |

Because there is no minimum offering amount required as a condition to the closing in this offering, the actual total offering commissions, if any, are not presently determinable and may be substantially less than the maximum amount set forth above.

Our obligations to issue and sell units to the purchasers is subject to the conditions set forth in the securities purchase agreement, which may be waived by us at our discretion. A purchaser's obligation to purchase units is subject to the conditions set forth in the securities purchase agreement as well, which may be waived by the purchaser.

We have agreed to indemnify the Placement Agent against certain liabilities, including liabilities under the Securities Act of 1933, as amended, or the Securities Act. We may also be required to contribute to payments the Placement Agent may be required to make in respect of such liabilities.

We are offering pursuant to this prospectus up to ____ of our units, but there can be no assurance that the offering will be fully subscribed. Accordingly, we may sell substantially less than ____ of our units, in which case our net proceeds would be substantially reduced and the total Placement Agent fees may be substantially less than the maximum total set forth above.

We estimate the total offering expenses of this offering that will be payable by us, excluding the Placement Agent's fees and expenses, will be approximately $250,000, which includes our registration, legal, accounting and printing costs and various other fees.

The foregoing does not purport to be a complete statement of the terms and conditions of the Placement Agency Agreement and the securities purchase agreement. A copy of the form of securities purchase agreement with the

investors is included as an exhibit to the registration statement of which this prospectus forms a part. See “Where You Can Find More Information” on page 76 of this prospectus.

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 units 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 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.

## MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis should be read in conjunction with our Consolidated Financial Statements and related Notes included elsewhere in this prospectus. Some of the information contained in this Management's Discussion and Analysis of Financial Condition and Results of Operations and elsewhere in this prospectus may contain forward-looking statements based on management's current expectations and projections about future events. There can be no assurance that actual results, outcomes or business conditions will not differ materially from those expected or projected in such forward-looking statements as a result of various factors, including, among others, trends in the demand for our products and services, trends in the industries that consume our products and services, global economic conditions, especially as they impact our markets, our ability to develop new products and services and other potential risks and uncertainties discussed in the Risk Factors section of this prospectus. The dollar amounts included in this Management's Discussion and Analysis of Financial Condition and Results of Operations are in thousands unless otherwise indicated. References to fiscal years refer to the Company's fiscal year which ends on December 31.

### Business Overview

We are focused on solving the challenging problems inherent in biological sample preparation, a crucial laboratory step performed by scientists worldwide working in biological life sciences research. Sample preparation is a term that refers to a wide range of activities that precede most forms of scientific analysis. Sample preparation is often complex, time-consuming, and in our belief, one of the most error-prone steps of scientific research. It is a widely used laboratory undertaking, the requirements of which drive what we believe is a large and growing worldwide market. We have developed and patented a novel, enabling technology platform that can control the sample preparation process. It is based on harnessing the unique properties of high hydrostatic pressure. This process, called pressure cycling technology, or PCT, uses alternating cycles of hydrostatic pressure between ambient and ultra-high levels (35,000 psi or greater) to safely, conveniently and reproducibly control the actions of molecules in biological samples, such as cells and tissues from human, animal, plant, and microbial sources.

Our pressure cycling technology uses internally developed instrumentation that is capable of cycling pressure between ambient and ultra-high levels - at controlled temperatures and specific time intervals - to rapidly and repeatedly control the interactions of bio-molecules, such as DNA, RNA, proteins, lipids, and small molecules. Our laboratory instrument, the Barocycler®, and our internally developed consumables product line, include PULSE (Pressure Used to Lyse Samples for Extraction) Tubes, other processing tubes, and application specific kits (which include consumable products and reagents) together make up our PCT Sample Preparation System, or PCT SPS.

We have experienced negative cash flows from operations with respect to our pressure cycling technology business since our inception. As of September 30, 2011, we had working capital resources of approximately $195,000, which excludes the warrant liability of $284,437. Based on our current projections, including equity financing subsequent to September 30, 2011, we believe our current cash resources will enable us to extend our cash resources until February 2012.

We will need substantial additional capital to fund our operations in periods beyond February 2012. If we are able to obtain additional capital or otherwise increase our revenues, we may increase spending in specific research and development applications and engineering projects and may hire additional sales personnel or invest in targeted marketing programs. In the event that we are unable to obtain financing on acceptable terms, or at all, we will likely be required to cease our operations, pursue a plan to sell our operating assets, or otherwise modify our business strategy, which could materially harm our future business prospects.

We hold 14 United States and 10 foreign patents covering multiple applications of PCT in the life sciences field. Our pressure cycling technology employs a unique approach that we believe has the potential for broad use in a number of established and emerging life sciences areas, including;

-Biological sample preparation, which consists of sample preparation for genomic, proteomic, lipidomic, metabolomic, and small molecule studies;
-pathogen inactivation;
-protein extraction and recovery;
-control of chemical (particularly enzymatic) reactions; and
-immunodiagnostics (clinical laboratory testing).

We currently focus the majority of our resources in the area of biological sample preparation, referring to a wide range of activities that precede scientific analysis performed by scientists worldwide working in biological life sciences research. Sample preparation is often complex, time-consuming, and we believe one of the most error-prone steps of scientific research. It is none-the-less a widely used laboratory undertaking whose requirements, we believe, drive a large and growing market, worldwide.

Within the broad field of biological sample preparation, we focus the majority of our product development efforts in three specific areas: mass spectrometry, histology, and forensics.

- Mass Spectrometry. A mass spectrometer is a laboratory instrument used in the analysis of biological samples in life sciences research. We believe that mass spectrometry is a several billion dollar market, and that PCT offers significant advantages in speed and quality compared to current techniques used in the preparation of samples for mass spectrometry analysis.

- Histology. The most commonly used technique worldwide for the preservation of cancer and other tissues for subsequent pathology evaluation is formalin-fixation followed by paraffin-embedding (“FFPE”). We believe that the quality and analysis of FFPE tissues is highly problematic, and that PCT offers significant advantages over current processing methods, including standardization, speed, biomolecule recovery, and safety.

o Forensics. The detection of DNA has become a part of the analysis of forensic samples by laboratories and criminal justice agencies worldwide in their efforts to identify the perpetrators of violent crimes and missing persons. Scientists from the University of North Texas and Florida International University have reported improvements in DNA yield from forensic samples (e.g., bone, hair) when PCT was used in the sample preparation process. We believe that that PCT may be capable of differentially extracting DNA from sperm and (female) epithelial cells in swabs collected from rape victims and stored in rape kits. We believe that there are many completed but untested rape kits that remain untested for reasons such as cost, time, and quality of results. We further believe that the ability to differentially extract DNA from sperm and not epithelial cells could reduce the cost of such testing, while increasing quality, safety, and speed.

Since we began operations as Pressure BioSciences in February 2005, we have installed 203 Barocycler instruments through September 30, 2011, of which 131 have been purchased or are currently being leased by our customers. Our customers include researchers at academic laboratories, government agencies, biotechnology, pharmaceutical and other life sciences companies in the United States, and distribution partners in foreign countries.

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | YTD 2011 |
|---|---|---|---|---|---|---|---|
| Installed units | 5 | 8 | 20 | 41 | 54 | 50 | 25 |

We expect the number of units installed will increase in future periods as we continue to gain commercial awareness of our technology, although we may experience some delays in customer purchases due to current economic conditions in the United States and globally. We continue to expect that some portion of future installations will be

for the smaller, lower priced, Barocycler NEP2320 model and some will be placed under lease or short-term rental agreements. Therefore, we expect that the average revenue per installation may continue to fluctuate from period to period as we continue to drive our installed base and commercialize PCT. We also expect that as we continue to expand the installed base of Barocycler instruments in the field, we will realize increasing revenue from the sale of consumable products and extended service contracts. In the short-term, these recurring revenue streams may continue to fluctuate from period to period.

Results of Operations

Nine Months Ended September 30, 2011 and 2010

Total Revenue

We recognized total revenue of $651,751 for the nine months ended September 30, 2011 as compared to $1,065,020 during the nine months ended September 30, 2010. This decrease in total revenue was due to a lower number of PCT instrument installations during the nine month period ended September 30, 2011 versus the same period in 2010. The primary reasons for the decrease in Barocycler installations and the reduction in grant revenue are described below.

PCT Products, Services, Other. Revenue from the sale of PCT products and services was $589,063 for the nine months ended September 30, 2011 as compared to $667,262 during the nine months ended September 30, 2010. We recorded 25 PCT installations for the nine months ended September 30, 2011 compared to 37 for the same period in 2010. Revenue from the sale of PCT consumables was approximately $60,000 for the nine months ended September 30, 2011 compared to approximately $81,000 for the same period in 2010.

The decrease in PCT instrument installations and consumables was due to several factors. Our Vice President of Sales resigned in early May 2011. His responsibilities included direct sales in the New England territory and supervision of the three Sales Directors. Sales and marketing activities were further limited during the past two quarters of 2011 compared to the same period in 2010 as a result of our limited financial resources. The decrease in PCT consumable sales was due to the reasons just stated, and also in part to significant purchases of PULSE Tubes (both ND and Shredder) by certain clients during 2010 whose studies ended prior to the second quarter of 2011.

Our domestic and foreign installations of PCT Systems are set forth in the table below:

| | For the Nine Months Ended September 30, | |
|---|---|---|
| | 2011 | 2010 |
| Domestic | 22 | 36 |
| International | 3 | 1 |
| Total PCT System Installations | 25 | 37 |

Grant Revenue. During the nine months ended September 30, 2011 and 2010, we recorded $62,688 and $397,758 of grant revenue, respectively. We started work during the third quarter on a Phase I grant received from the NIH and a Phase II grant received from the United States Department of Defense. During the same period in the prior year, we spent significant time with our collaborative partner on the SBIR Phase II grant previously granted to us.

Cost of PCT Products and Services

The cost of PCT products and services was $250,835 for the nine months ended September 30, 2011 compared to $300,360 for the comparable period in 2010. The decrease corresponds to the decrease in PCT installations and sales of accessories and consumables. Our gross profit margin on PCT products and services stayed steady at 53% for the nine months ended September 30, 2011, as compared to the same period in the prior year.

Research and Development

Research and development expenditures were $730,962 during the nine months ended September 30, 2011 as compared to $980,338 in the same period in 2010. This decrease resulted primarily from the completion of employee stock option vesting and discontinued research by a collaborative partner funded by us through the SBIR Phase II grant, which was completed in 2010.

Research and development expense recognized in the nine months ended September 30, 2011 and 2010 included $36,951 and $56,200 of non-cash, stock-based compensation expense, respectively. A significant number of employee options became fully vested in the first quarter of 2011 with no further expensing offset by employee stock options granted in the third quarter of 2011.

Selling and Marketing

Selling and marketing expenses decreased to $740,358 for the nine months ended September 30, 2011 from $890,265 for the comparable period in 2010. This decrease was primarily due to full vesting of a significant number of employee stock options, reduced marketing activities and employee cost savings relating to the departure of our Vice President of Sales.

During the nine months ended September 30, 2011 and 2010, selling and marketing expense included $40,192 and $56,155 of non-cash, stock-based compensation expense, respectively. A significant number of employee options became fully vested in the first quarter of 2011 with no further expensing offset by employee stock options granted in the third quarter of 2011.

General and Administrative

General and administrative costs totaled $1,351,303 for the nine months ended September 30, 2011 as compared to $1,445,742 for the comparable period in 2010. This decrease was primarily due to significant investor relations and patent related activities incurred in the third quarter of 2010 not continuing in the third quarter of 2011 in an effort to reduce operating costs.

During the nine months ended September 30, 2011 and 2010, general and administrative expense included $36,546 and $115,121 of non-cash, stock-based compensation expense, respectively. A significant number of employee options became fully vested in the first quarter of 2011 with no further expensing offset by employee stock options granted in the third quarter of 2011.

Operating Loss

Our operating loss was $2,421,707 for the nine months ended September 30, 2011 as compared to $2,551,685 for the comparable period in 2010. The decreased operating loss resulted primarily for the reasons noted above.

Interest (expense) income

We recorded $8,013 of interest expense for the nine months ended September 30, 2011 related to our short-term loans. We also amortized approximately $31,000 of imputed interest against the debt discount on these short-term loans.

Change in fair value of warrant derivative liability

During the nine months ended September 30, 2011, we recorded non-cash income of $307,467 for warrant revaluation expense in our statements of operations due to a decrease in the fair value of the warrant liability related to our private placement of units consisting of Series C Convertible Preferred Stock and warrants to purchase shares of common stock. This decrease in fair value was primarily due to a decrease in the price per share of our common stock on September 30, 2011 as compared to June 20, 2011 or April 8, 2011, depending on the tranche of the private placement.

Income Taxes

In the nine months ended September 30, 2010, we recorded a tax benefit of $244,479 related to a tax credit, payable in cash, enacted in 2010 for qualifying research expenditures deducted in 2009. This tax credit was paid in November 2010, and reduced our tax loss carry forward for federal income tax purposes by $488,958. There was no tax consequence in the nine months ended September 30, 2011.

Net Loss

During the nine months ended September 30, 2011, we recorded a net loss to common shareholders of $3,092,843 or $(0.50) per share, as compared to $2,714,413 or $(1.01) per share in the nine months ended September 30, 2010. We recorded $304,823 and $154,389 in the nine months ended September 30, 2011 and 2010, respectively, relating to the beneficial conversion calculation associated with the intrinsic value of the Series C Convertible Preferred Stock and Series B Convertible Preferred Stock. We paid approximately $42,000 in dividends to holders of the Series B Convertible Preferred Stock in the nine months ended September 30, 2011. We also recorded a deemed dividend of $325,595 in connection with warrant modifications, including a reduction of the exercise price and extension of the expiration date, effectuated in the third quarter of 2011.

Year Ended December 31, 2010 as compared to 2009

Revenue

We had total revenue of $1,340,032 in the year ended December 31, 2010 as compared to $1,244,910 in the prior year.

PCT Products, Services, Other. Revenue from the sale of PCT products and services was $877,567 in 2010 as compared to $831,602 in 2009. Increased rental income, higher average selling prices, and supporting equipment sales offset the lower number of PCT installations for the year ended December 31, 2010. We generated consumable sales of $104,924 for the year ended December 31, 2010 compared to $70,343 during the prior year, an increase of $34,581 or 50%. Our domestic and foreign installations of PCT systems are set forth in the table below.

Unit Installations

| | 2010 | 2009 |
|---|---|---|
| Domestic | 42 | 47 |
| International | 8 | 7 |
| Total Installations | 50 | 54 |

Grant Revenue. During 2010, we recorded $462,465 of grant revenue as compared to $413,308 in 2009. Grant revenue recorded during 2010 was related to the $850,000 SBIR Phase II grant that we were awarded in June 2008 and to an SBIR Phase I grant of approximately $110,000 awarded in March 2010. We completed work on both grants in the fourth quarter of 2010.

Cost of PCT Products and Services

The cost of PCT products and services was $376,514 for the year ended December 31, 2010, compared to $402,340 in 2009. Our gross profit margin on PCT products and services increased to 57% for the year ended December 31, 2010, as compared to 52% for 2009. The increase in the gross profit margin on PCT products and services was due primarily to sales of Barocycler units to our international distributors at distributor discounted prices in 2009 and increased rental rates in 2010 on Barocycler leases.

The relationship between the cost of PCT products and services and PCT revenue will depend greatly on the mix of instruments we sell, the quantity of such instruments, and the mix of consumable products that we sell in a given period.

Research and Development

Research and development expenditures increased to $1,232,566 during 2010 from $1,175,136 in 2009 an increase of $57,430 or 5%. This increase resulted primarily from increased costs relating to work on the SBIR Phase II grant.

Research and development expense included $73,097 and $137,160 of non-cash, stock-based compensation in 2010 and 2009, respectively.

Selling and Marketing

Selling and marketing expenses increased to $1,204,892 in 2010 from $1,054,869 in 2009, an increase of $150,023 or 14%. This increase was primarily due to marketing activities, recruiting efforts of sales personnel and compensation for a new sales director.

Selling and marketing expense included $72,609 and $73,689 of non-cash, stock-based compensation expense in 2010 and 2009, respectively.

General and Administrative

General and administrative costs totaled $1,924,814 in the year ended December 31, 2010, as compared to $1,809,133 in 2009, an increase of $115,681 or 6%. The increase is principally due to the expenses of patent filings and investor relations activities offset by stock option vesting occurring in 2010.

During the years ended December 31, 2010 and 2009, general and administrative expense included $127,475 and $218,155 of non-cash, stock-based compensation expense, respectively. The year ended December 31, 2009 includes a grant of stock options to purchase an aggregate of 485,000 shares of our common stock in total to our employees and our then four independent directors, resulting in a charge of $112,943 during 2009. The year ended December 31, 2009 also includes a one-time charge of $15,675 of non-cash stock-based compensation expense in connection with the grant of a non-qualified, fully-vested option to purchase 15,000 shares of our common stock to our new independent director joining us in 2009. We awarded fully-vested options to purchase 15,000 shares of our common stock to each of our two new independent directors who joined us in 2010 for a one-time charge of $31,995.

Operating Loss

Our operating loss was $3,398,754 for the year ended December 31, 2010 as compared to $3,196,568 for the comparable period in 2009, an increase of $202,186 or 6%. The additional operating loss resulted primarily because of the factors noted above.

Interest Income

Interest income totaled $2,303 for the year ended December 31, 2010 as compared to $4,990 for the year ended December 31, 2009. The decrease is due to lower average cash balances and lower yields on these balances during the year ended December 31, 2010, as compared to 2009.

Therapeutic Discovery Credit

In November 2010, we were awarded a $244,000 grant under the Qualifying Therapeutic Discovery Project (QTDP) program under The Patient Protection and Affordable Care Act of 2010 (PPACA).

Income Taxes

The benefit of $23,710 that was realized in 2010 relates to new legislation within the Housing Assistance Tax Act of 2008 which provided us with the option to claim a refundable tax credit in exchange for foregoing bonus depreciation. In the year ended December 31, 2009, we recorded a refund of income taxes of $623,262 due to

provisions in the American Recovery and Reinvestment Act of 2009 relating to net operating loss carry-backs. The cash was received in August 2009.

Net Loss

During the year ended December 31, 2010, we recorded a net loss applicable to common shareholders of $3,654,536 or $(1.36) per share, as compared to $3,284,779 or $(1.42) per share in 2009. The difference between net loss

applicable to common shareholders and net loss relates to the beneficial conversion calculation associated with the intrinsic value of the Series A Convertible Preferred Stock and Series B Convertible Preferred Stock. See Note 2 of the Notes to Consolidated Financial Statements for the year ended December 31, 2010 under the heading, "Computation of Loss per Share."

Liquidity and Capital Resources

Comparative Cash Flow Analysis

Nine Months Ended September 30, 2011 and 2010

As of September 30, 2011, our working capital position, excluding the warrant derivative liability of $284,437, was $195,054. As of December 31, 2010, our working capital position was $1,443,765.

On March 18, 2010, we sold an aggregate of 26,672 units (the "Series B Units") for a purchase price of $18.80 per unit, resulting in net proceeds to us of $465,867. An initial tranche of Series B Units was sold in November 2009 with net proceeds of $1,078,885. Each Series B Unit issued in the March 2010 tranche consisted of (i) one share of Series B Convertible Preferred Stock convertible into 10 shares of our common stock and (ii) a warrant to purchase one share of Series B Convertible Preferred Stock at an exercise price equal to $28.80 per share with a term expiring on August 11, 2011 ("Series B Warrant").

In connection with the warrant call notice issued on March 30, 2010, 15 Month Series A Preferred Stock Warrants to purchase 98,372 shares of Series A Convertible Preferred Stock were exercised at $12.50 per share, for net proceeds to the Company of $1,421,275 in March and April 2010, before deducting expenses associated with the warrant call notice. Warrants to purchase an additional 10,150 shares of Series A Preferred Stock were exercised on a cashless basis, resulting in the net issuance of 2,883 shares of Series A Preferred Stock.

On April 8, 2011 and April 12, 2011, we completed the first tranche of a private placement, pursuant to which we sold an aggregate of 55,048 units for a purchase price of $15.00 per unit, resulting in gross proceeds to us of $825,720. This was the first tranche of a Series C Convertible Preferred Stock private placement. In connection with the second tranche, the purchase price was reduced to $12.50 per unit and we issued an additional 11,011 units to the purchasers who participated in the first tranche, without any additional gross proceeds to us. The second tranche closed on June 20, 2011 for the sale of 22,039 units for a purchase price of $12.50 per unit with gross proceeds of $275,485. Each unit consisted of (i) one share of Series C Convertible Preferred Stock, convertible into 10 shares of our common stock, (subject to adjustment for stock splits, stock dividends, recapitalization, etc.) and (ii) a three-year warrant to purchase 10 shares of our common stock at a per share exercise price equal to the sum of (i) the common stock equivalent of the Series C Convertible Preferred Stock private placement unit purchase price (ii) plus $0.88. The warrants issued in the Series C Convertible Preferred Stock private placement will be exercisable until the close of business on the third anniversary of the applicable closing date.

During the three months ended September 30, 2011, we received loans in the aggregate amount of $412,000 from five individuals. Each of the loans have a term of six months, which may be extended with the consent of the lender. The interest rate under the promissory notes is 20% per annum.

Our accounts payable were $658,977 as of September 30, 2011, as compared to $234,568 as of December 31, 2011. This increase is due to our efforts to conserve cash for use in operating the business.

Based on our current projections, including equity financing completed subsequent to September 30, 2011, we believe our current cash resources will enable us to extend our cash resources until February 2012.

We will need substantial additional capital to fund our operations in periods beyond February 2012. If we are able to obtain additional capital or otherwise increase our revenues, we may increase spending in specific research and development applications and engineering projects and may hire additional sales personnel or invest in targeted marketing programs. In the event that we are unable to obtain financing on acceptable terms, or at all, we will likely be required to cease our operations, pursue a plan to sell our operating assets, or otherwise modify our business strategy, which could materially harm our future business prospects.

Net cash used in operations for the nine months ended September 30, 2011 was $1,529,950 as compared to $2,461,421 for the nine months ended September 30, 2010. The prior period included accrued legal fees incurred in connection with the Series B Units financing and the release of our inventory deposits when Barocyclers were built offset by Barocycler sales.

Net cash used in investing activities for the nine months ended September 30, 2011 was $0 as compared to $86,949 for the same period in the prior year. We purchased tooling and Barocycler equipment for lease arrangements in the prior year.

Net cash provided by financing activities for the nine months ended September 30, 2011 was $1,274,071 as compared to $1,887,142 for the same period in the prior year. We raised approximately $1.1 million in gross proceeds during the nine months ended September 30, 2011 from the Series C Convertible Preferred Stock private placement offset by approximately $378,000 in offering costs excluding the issuance of additional warrants to the placement agent. We also received six-month loans of $412,000 in the current year. During the same period in the prior year, we closed the second tranche of the Series B Units private placement on March 18, 2010 with the sale of 26,672 Series B Units with net proceeds of $465,867. Warrants were exercised for a total of $1,421,275 in gross proceeds to the Company in the nine months ended September 30, 2010.

Fiscal year ended December 31, 2010 compared to fiscal year ended December 31, 2009

As of December 31, 2010, our working capital position was $1,443,765, the primary components of which were cash and cash equivalents, accounts receivable, inventory, prepaid expenses, and deposits, partially offset by accounts payable, accrued employee compensation, and other accrued expenses. As of December 31, 2009, our working capital balance was $2,209,205, the primary components of which were cash and cash equivalents, income taxes receivable, prepaid expenses, and deposits.

On February 12, 2009, we completed a private placement, pursuant to which we sold an aggregate of 156,980 units (the “Series A Units”) for a purchase price of $11.50 per unit (the “Series A Purchase Price”), resulting in gross proceeds to us of $1,805,270.

On November 18, 2009, we sold an aggregate of 62,039 Series B Units for a purchase price of $18.80 per Series B Unit in the Series B Units private placement, resulting in gross proceeds to us of $1,166,333.20 with offering costs of $115,350. We closed on the second tranche of the Series B Units private placement on March 18, 2010 with the sale of an additional 26,672 Series B Units for a purchase price of $18.80 per Series B Unit with gross proceeds of $501,434 and net proceeds to us of $465,867 after offering costs.

In connection with the Series B Units private placement, we paid a finder’s fee of $100,478, plus warrants to purchase 5,344 shares of Series B Convertible Preferred Stock at $28.80 per share, expiring August 11, 2012.

On March 31, 2010, we exercised our right to call the 15-month Series A Convertible Preferred Stock warrants and, as a result 15-month Series A Convertible Preferred Stock warrants to purchase 98,372 shares of Series A Convertible Preferred Stock were exercised at $12.50 per share, for gross proceeds to us of $1,229,650, before deducting associated expenses. 15-month Series A Convertible Preferred Stock warrants to purchase an additional 10,150 shares of Series A Convertible Preferred Stock were exercised on a cashless basis, resulting in the net issuance of 2,883 shares of Series A Convertible Preferred Stock.

Net cash used in operations during 2010 was $2,872,180 as compared to net cash used in operations of $1,809,261 during 2009. The increase in cash used in operations in 2010 as compared to 2009 is principally due to an increase in

Barocycler inventory of $638,900 and an increase in operating loss of $340,563 excluding stock-based compensation and depreciation and amortization.

Net cash used in investing activities during 2010 was $92,111 as compared to net cash used in investing activities of $152,925 in the prior year. During the year ended December 31, 2010, we purchased a Barocycler skin mold and installed Barocycler instruments under collaboration or lease agreements while selling several

demonstration units. Cash used in investing activities during 2009 was for Barocycler instruments that we purchased and installed under collaboration or lease agreements.

Net cash provided by financing activities during 2010 was $1,907,362. We closed the second tranche of the Series B Units private placement on March 18, 2010 with the sale of an additional 26,672 Series B Units with net proceeds to us of $465,867. Several stock options were exercised for a total of $20,220 received by us. We also received gross proceeds of $1,229,650, before deducting associated expenses, in connection with the call and related exercise of the 15-month Series A Convertible Preferred Stock warrants.

Net cash provided by financing activities for the year ended December 31, 2009 included a stock warrant exercise and the sale of Series A Units and Series B Units, together resulted in net proceeds of $2.7 million.

Commitments and Contingencies

Operating Leases

Our corporate offices are currently located at 14 Norfolk Avenue, South Easton, Massachusetts 02375. In November 2007, we signed a lease agreement commencing in February 2008 pursuant to which we lease approximately 5,500 square feet of office space. We renewed the lease until August 31, 2011 with no increase in the monthly payment and we are negotiating an extension of the lease. We currently pay approximately $6,500 per month on a month-to-month basis for the use of these facilities.

Effective January 1, 2010, we entered into a three-year lease agreement with the University of Massachusetts, pursuant to which we are leasing laboratory and office space on campus at the university. We are paying $5,000 per month for the use of these facilities.

Royalty Commitments

In 1996, we acquired our initial equity interest in BioSeq, Inc., which at the time was developing our original pressure cycling technology. BioSeq, Inc. acquired its pressure cycling technology from BioMolecular Assays, Inc. (“BMA”) under a technology transfer and patent assignment agreement. In 1998, we purchased all of the remaining outstanding capital stock of BioSeq, Inc., and at such time, the technology transfer and patent assignment agreement was amended to require us to pay BMA a 5% royalty on our sales of products or services that incorporate or utilize the original pressure cycling technology that BioSeq, Inc. acquired from BMA. We are also required to pay BMA 5% of the proceeds from any sale, transfer or license of all or any portion of the original pressure cycling technology. These payment obligations terminate in 2016. During the years ended December 31, 2010 and 2009, we incurred $36,330 and $30,548, respective in royalty expense, and during the nine months ended September 30, 2011 and 2010, we incurred $18,962 and $17,281, respectively, in royalty expense, associated with our obligation to BMA.

In connection with our acquisition of BioSeq, Inc., we licensed certain limited rights to the original pressure cycling technology back to BMA. This license is non-exclusive and limits the use of the original pressure cycling technology by BMA solely for molecular applications in scientific research and development and in scientific plant research and development. BMA is required to pay us a royalty equal to 20% of any license or other fees and royalties, but not including research support and similar payments, it receives in connection with any sale, assignment, license or other transfer of any rights granted to BMA under the license. BMA must pay us these royalties until the expiration of the patents held by BioSeq, Inc. in 1998, which we anticipate will be in 2016. We have not received any royalty payments from BMA under this license.

Battelle Memorial Institute

In December 2008, we entered into an exclusive patent license agreement with the Battelle Memorial Institute ("Battelle"). Pursuant to the terms of the agreement we paid Battelle a non-refundable initial fee. In addition to royalty payments on net sales on “licensed products”, we are obligated to make minimum royalty payments of $5,000 for each year that we retain the rights outlined in the patent license agreement and we are required to have our first commercial sale of the licensed products within one year following the issuance of the patent covered by the licensed technology.

Target Discovery Inc.

In March 2010, we signed a strategic product licensing, manufacturing, co-marketing, and collaborative research and development agreement with Target Discovery Inc. (“TDI”). Under the terms of the agreement, we have been licensed by TDI to manufacture and sell a line of chemicals used in the preparation of tissues for scientific analysis ("TDI reagents"). The TDI reagents were designed for use in combination with our pressure cycling technology.

Severance and Change of Control Agreements

Each of our executive officers is entitled to receive a severance payment if terminated by us without cause. The severance benefits would include a payment in an amount equal to one year of each executive officer’s annualized base salary compensation plus accrued paid time off. Additionally, each executive officer will be entitled to receive medical and dental insurance coverage for one year following the date of termination. As of September 30, 2011, the total commitment related to these agreements in the aggregate is approximately $0.9 million, of which $83,500 is accrued as personal time off within accrued compensation.

Each of our executive officers, other than Mr. Richard T. Schumacher, our President and Chief Executive Officer, is entitled to receive a change of control payment in an amount equal to one year of such executive officer’s annualized base salary compensation, accrued paid time off, and medical and dental coverage, in the event of a change of control of our company. In the case of Mr. Schumacher, this payment would be equal to two years of annualized base salary compensation, accrued paid time off, and two years of medical and dental coverage. As of September 30, 2011, the total commitment related to these agreements in the aggregate is approximately $1.2 million, of which $83,500 is accrued as personal time off within accrued compensation.

Investment Banking Agreement

On November 4, 2011, we entered into an agreement with a former placement agent, pursuant to which we released the placement agent and the placement agent released us of their respective obligations under a prior investment banking agreement. In connection with this agreement, we issued the placement agent a promissory note with an original principal amount of $150,000 with a maturity date of May 4, 2012. The promissory note is interest free, provided that, if we do not repay the principal amount on or before the maturity date, it will accrue interest at a rate of 18% per annum.

Critical Accounting Policies and Significant Judgments and Estimates

Principles of Consolidation

The consolidated financial statements include the accounts of Pressure BioSciences, Inc., and its wholly-owned subsidiary PBI BioSeq, Inc. All intercompany accounts and transactions have been eliminated in consolidation.

Use of Estimates

To prepare our consolidated financial statements in conformity with generally accepted accounting principles, we are required to make significant estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. In addition, significant estimates are made in projecting future cash flows to quantify impairment of assets, deferred tax assets and the costs associated with fulfilling our warranty obligations for the instruments that we sell, in our calculation of fair value of stock options

awarded, and our allocation of the proceeds from our equity financings between the preferred stock and warrants sold. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results could materially differ from the estimates and assumptions used.

Revenue Recognition

We recognize revenue in accordance with FASB ASC 605, Revenue Recognition. Revenue is recognized when realized or earned when all the following criteria have been met: persuasive evidence of an arrangement exists; delivery has occurred and risk of loss has passed to the customer; the seller's price to the buyer is fixed or determinable; and collectability is reasonably assured.

Our current instruments, the Barocycler NEP3229 and NEP2320, require a basic level of instrumentation expertise to set up for initial operation. To support a favorable first experience for our customers, we send a highly trained technical representative to the customer site to install every Barocycler that we sell, lease, or rent through our domestic sales force. The installation process includes uncrating and setting up the instrument, followed by introductory user training. Product revenue related to current Barocycler instrumentation is recognized upon the completion of the installation and introductory training process of the instrumentation at the customer location, for domestic installations. Product revenue related to sales of PCT instrumentation to our foreign distributors is recognized upon shipment through a common carrier. We provide for the expected costs of warranty upon the recognition of revenue for the sales of our instrumentation. Our sales arrangements do not provide our customers with a right to return products they have purchased from us. Product revenue related to our consumable products such as PULSE Tubes, MicroTubes, and application specific kits is recorded upon shipment through a common carrier. Shipping costs are included in sales and marketing expense. Any shipping costs billed to customers are recognized as revenue.

In accordance with FASB ASC 840, Leases, we account for our lease agreements under the operating method. We record revenue over the life of the lease term and we record depreciation expense on a straight-line basis over the thirty-six month estimated useful life of the Barocycler instrument. The depreciation expense associated with assets under lease agreements is included in the "Cost of PCT products and services" line item in our consolidated statements of operations. Many of our lease agreements allow the lessee to purchase the instrument at any point during the term of the agreement with partial or full credit for payments previously made. We pay all maintenance costs associated with the instrument during the term of the leases.

Revenue from government grants is recorded when expenses are incurred under the grant in accordance with the terms of the grant award.

Our transactions sometimes involve multiple elements (i.e., products and services). Revenue under multiple element arrangements is recognized in accordance with FASB ASC 605-25, Multiple Element Arrangments. If an arrangement includes undelivered elements that are not essential to the functionality of the delivered elements, we defer the fair value of the undelivered elements with the residual revenue allocated to the delivered elements. Fair value is determined based upon the price charged when the element is sold separately. If there is not sufficient evidence of the fair value of the undelivered elements, no revenue is allocated to the delivered elements and the total consideration received is deferred until delivery of those elements for which objective and reliable evidence of the fair value is not available. We provide certain customers with extended service contracts and, to the extent vendor specific objective evidence, or VSOE, is established, these service revenues are recognized ratably over the life of the contract, which is generally one to four years.

Intangible Assets

We have classified as intangible assets, costs associated with the fair value of acquired intellectual property. Intangible assets including patents are amortized on a straight-line basis over 16 years. Our intangible assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable. When impairment is indicated, any excess of carrying value over fair value is recorded as a

loss. As of December 2, 2011, no event has come to our attention that would cause us to record an impairment of intangible assets.

Long-Lived Assets and Deferred Costs

In accordance with FASB ASC 360-10-05, Property, Plant, and Equipment, if indicators of impairment exist, we assess the recoverability of the affected long-lived assets by determining whether the carrying value of such assets can be recovered through the undiscounted future operating cash flows related to the long-lived assets. If impairment is indicated, we measure the amount of such impairment by comparing the carrying value of the asset to the fair value of the asset and record the impairment as a reduction in the carrying value of the related asset and a charge to operating results. While our current and historical operating losses and cash flow are indicators of impairment, we performed an impairment analysis at December 31, 2010 and determined that our long-lived assets were not impaired.

Warrant Derivative Liability

The warrants to purchase common stock issued with the shares of Series C Convertible Preferred Stock are measured at fair value and liability-classified because these warrants contain "down-round protection" and therefore, do not meet the scope exception for treatment as a derivative under ASC 815, Derivatives and Hedging, ("ASC 815"). Since "down-round protection" is not an input into the calculation of the fair value of the warrants, the warrants cannot be considered indexed to our common stock which is a requirement for the scope exception as outlined under ASC 815. The estimated fair value of the warrants was determined using the Black-Scholes formula, resulting in an allocation of the gross proceeds to the total warrants issued. The fair value will be affected by changes in inputs to that model including our common stock price, expected stock price volatility, the contractual term, and the risk-free interest rate. We will continue to classify the fair value of the warrants as a liability until the warrants are exercised, expire or are amended in a way that would no longer require these warrants to be classified as a liability, whichever comes first. This down-round protection expires 12 months subsequent to the issuance of the Series C Units.

Determining Fair Value of Stock Option Grants

Valuation and Amortization Method - The fair value of each option award is estimated on the date of grant using the Black-Scholes pricing model based on certain assumptions. The estimated fair value of employee stock options is amortized to expense using the straight-line method over the vesting period.

Expected Term - We use the simplified calculation of expected life, as we do not currently have sufficient historical exercise data on which to base an estimate of expected term. Using this method, the expected term is determined using the average of the vesting period and the contractual life of the stock options granted.

Expected Volatility - Expected volatility is based on our historical stock volatility data over the expected term of the award.

Risk-Free Interest Rate - We base the risk-free interest rate used in the Black-Scholes valuation method on the implied yield currently available on U.S. Treasury zero-coupon issues with an equivalent remaining term.

Forfeitures – We record stock-based compensation expense only for those awards that are expected to vest. Specifically, we estimate the forfeiture rate and adjusts the expense that it recognizes to reflect the estimated number of stock options that will go unexercised. We estimate a forfeiture rate of 5% for awards granted based on historical experience and future expectations of options vesting.

New Accounting Pronouncements

The Financial Accounting Standards Board, or "FASB," issued Accounting Standards Update, or ASU No. 2009-13, Revenue Recognition (Topic 605) — Multiple-Deliverable Revenue Arrangements, or ASU 2009-13. ASU 2009-13 amends existing revenue guidance related to revenue arrangements with multiple deliverables to allow the

use of companies' estimated selling prices as the value for deliverable elements under certain circumstances and to eliminate the use of the residual method for allocation of deliverable elements. ASU 2009-13 is effective for fiscal years beginning on or after June 15, 2010, with earlier adoption permitted. We are evaluating the impact this standard will have on its financial statements.

In January 2010, the FASB issued ASU 2010-06 "Fair Value Measurements and Disclosures" ("ASU 2010-06"). ASU 2010-06 updated section ASC 820-10, Fair Value Measurements and Disclosures, to require a greater level of disaggregated information and more robust disclosure about valuation techniques and inputs to fair value measurements. ASU 2010-06 is effective for interim and annual reporting periods beginning after December 15, 2009, with the exception of the disclosures about purchases, sales, issuances and settlements in the roll forward of activity in Level 3 fair value measures which are effective for interim and annual reporting periods beginning after December 15, 2010. We have determined that there is no significant impact to our operations from this guidance because we invest in assets considered to be in Level 1 status.

## BUSINESS OVERVIEW

We are focused on solving the challenging problems inherent in biological sample preparation, a crucial laboratory step performed by scientists worldwide working in biological life sciences research. Sample preparation is a term that refers to a wide range of activities that precede most forms of scientific analysis. Sample preparation is often complex, time-consuming, and in our belief, one of the most error-prone steps of scientific research. It is a widely used laboratory undertaking, the requirements of which drive what we believe is a large and growing worldwide market. We have developed and patented a novel, enabling technology platform that can control the sample preparation process. It is based on harnessing the unique properties of high hydrostatic pressure. This process, called pressure cycling technology, or PCT, uses alternating cycles of hydrostatic pressure between ambient and ultra-high levels (35,000 psi or greater) to safely, conveniently and reproducibly control the actions of molecules in biological samples, such as cells and tissues from human, animal, plant, and microbial sources.

Our pressure cycling technology uses internally developed instrumentation that is capable of cycling pressure between ambient and ultra-high levels - at controlled temperatures and specific time intervals - to rapidly and repeatedly control the interactions of bio-molecules, such as DNA, RNA, proteins, lipids, and small molecules. Our laboratory instrument, the Barocycler®, and our internally developed consumables product line, include PULSE (Pressure Used to Lyse Samples for Extraction) Tubes, other processing tubes, and application specific kits (which include consumable products and reagents) together make up our PCT Sample Preparation System, or PCT SPS.

We have experienced negative cash flows from continuing operations since the inception of our PCT business, and these losses are expected to continue over at least the next twelve months. As of December 2, 2011, we had a total cash balance of approximately $443,000, which we believe will fund our operations only into February 2012.

Despite the uncertainty in the capital markets since 2009 and the concomitant decrease in the capital budgets of our existing and prospective customers and despite our limited financial resources, during this time, we reported a number of accomplishments during the past three years, some of which are indicated below:

2009

- Sale of Series A and B (first tranche) Convertible Preferred Stock in a Private Placement. We received approximately $1.8 million and $1.1 million from the sale of securities in two private placements to accredited investors in February and November, respectively.

-

SBIR Phase I Grant to Study the Human Microbiome. We were awarded approximately $110,000 from the NIH to study microorganisms that live on or in the human body.

- Most Outstanding Manuscript for 2009. Our research and development scientists were awarded the prize for the "most outstanding manuscript for 2009" from the Journal of Biomolecular Techniques.

- Three United States Department of Agriculture ("USDA") Scientists Present Data on the Advantages of PCT. Resarchers from three different USDA sites presented data at a national conference citing the advantages of PCT in the detection of microorganisms in food crops.

    - Addition to our Board of Directors. We added Mr. Alan D. Rosenson to our board of directors.

- Release of Two New Consumable, PCT-based Products. We released two new PCT-based kits to the market, focused in the area of genomics (DNA, RNA) research.

- PCT Shown to Improve the Detection of DNA in the Forensics Samples. Scientists presented data at the Annual International Society for Human Identity indicating that PCT improved the detection of DNA in challenging forensics samples.

- Our PCT Revenue Exceeds $1 Million for the First Time. We posted total revenue of approximately $1.2 million, while showing a significant decrease in expenses.

2010

- Sale of Series B Convertible Preferred Stock in a Private Placement. We received approximately $500,000 from the sale of securities in a private placement to accredited investors in March.

- Exercise of 100% of our 15-Month Series A Preferred Stock Purchase Warrants. We received $1,229,650 from the exercise of 98,372 15-Month Series A Preferred Stock Purchase Warrants. As a result, when combined with previous exercises, 100% of the 15-Month Series A Stock Purchase Warrants had been exercised.

- Therapeutic Discovery Grant Program. We received $244,479 related to a federal tax credit enacted in 2010 for qualifying research expenditures deducted in 2009. The program was designed for companies with 250 employees or less. Its goal was to support investment in qualified biomedical projects that show potential to develop new therapies, address unmet medical needs, and reduce the long-term growth of healthcare costs.

    - Patents Granted. We were issued five additional patents related to our PCT platform. Of the five patents, one was granted in the U.S., one in Japan, one in Canada, and two in Australia. With these grants, we have 24 issued PCT patents: 14 in the U.S., three in Europe, three in Australia, two in Canada, and two in Japan.

- Collaboration with the Lawrence Berkeley National Laboratory ("LBNL") – Scientists at LBNL used our PCT platform in studies aimed at improving the analysis of microorganisms in environments with low biomass, such as oil reservoirs or deep sea oil plumes from oil spills. These scientists have suggested that improved microbe analysis may lead to better strategies for oil spill clean-up.

- Cooperative Research and Development Agreement, or CRADA with the Armed Forces Institute of Pathology. A CRADA was announced with the purpose of developing pressure-based methods to improve the quality and speed of formalin fixed, paraffin embedded, or FFPE tissue preparations, and to improve the quality and yield of biomolecule extraction (DNA, RNA, Proteins, Lipids, Small Molecules) from archival FFPE tissue samples.

- Product Licensing, Manufacturing, Co-Marketing, and Collaborative R&D Agreement. We announced a strategic product licensing, manufacturing, co-marketing, and collaborative research and development agreement with Target Discovery Inc.

- Launch of New Products. We announced the launch of the Shredder SG3 and two new kits for the isolation of mitochondria from two kinds of solid tissues - skeletal muscle and lung.

- Revenue Growth. We posted total revenue of approximately $1.3 million, as compared to approximately $1.2 million in 2009.

2011

- Sale of Series C Convertible Preferred Stock in a Private Placement. We received approximately $1.1 million from the sale of securities in a private placement to accredited investors in April and June.

- Worldwide e-Commerce Distribution Deal Signed. We signed a worldwide, non-exclusive agreement with KeraFAST LLC for the e-commerce distribution of our Shredder SG3, related Shredder consumables, our IEF buffer.

- Product Pipeline for 2011 – 2013 Announced. We announced our targeted schedule for the release of four new PCT-based products: the Barocycler HUB440 (July 2011), the FFPE Extraction Service (Q4 of 2012), the XstreamPCT HPLC Digestion Module (Q4 of 2013), and the High Throughput Multi-well System (Q4 2013).

- Multiple Presentations on the Advantages of PCT at National and International Meetings. Researchers from academia, government, pharma, and the biotechnology industry reported advantages when using our PCT Platform in their sample preparation processes at four scientific conferences between May and September 2011.

- 100% Conversion of Series A Convertible Preferred Stock and Series B Convertible Preferred Stock. All 87 holders of the Company's Series A Convertible Preferred Stock and Series B Convertible Preferred Stock voluntarily converted their shares into our common stock.

- We were Awarded $810,000 in National Institutes of Health and Department of Defense Grants. We were awarded approximately $160,000 from the National Institutes of Health to help fund the development of a high pressure-based system to improve the processing of cancer and other samples, and approximately $650,000 from the Department of Defense to help fund the development of a PCT-based system to improve the processing of pathogenic organisms, specifically viruses and bacteria.

- Registered Direct Offering with Net Proceeds of Approximately $843,000. We sold approximately $843,000 of Series D Convertible Preferred Stock and warrants to purchase shares of our common stock in a registered direct offering

- Q3 2011 Results. We reported an approximate 50% increase in total revenue for Q3 compared to Q1 and Q2, with concomitant reductions in operating loss and cash burn.

In January 2010, we moved our research and development department to new laboratories at the Venture Development Center of the University of Massachusetts Boston ("UMass VDC"). The UMass VDC offers us a number of advantages, including: state-of-the-art laboratory facilities; the opportunity to work with other life science development stage companies, the opportunity to network with life science departments within the University of Massachusetts system, and access to part-time help from the students in the Biology program at UMass Boston.

Since we began operations as Pressure BioSciences in February 2005, we have installed 203 Barocycler instruments through the end of September 30, 2011, of which 131 have been purchased or are currently being leased by our customers. Our customers include researchers at academic laboratories, government agencies, biotechnology,

pharmaceutical and other life sciences companies in the United States, and distribution partners in foreign countries.

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | YTD 2011 |
|---|---|---|---|---|---|---|---|
| Installed units | 5 | 8 | 20 | 41 | 54 | 50 | 25 |

We hold 14 United States and 10 foreign patents covering multiple applications of PCT in the life sciences field. Our pressure cycling technology employs a unique approach that we believe has the potential for broad use in a number of established and emerging life sciences areas, including;

-sample preparation for genomic, proteomic, and small molecule studies;
-pathogen inactivation;
-protein purification;
-control of chemical (particularly enzymatic) reactions; and
-immunodiagnostics.

Corporate Information

We were incorporated in the Commonwealth of Massachusetts in August 1978 as Boston Biomedica, Inc. In September 2004, we completed the sale of the Boston Biomedica core business units and began to focus exclusively on the development and commercialization of the PCT platform. Following this change in business strategy, we changed our legal name from Boston Biomedica, Inc. to Pressure BioSciences, Inc., or PBI, and commenced operations as Pressure BioSciences in February 2005.

Available Information

Our Internet website address is http://www.pressurebiosciences.com. Through our website, we make available, free of charge, reports we file with the Securities and Exchange Commission (“SEC”) including our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to those reports, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. These SEC reports can be accessed through the investor relations section of our website. The information found on our website is not part of this or any other report we file with or furnish to the SEC.

You may read and copy any materials we file with the SEC at the SEC’s Public Reference Room at 100 F Street, NE, Washington, DC 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also maintains an Internet website that contains reports, proxy and information statements, and other information regarding Pressure BioSciences and other issuers that file electronically with the SEC. The SEC’s Internet website address is http://www.sec.gov.

Sample Preparation for Genomic, Proteomic, and Small Molecule Studies

The Market

Since February 2005, we have focused substantially all of our research and development and commercialization efforts on sample preparation for genomic, proteomic, and small molecule studies. This market is comprised of academic and government research institutions, biotechnology and pharmaceutical companies, and other public and private laboratories that are engaged in studying genomic, proteomic and small molecule material within plant and animal cells and tissues.

We elected to initially focus our resources in the market of genomic, proteomic, and small molecule sample preparation because we believe it is an area that:

-is a rapidly growing market;

-has a large and immediate need for better technology;

-is comprised mostly of research laboratories, which are subject to minimal governmental regulation;

-is the least technically challenging application for the development of our products;

-is compatible with our technical core competency; and

-is the area in which we currently have strong patent protection.

We believe that our existing Barocycler instrumentation, and PCT consumable products, fill an important and growing need in the sample preparation market for the safe, rapid, versatile, reproducible, and quality extraction of nucleic acids, proteins, and small molecules from a wide variety of plant and animal cells and tissues.

Mass Spectrometry

Mass spectrometry is frequently used by research scientists to evaluate proteins and nucleic acids (DNA and RNA). We believe that mass spectrometry is one of the most powerful laboratory tools used today and that it is playing an increasingly important role in the analysis of biological samples in life sciences research. A number of companies and research laboratories in this market are currently our customers, or are in the process of evaluating our technology for use in their laboratories.

Our plan is to focus primarily on the application of PCT-enhanced protein digestion for the mass spectrometry market and the advantages of PCT in this market, and the use of PCT in biomarker discovery, soil and plant biology, counter bio-terror and tissue pathology applications.

Sample Extraction Process

The process of preparing samples for genomic, proteomic, and small molecule studies includes a crucial step called sample extraction, or sample disruption. This is the process of extracting nucleic acid (DNA and/or RNA), proteins, or small molecules from the plant or animal cells and tissues that are being studied. Sample preparation is widely regarded as a significant impediment to research and discovery, and sample extraction is generally regarded as the key part of sample preparation. Our current commercialization efforts are based upon our belief that pressure cycling technology provides a superior solution to sample extraction compared to other available technologies or procedures, and can thus significantly improve the quality of sample preparation.

Collaboration Program

Our collaboration program is an important element of our business strategy. Initiating a collaboration with a researcher involves the installation of a Barocycler instrument for an agreed upon period of time, generally three to six months, and the execution of an agreed upon work plan. Our primary objectives for entering into a collaboration agreement include:

-the development of a new application for PCT in sample preparation;

-the advancement and validation of our understanding of PCT within an area of life sciences in which we already have products;

-the demonstration of the effectiveness of PCT to specific research scientists who we believe can have a positive impact on market acceptance of PCT; and

-the expectation of peer-reviewed publications and/or presentations at scientific meetings by a third party on the merits of PCT.

Since we initiated our collaboration program in June 2005, third party researchers have cited the use of our PCT platform in publications and presentations. We believe that this program has provided, and continues to provide us

with independent and objective data about PCT from well-respected laboratories throughout the United States. Below is a list of selected publications by various researchers based on their experiences with PCT:

| Title | Authors | Category | Affiliation | Reference |
|---|---|---|---|---|
| High-pressure EPR reveals conformational equilibria and volumetric properties of spin-labeled proteins | John McCoy<br>Wayne L. Hubbell | Paper | University of California, Los Angeles | PNAS Early Edition Dec 6, 2010 |
| Application of Pressure Cycling Technology (PCT) in Differential Extraction | Deepthi Nori<br>Bruce McCord | Poster | Florida International University | 21st International Symposium on Human Identification |
| A Proteomics Jurassic Park:<br>The isolation of proteins from microorganisms encapsulated in amber from the Oligo-Miocene epoch 30-40 million years ago | Gary B. Smejkal.<br>George O. Poinar Jr<br>Feixia Chu<br>PierGiorgio Righetti | Poster | Harvard Clinical and Translational Science Center, Laboratory for Innovative Translational Technologies<br>University of New Hampshire | Human Proteome Organization (HUPO) Sep 2010 9th World Congress |
| A Comparative Study of In-Gel Digestions Using Microwave and Pressure-Accelerated Technologies | Rudy Alvarado<br>Diana Tran<br>Bonnie Ching<br>Brett S. Phinney | Paper | UC Davis Proteomics Core Facility,<br>University of California Davis Genome Center | Journal of Biomolecular Techniques Sep 21, 2010 |

Company Products

We believe our PCT products allow researchers to improve scientific research studies in the life sciences field. Our products are developed with the expectation of meeting or exceeding the needs of research scientists while enhancing the safety, speed, and quality that is available to them with existing sample preparation technology.

Barocycler Instrumentation

Our Barocycler product line consists of laboratory instrumentation that subjects a sample to cycles of pressure from ambient to ultra-high levels and then back to ambient, all in a precisely controlled manner. Our instruments, the Barocycler NEP3229 and Barocycler NEP2320, use cycles of high hydrostatic pressure to quickly and efficiently break up the cellular structures of a specimen to release nucleic acids, proteins, lipids and small molecules from the specimen into our consumable processing tube, referred to as our PULSE Tubes. Our Barocycler instrumentation is designed to fit on a laboratory bench top, inside a biological safety cabinet, or on the shelf of a laboratory cold room. Our instruments have an external chiller hook-up (to control temperature during the PCT process), automatic fill and dispensing valves, and an integrated micro-processor keypad. The microprocessor is capable of saving up to 99 specific PCT protocols, so the researcher can achieve maximum reproducibility for the extraction of nucleic acids, proteins, lipids, or small molecules from various biological samples. Our Barocycler instruments, together with our consumable products described below, make up our current PCT Sample Preparation System (“PCT SPS”).

Barocycler NEP3229 – The Barocycler NEP3229 contains two units, a user interface and a power source, comprised primarily of a 1.5 horsepower motor and pump assembly (hydraulic). Combined, the two components of the NEP3229 weigh approximately 350 pounds. The Barocycler NEP3229 is capable of processing up to three samples simultaneously using our specially designed, single-use PULSE Tubes.

Barocycler NEP2320 – The Barocycler NEP2320 is a smaller and more compact version of our NEP3229 unit. It weighs approximately 80 pounds (with accessories), processes one sample at a time, and works on compressed air (pneumatic) and not hydraulics like the larger NEP3229 unit. Because this instrument is pneumatic, the NEP2320 can be easily attached by an air hose to a typical 85 psi air compressor found in most scientific laboratories, to many

consumer-sold portable compressors, or even to bottled gas. This instrument is used by our sales directors as a demonstration instrument and is marketed as a second instrument alternative to our PCT SPS.

PCT MicroTube Adapter Kit – The PCT MicroTube Adapter Kit includes an ergonomically designed, space-saving Workstation, PCT MicroTubes and MicroCaps, and specialized tools to enable the user to process up to forty-eight samples simultaneously in our PCT SPS, as compared to three with the Barocycler NEP3229.

The PCT Shredder – The patent-pending "PCT Shredder" is designed to help research scientists safely, rapidly, and conveniently disrupt very tough samples, such as ticks, muscle, and seeds, that require homogenization prior to PCT or other sample preparation methods. The PCT Shredder uses a similar PULSE Tube as the PCT SPS, and allows scientists to homogenize tough samples prior to extraction with the PCT SPS, but without the need to transfer the sample into a second processing container between steps.

The Shredder SG3 –The Shredder SG3 is a low shear mechanical homogenization system for use with tough, fibrous and other difficult-to-disrupt tissues and organisms. The Shredder SG3 uses a variety of Shredder PULSE Tubes to directly and rapidly grind a biological sample which, when combined with selected buffers, can provide effective extraction of proteins, DNA, RNA, lipids and small molecules from tissues and organisms. The Shredder SG3 is similar in function to The PCT Shredder, but features a three position force setting lever, which enables the operator to select and apply reproducible force to the sample during the shredding process and eliminates the need for the operator to exert force for long periods when processing one or more samples.

Consumable Products

PULSE Tubes (FT500) – The FT500 PULSE Tube is a specially-designed, plastic, single-use, processing container with two chambers separated by a small disk with small holes. This small disk is referred to as a Lysis Disk. PULSE Tubes transmit the power of PCT from the Barocycler instrument to the sample. In sample extraction, the specimen is placed on the Lysis Disk, buffers are added to the PULSE tube, the PULSE Tube is capped and placed in the pressure chamber of the Barocycler instrument, pressure chamber fluid is added, and pressurization begins. As pressure increases, a small moveable piston pushes the specimen from the top (sample) chamber, through the Lysis Disk and into the bottom (fluid retention) chamber. When pressure is released, the sample (now partially homogenized) is pulled back through the Lysis Disk by the receding ram. The combination of physical passage through the Lysis Disk, rapid pressure changes, and other biophysical mechanisms related to cycled pressure break up the cellular structures of the specimen to quickly and efficiently release nucleic acids, proteins, lipids, and small molecules.

Non-Disk PULSE Tubes (FT500-ND) – The FT500-ND PULSE Tube is a specially-designed, plastic, single-use, processing container with one chamber separated by a small disk with small holes. The FT500-ND is similar to the FT500 in look and feel, except there is no Lysis Disk separating the body of the processing container into two chambers, as in the FT500-ND. The design change was based on market demand for a new PCT consumable for the rapid and reproducible processing of solutions and suspensions that do not require partial homogenization by passage through a Lysis Disk, and for a consumable that could accept smaller sample volumes. The FT500-ND offers variable sample volumes with a range five times that of the existing FT500.

ProteoSolve - LRS – (ProteoSolve for Lipid Rich Samples) is a PCT-dependent method for the safe, rapid, efficient, and reproducible extraction of proteins from lipid-rich samples, including adipose and brain tissues, organelles, and membrane preparations. Proteomic analysis of these types of samples is widely used in the study of diabetes, cancer, ALS, heart disease, and a number of other serious human disorders related to obesity. We believe that this PCT-dependent method of protein extraction from lipid-rich samples offers significant advantages over current extraction techniques, primarily due to the ability to use certain organic solvents instead of harsh detergents in the extraction process. Harsh detergents are known to compromise the integrity of many proteins; therefore the use of

these detergents requires a careful and time consuming removal process. ProteoSolve-LRS includes 12 specially-designed PULSE Tubes, certain organic solvents, other reagents, and an instruction sheet on how to utilize this patent-pending process to enhance the extraction of proteins from lipid-rich samples.

ProteoSolve - SB – (ProteoSolve for Systems Biology) is a PCT-dependent method for the simultaneous extraction, isolation, and fractionation of nucleic acids (DNA and RNA), proteins, and lipids from animal and plant

samples routinely used in laboratory research. This patent-pending kit contains proprietary reagents, consumable processing containers (PULSE Tubes), and instructions for use, and is intended to be used with our patented PCT Sample Preparation System. The kit is based on an approach to a "systems biology" sample preparation method that was first unveiled during early 2008, in collaboration with Dr. Alexander Ivanov of the Harvard School of Public Health.

ProteoSolve - CE – (ProteoSolve for Conventional Extraction) is a PCT-dependent kit for the extraction of proteins from a variety of samples using optimized detergent-based reagent system compatible with two-dimensional electrophoresis or two-dimensional chromatographic separation for proteomic analysis. The kit contains the reagents and instructions necessary for the extraction of either denatured or non-denatured proteins, which can then be used for the analysis of protein structure and function.

Mitochondria Isolation Kits – These kits contain the chemical ingredients necessary for a scientist to extract mitochondria from skeletal muscle and lung tissue for subsequent analysis. Mitochondria play a major role in generating the energy required to power most cell processes and are involved in other important cell functions. Mitochondria have been implicated in several human diseases, including heart disease, stroke, Parkinson's disease, cancer, and other mitochondrial diseases.

We believe our development of these products has helped, and will continue to help, drive the adoption of PCT within the life sciences market.

Company Services

Government Grants – We view federal agency grants to be an important part of our business plan. These types of grants allow us to bill the federal agency for work that we are planning to perform as part of the development and commercialization of our technology. We generally start by submitting initial grant requests that are in response to requests for proposals (“RFPs”) from the federal government through their Small Business Innovation Research (“SBIR”) program. Initial (“SBIR Phase I”) grants are meant to fund approved research projects for six months, and generally have budgets of approximately $100,000 to $150,000. Additionally, because our work in SBIR Phase I grants has been successful, we have applied, and may in the future apply, for larger National Institutes of Health (“NIH”) SBIR Phase II grants. Such larger grants are typically for a two year period and are in excess of $750,000 to support significant research projects in areas we would otherwise expect to support with internal funds should SBIR Phase II grants not be awarded. To date we have been awarded two NIH SBIR Phase I grants and one SBIR Phase II grant. The data on one of the NIH SBIR Phase I grants was the basis for the submission, and subsequent award, of the NIH SBIR Phase II grant awarded to us in the approximate amount of $850,000 in August 2008. The Phase II grant is for work in the area of using PCT to extract protein biomarkers, sub-cellular molecular complexes, and organelles, with the expectation that these studies will ultimately lead to the release of a new, commercially available PCT-based system, with validated protocols, end-user kits, and other consumables intended for the extraction of clinically important protein biomarkers, sub-cellular molecular complexes, and organelles from human and animal tissues. As of December 31, 2010, both of the NIH SBIR Phase I grants have been completed and the NIH SBIR Phase II grant has been completed.

In March 2010, the U.S. Army Medical Research Acquisition Activity (“USAMRAA”) awarded us an SBIR Phase I grant for approximately $100,000. We completed the work on the grant in October 2010.

During the second half of 2011, we commenced work on a new NIH SBIR Phase I grant in the approximate amount of $160,000, and on a Department of Defense SBIR Phase II grant in the approximate amount of $750,000.

Extended Service Contracts - We offer extended service contracts on our laboratory instrumentation to all of our customers. These service contracts allow a customer who purchases a Barocycler instrument to receive on-site scheduled preventative maintenance, on-site repair and replacement of all worn or defective component parts, and telephone support, all at no incremental cost for the life of the service contract. We offer one-year and four-year extended service contracts to customers who purchase Barocycler instruments.

Other Applications of Pressure Cycling Technology

PCT is an enabling, platform technology based on a bio-physical process that had not previously been used to control bio-molecular interactions. During its early development, under the legacy business of Boston Biomedica, Inc., our scientists were researching and developing applications of pressure cycling technology in many areas of the life sciences, including genomic, proteomic, and small molecule sample preparation. The data generated during these early years, combined with the data generated since we began focusing on PCT operations in February 2005, form the basis of knowledge that we believe will allow us to successfully commercialize PCT both within and outside of the sample preparation market.

Our research and development efforts have shown that, in addition to genomic, proteomic and small molecule sample preparation, PCT is potentially beneficial in a number of other areas of the life sciences, including pathogen inactivation, protein purification, control of chemical (particularly enzymatic) reactions, and immunodiagnostics. Our pursuit of these markets, however, depends on a number of factors, including our success in commercializing PCT in the area of sample preparation, our judgment regarding the investment required to be successful in these areas, the value of these markets to our company, and the availability of sufficient financial resources. Below is a brief explanation of each of these additional potential applications and a short description of why we believe PCT can be used to improve scientific studies in these areas.

Pathogen Inactivation

Biological products manufactured for human use, such as blood, vaccines, and drugs, are put through rigorous processing protocols in an effort to minimize the potential of that product to transmit disease. These protocols may include methods to remove infectious materials (such as pre-processing testing, filtration, or chromatography), or methods to inactivate infectious materials that are not captured in the removal steps (such as pasteurization, irradiation, and solvent detergent inactivation). Notwithstanding current diligence in both the removal and inactivation steps, significant concern remains that some bacteria and viruses capable of transmitting infection to recipients may not be removed or inactivated with current procedures. In addition, some removal and inactivation methods may not be useful because of cost, safety, ease-of-use, or other practical concerns. To that end, we believe that a new inactivation method is needed that can safely, rapidly and inexpensively inactivate pathogens in blood, vaccines, and drugs without the need for chemical or other potentially toxic additives. We believe we have successfully generated proof-of-concept that PCT can satisfy this need. We believe that compared to current procedures, a process that uses PCT has the potential to increase safety and yield, lower cost, and decrease the potential side effects of current methods. We have been issued US, European, and Japanese patents for this PCT-dependent inactivation technology.

Protein Purification

Many vaccines and drugs are comprised of proteins. These proteins need to be purified from complex mixtures as part of the manufacturing process. Current purification techniques often result in the loss of a significant amount of the protein. Therefore, any method that could increase the amount of protein being recovered in the purification step, could subsequently lead to a reduction in cost to the manufacturer. We believe we have successfully generated proof-of-concept that PCT can satisfy this need. We believe that compared to current purification procedures, a process that uses PCT has the potential to increase protein recovery, increase the quality of the product, and lower production costs. We have been issued U.S. and European patents in this area.

Control of Chemical (Particularly Enzymatic) Reactions

Chemical reactions encompass many important interactions in nature. Methods used to control chemical reactions could have a positive effect on the quality, speed, and overall result of the reaction. The control and detection of chemical reactions is particularly useful in the biotechnology field for synthesizing and characterizing such molecules as nucleic acids and polypeptides. We believe that PCT offers distinct advantages in controlling chemical reactions

over current methods, since PCT can provide precise, automated control over the timing and synchronization of chemical reactions, particularly enzymatic reactions. We have been issued U.S. and European patents in this area.

Immunodiagnostics

Many tests used in the clinical laboratory today are based on the formation of a complex between two proteins, such as an antigen and an antibody. Such “immunodiagnostic” methods are used for the detection of infectious agents (such as HIV, hepatitis viruses, and West Nile virus), as well as for endocrine, drug testing, and cancer diagnostics. We have generated proof-of-concept that PCT may be used to control bio-molecular interactions between proteins, such as antigens and antibodies. We believe this capability may provide a greater degree of sensitivity and quantitative accuracy in immunodiagnostic testing than that offered by methods that are available today. We have been issued U.S. and European patents in this area.

Customers

Our customers include researchers at academic laboratories, government agencies, and biotechnology, pharmaceutical, and other life science companies in the United States. Our customers also include three foreign distribution partners. Our goal is to continue our market penetration in these target groups and releasing products in our publicized product pipeline. We also believe that there is a significant opportunity to sell and/or lease additional Barocycler instrumentation to additional laboratories at current customer institutions.

If we are successful in commercializing PCT in applications beyond our current focus area of genomic, proteomic, and small molecule sample preparation, and if we are successful in our attempts to attract additional capital, our potential customer base could expand to include hospitals, reference laboratories, blood banks and transfusion centers, plasma collection centers, pharmaceutical manufacturing plants, and other sites involved in each specific application.

Competition

We compete with companies that have existing technologies for the extraction of nucleic acids, proteins, and small molecules from cells and tissues, including methods such as mortar and pestle grinding, sonication, rotor-stator homogenization, French Press, bead beating, freezer milling, enzymatic digestion, and chemical dissolution. We believe that there are a number of significant issues related to the use of these methods, including: complexity, sample containment, cross-contamination, shearing of bio-molecules of interest, limited applicability to different sample types, ease-of-use, reproducibility, and cost. We believe that our PCT Sample Preparation System offers a number of significant advantages over these methods, including labor reduction, temperature control, precision, reproducibility, versatility, efficiency, simplicity, and safety. To compete, we must be able to clearly and conclusively demonstrate to potential customers that our products provide these improved performance capabilities.

We believe that our PCT Sample Preparation System is a novel and enabling system for genomic, proteomic, and small molecule sample preparation. As such, many users of current manual techniques will need to be willing to challenge their existing methods of sample preparation and invest time to evaluate a method that could change their overall workflow in the sample preparation process, prior to adopting our technology. We are also aware that the cost of the PCT Sample Preparation System may be greater than the cost of many of the other techniques currently employed. Consequently, we are focusing our sales efforts on those product attributes that we believe will be most important and appealing to potential customers, namely versatility, reproducibility, quality, and safety.

Manufacturing and Supply

Source Scientific, LLC currently provides all of the manufacturing and assembly services for our instrumentation products under an informal, unwritten understanding. We plan to continue to utilize Source Scientific, LLC as our primary assembler and contract manufacturer of our current, and future, Barocycler instruments. Until we develop a broader network of manufacturers and subcontractors, obtaining alternative sources of supply or manufacturing services could involve significant delays and other costs and challenges, and may not be available to us on reasonable terms, if at all. The failure of a supplier or contract manufacturer to provide sufficient quantities, acceptable quality

and timely products at an acceptable price, or an interruption of supplies from such a supplier could harm our business and prospects.

Research and Development

Our research and development expenses were approximately $1.2 million for both years ended December 31, 2010 and 2009, respectively, and approximately $740,000 and $890,000 for the nine month periods ended September 20, 2011 and 2010. Our research and development activities are split into two functional areas, applications and engineering.

Applications Research and Development

Our highly educated and trained staff has years of experience in molecular and cellular biology, virology, and proteomics. Our team of scientists focuses on the development of our PCT Sample Preparation System and further commercialization of PCT-dependent genomic, proteomic, and small molecule sample preparation methods. Dr. Alexander Lazarev, our Vice President of Research & Development, meets regularly with our sales, marketing, and engineering staff to discuss market needs and trends. Our applications research and development team is responsible for the technical review of all scientific collaborations, for the support of our marketing and sales departments through the generation of internal data in a number of areas of market interest, and in the development of commercially-viable PCT-dependent products.

Engineering Research and Development

Our engineering research and development team is focused on the design and development of new and improved instrumentation and consumable products to support the commercialization of PCT. Our engineering department is led by Dr. Edmund Ting, our Senior Vice President of Engineering. The primary focus of our engineering group is to ensure seamless production processes, perform installations and field service, and work with our application scientists to complete the development of a high throughput sample processing system for the mass spectrometry market.

Product Pipeline

The following four instruments are in our 2011-2013 research and development pipeline:

- Barocycler HUB440 - A manual or computer controlled, compact, portable, and versatile high pressure generator for multiple bioscience applications. Released: Q3 2011.

- Barocycler FFPE Protein Extraction Service - A service offering the enhanced extraction of proteins from formalin-fixed, paraffin-embedded (FFPE) samples using a modified Barocycler instrument that combines the advantages of pressure cycling, high temperature, and certain reagents. Estimated release: 2012.

- XstreamPCT™ HPLC Digestion Module - For automated, in-line, on-demand PCT-enhanced protein digestion; the first module in PBI's PCT-based HPLC platform. Estimated release: 2013.

- Barocycler HT Multiwell (48-384) - For high throughput, PCT-enhanced biomolecule extraction/accelerated enzymatic digestion; process 48 - 384 samples. Estimated release: 2013.

Sales and Marketing

Our sales and marketing efforts are centered on using the independent data developed and disseminated by our collaboration partners to help drive the installed base of PCT SPS. The development of scientific data by our partners and our internal researchers provides our sales and marketing staff with additional tools that are essential in selling a new technology such as PCT.

Sales

Direct US Sales Force

Our domestic sales force currently consists of three full-time sales directors. We believe that hiring seasoned sales professionals, with significant industry experience, will allow us to more effectively penetrate the market with a small, focused sales force. We may increase the number of sales professionals if our financial resources permit and if we believe that doing so will accelerate our commercialization efforts.

Foreign Distributor Network

Currently we have three distribution arrangements covering Japan, Austria, and Germany. Specifically, in June 2008, we entered into a distribution agreement with Veritas Corporation ("Veritas") of Tokyo, Japan pursuant to which we granted Veritas exclusive distribution rights to all of our products in Japan. The agreement was extended to December 31, 2013. In April 2009, we entered into a distribution agreement with TouchDown BioMarketing BV ("TouchDown"), of The Netherlands pursuant to which we granted TouchDown exclusive distribution rights to all of our products in The Netherlands. The agreement expired on December 1, 2011. In September 2007, we entered into a distribution agreement with CM Corporation ("CM"), of Seoul, South Korea pursuant to which we granted CM exclusive distribution rights to all of our products in South Korea. The agreement expired on December 1, 2011.

Marketing

Our marketing function includes Dr. Nathan Lawrence, our Vice President of Marketing. Dr. Lawrence oversees and directs marketing activities such as trade show attendance and sponsorship, on-line advertising, website maintenance and improvement, search engine optimization, creation and dissemination of a PCT newsletter, market research initiatives, and the arrangement of on-location seminars, lectures, and demonstrations of PCT capabilities. Our marketing function is also responsible for the overall coordination of our collaboration programs, from initial set-up, research plan design, and training, service, and data analysis. Some of these responsibilities are shared with other PBI departments (such as Research and Development), but marketing drives the collaborative process. Dr. Lawrence is also responsible for the continued coordination and support of our foreign and domestic distribution partners.

Intellectual Property

We believe that protection of our patents and other intellectual property is essential to our business. Subject to the availability of sufficient financial resources, our practice is to file patent applications to protect technology, inventions, and improvements to inventions that are important to our business development. We also rely on trade secrets, know-how, and technological innovations to develop and maintain our potential competitive position. To date, we have been granted 14 United States patents, three European patents, three Australian patents, two Japanese patents, and two Canadian patents. Our issued patents expire between 2015 and 2027. Our failure to obtain and maintain adequate patent protection may adversely affect our ability to enter into, or affect the terms of, any arrangement for the marketing or sale of any of our PCT products. It may also allow our competitors to duplicate our products without our permission and without compensation.

License Agreements Relating to Pressure Cycling Technology

BioMolecular Assays, Inc.

In 1996, we acquired our initial equity interest in BioSeq, Inc., which at the time was developing our original pressure cycling technology. BioSeq, Inc. acquired its pressure cycling technology from BioMolecular Assays, Inc. under a technology transfer and patent assignment agreement. In 1998, we purchased all of the remaining outstanding capital stock of BioSeq, Inc., and at such time, the technology transfer and patent assignment agreement was amended to require us to pay BioMolecular Assays, Inc. a 5% royalty on our sales of products or services that incorporate or utilize the original pressure cycling technology that BioSeq, Inc. acquired from BioMolecular Assays, Inc. We are also required to pay BioMolecular Assays, Inc. 5% of the proceeds from any sale, transfer or license of all or any portion of the original pressure cycling technology. These payment obligations terminate in 2016. During the fiscal years ended December 31, 2010 and 2009, we incurred $36,330 and $30,548, respectively, in royalties, and for the nine months ended September 30, 2011 and 2010, we incurred $18,962 and $25,173, respectively, in royalties.

In connection with our acquisition of BioSeq, Inc., we licensed certain limited rights to the original pressure cycling technology back to BioMolecular Assays, Inc. This license is non-exclusive and limits the use of the original pressure cycling technology by BioMolecular Assays, Inc. solely for molecular applications in scientific research and development and in scientific plant research and development. BioMolecular Assays, Inc. is required to pay us a royalty equal to 20% of any license or other fees and royalties, but not including research support and similar payments, it receives in connection with any sale, assignment, license or other transfer of any rights granted to BioMolecular Assays, Inc. under the license. BioMolecular Assays, Inc. must pay us these royalties until the expiration of the patents held by BioSeq, Inc. in 1998, which we anticipate will be 2016. We have not received any royalty payments from BioMolecular Assays, Inc. under this license.

Battelle Memorial Institute

In December 2008, we entered into an exclusive patent license agreement with the Battelle Memorial Institute ("Battelle"). The licensed technology is the subject of a patent application filed by Battelle in 2008 and relates to a method and a system for improving the analysis of protein samples, including through an automated system utilizing pressure and a pre-selected agent to obtain a digested sample in a significantly shorter period of time than current methods, while maintaining the integrity of the sample throughout the preparatory process. In addition to royalty payments on net sales on “licensed products”, we are obligated to make minimum royalty payments for each year that we retain the rights outlined in the patent license agreement and we are required to have our first commercial sale of the licensed products within one year following the issuance of the patent covered by the licensed technology. The minimum annual royalty is $5,000. Our only obligation for 2010 was, and in 2011, will be, this minimum payment.

Regulation

Many of our activities are subject to regulation by governmental authorities within the United States and similar bodies outside of the United States. The regulatory authorities may govern the collection, testing, manufacturing, safety, efficacy, labeling, storage, record keeping, transportation, approval, advertising, and promotion of our products, as well as the training of our employees.

All of our commercialization efforts to date are focused in the area of genomic, proteomic, and small molecule sample preparation. We do not believe that our current Barocycler products used in sample preparation are considered “medical devices” under the United States Food, Drug and Cosmetic Act (the “Act”) and we do not believe that we are subject to the law’s general control provisions that include requirements for registration, listing of devices, quality regulations, labeling, and prohibitions against misbranding and adulteration. We also do not believe that we are

subject to regulatory inspection and scrutiny. If, however, we are successful in commercializing PCT in applications beyond our current focus area of genomic, proteomic, and small molecule sample preparation, such as protein purification, pathogen inactivation and immunodiagnostics, our products may be considered “medical devices” under the Act, at which point we would be subject to the law’s general control provisions and regulation by the U.S. Food and Drug Administration (the “FDA”) that include requirements for registration listing

of devices, quality regulations, labeling, and prohibitions against misbranding and adulteration. The process of obtaining approval to market these devices in the other potential applications of PCT would be costly and time consuming and could prohibit us from pursuing such markets.

We may also become subject to the European Pressure Equipment Directive, which requires certain pressure equipment meet certain quality and safety standards. We do not believe that we are currently subject to this directive because our Barocycler instruments are below the threshold documented in the text of the directive. If our interpretation were to be challenged, we could incur significant costs defending the challenge, and we could face production and selling delays, all of which could harm our business.

We self-certified that our Barocycler instrumentation was electromagnetic compatibility, or CE, compliant, which means that our Barocycler instruments meet the essential requirements of the relevant European health, safety and environmental protection legislation. In order to maintain our CE Marking, a requirement to sell equipment in many countries of the European Union, we are obligated to uphold certain safety and quality standards.

Employees

At December 2, 2011, we had 13 full-time employees and 3 part-time employees. All employees enter into confidentiality agreements intended to protect our proprietary information. We believe that our relations with our employees are good. None of our employees are represented by a labor union. Our performance depends on our ability to attract and retain qualified professional, scientific and technical staff. The level of competition among employers for skilled personnel is high. Subject to our limited financial resources, we attempt to maintain employee benefit plans to enhance employee morale, professional commitment and work productivity and provide an incentive for employees to remain with us.

## PROPERTIES

Our corporate offices are currently located at 14 Norfolk Avenue, South Easton, Massachusetts 02375. In November 2007, we signed a lease agreement commencing in February 2008 pursuant to which we lease approximately 5,500 square feet of office space. We renewed the lease until August 31, 2011 with no increase in the monthly payment and we are negotiating an extension of the lease. We currently pay approximately $6,500 per month on a month-to-month basis for the use of these facilities.

Effective January 1, 2010, we entered into a three-year lease agreement with the University of Massachusetts, pursuant to which we are leasing laboratory and office space on campus at the university. We are paying $5,000 per month for the use of these facilities. We believe that our facilities are adequate for our operations and that suitable additional space will be available if and when needed.

## MANAGEMENT

Executive Officers

Our executive officers are appointed by, and serve at the discretion of, our board of directors. The following table sets forth information about our executive officers.

| Name | Age | Position |
|---|---|---|
| Richard T. Schumacher | 61 | President, Chief Executive Officer, Chief Financial Officer, Treasurer, Clerk and Director(1) |
| Edmund Ting, Ph.D. | 57 | Senior Vice President of Engineering |

| | | |
|---|---|---|
| Nathan P. Lawrence, Ph.D. | 56 | Vice President of Marketing |
| Alexander Lazarev, Ph.D. | 46 | Vice President of Research and Development |

(1) Mr. Schumacher's term of office as a director continues until 2011.

Set forth below is biographical information for each of our executive officers.

Mr. Richard T. Schumacher, the founder of the Company, has served as a director of the Company since 1978. He has served as the Company's Chief Executive Officer since April 16, 2004 and President since September 14, 2004. He previously served as Chief Executive Officer and Chairman of the Board of the Company from 1992 to February 2003. From July 9, 2003 until April 14, 2004 he served as a consultant to the Company pursuant to a consulting agreement. He served as President of the Company from 1986 to August 1999. Mr. Schumacher served as the Director of Infectious Disease Services for Clinical Sciences Laboratory, a New England-based medical reference laboratory, from 1986 to 1988. From 1972 to 1985, Mr. Schumacher was employed by the Center for Blood Research, a nonprofit medical research institute associated with Harvard Medical School. Mr. Schumacher received a B.S. in Zoology from the University of New Hampshire.

Dr. Edmund Ting joined us as Senior Vice President of Engineering on April 24, 2006. Prior to joining us, Dr. Ting served as the Chief Research Officer of Avure Technologies, a leading worldwide manufacturer of high pressure hydrostatic processing equipment for the food and materials processing industry, where he worked from 2001 to 2006. From 1990 to 2001, Dr. Ting was employed by Flow International Corporation, a world leader in the ultrahigh pressure waterjet cutting technology market, and the parent company of Avure Technologies until November 2005. Dr. Ting last held the position of Vice President of Engineering Research and Development at Flow International Corporation. From 1984 to 1990, Dr. Ting was a research scientist and then a group leader at Grumman Aerospace Corporation. Dr. Ting earned a Bachelor of Science degree in mechanical engineering from Northeastern University and a Science Doctorate in materials science and engineering from the Massachusetts Institute of Technology.

Dr. Nathan P. Lawrence was appointed as our Vice President of Marketing and Sales on April 1, 2006. Dr. Lawrence joined Pressure BioSciences Inc. in 2005, serving as Director of Research and Development until his promotion to Vice President of Marketing in 2006. Dr. Lawrence was responsible for the development of protocols based on Pressure Cycling Technology (PCT). From 2004 through 2005, Dr. Lawrence worked for 454 Life Sciences Inc. in product development. Prior to 454 Life Sciences, Dr. Lawrence was Director of Research and Development for Boston Biomedica, Inc. from 1998 to 2004. He was primarily responsible for the development of PCT, as well as the development of nucleic acid-based diagnostic assays. Prior to joining Boston Biomedica, Inc., Dr. Lawrence held several positions with increasing responsibility in Research and Development and manufacturing at Becton Dickinson and Gene Trak Systems. Dr. Lawrence holds a BA from the University of Miami, an M.S. from Southern Connecticut State University, and a Ph.D. from Yale University.

Dr. Alexander Lazarev has served as our Vice President of Research and Development since 2007. Prior to that, he served as our Director of Research and Development, since joining us in 2006. Prior to joining us, Dr. Lazarev worked as a Visiting Scientist at the Barnett Institute of Chemical and Biological Analysis at Northeastern University in 2005, and served as a Director of New Technology Development at Proteome Systems, Inc., where he was involved in research and development of innovative proteomic analysis applications from 2001 until early 2006. From 1998 to 2001, Dr. Lazarev was employed as Senior Scientist at the Proteomics Division of Genomic Solutions, Inc. Prior to his employment at Genomic Solutions, Inc., Dr. Lazarev was employed in an analytical contract service startup company, PhytoChem Technologies, Inc., which was founded as a spin-off from ESA, Inc. in 1997. Previously, Dr. Lazarev held various scientific positions at the Ohio State University School of Medicine and the Uniformed Services University of Health Sciences. Most of his scientific career has been dedicated to development of methods and applications for biochemical analysis. Since 2005, Dr. Lazarev has been elected as an Executive Board member of the MASSEP.org, a non-profit scientific discussion forum dedicated to the promotion and improvement of chromatography and other analytical technologies. Dr. Lazarev earned his undergraduate and graduate degrees at the University of Kazan, Russian Federation.

Non-Employee Directors

The following table sets forth information about the individuals who serve as our non-employee directors.

| Name | Age | Position | Board Committees | Term of office |
|---|---|---|---|---|
| R. Wayne Fritzsche | 62 | Chairman of the Board | | 2012 |
| Calvin A. Saravis, Ph.D. | 81 | Director | Compensation; Nominating and Scientific Advisory Board | 2012 |
| Jeffrey N. Peterson | 56 | Director | Compensation; Nominating | 2012 |
| J. Donald Payne | 56 | Director | Audit; Compensation; Nominating | 2013 |
| Alan D. Rosenson | 47 | Director | Audit; Compensation; Nominating | 2013 |
| Alan I. Goldberg | 68 | Director | Audit | 2011 |
| Gregory G. Freitag | 49 | Director | Audit | 2011 |

Mr. R. Wayne Fritzsche has served as a director and our Chairman of the Board of Directors since October 2003. Mr. Fritzsche has served as a member of our Scientific Advisory Board since 1999. Mr. Fritzsche is the founder of FAI LLC, a consulting firm that provides strategic, financial, and scientific consulting to medical companies in the life sciences and healthcare industries, and has served as its President since 1991. He was a part of the founding group of The Immune Response Company (IMNR) along with Dr. Jonas Salk. From 2001 until 2004, Mr. Fritzsche has served as a board member of Opexa Pharmaceuticals, a multiple sclerosis and cell immunology therapy company, and Vascular Sciences, Inc., an extracorporeal, macular degeneration company. He also previously served as a board member of Intelligent Medical Imaging, Inc., an automated microscopic imaging company, from 1994 to 1997, Clarion Pharmaceuticals, a drug development company, from 1994 to 1996, Nobex Pharmaceuticals, Inc., a drug delivery firm, from 1996 to 2001, Cardio Command, Inc., a transesophageal cardiac monitoring and pacing firm, from 1999 to 2001, and Hesed BioMed, Inc. an antisense oligonucleotide and catalytic antibody company, from 2000 to 2002. Mr. Fritzsche is a founder of Transplan, Inc., an organ transplant device company whose primary focus is in heart transport. Mr. Fritzsche holds a BA from Rowan University (formerly Glassboro State College), and an MBA from the University of San Diego.

Dr. Calvin A. Saravis has served as a director since 1986. Dr. Saravis has also served as Chairman of our Scientific Advisory Board since 2003. From 1984 to 1998 he was an Associate Professor of Surgery (Biochemistry) at Harvard Medical School (presently emeritus) and Chief, Division of Immunology, Department of Surgery, Harvard Medical School, Boston City Hospital; and from 1983 to 1999, he was an Associate Research Professor of Pathology at Boston University School of Medicine (presently emeritus). From 1971 to 1997, Dr. Saravis was a Senior Research Associate at the Mallory Institute of Pathology and from 1979 to 1997 he was a Senior Research Associate at the Cancer Research Institute-New England Deaconess Hospital. Dr. Saravis received his Ph.D. in immunology and serology from Rutgers University.

Mr. Jeffrey N. Peterson has served as a director since July 2011. Since 1999, he has served as the chief executive officer of Target Discovery, Inc. ("TDI"), a personalized medicine diagnostics (PMDx) company. Mr. Peterson also serves as Chairman of TDI's majority-owned subsidiary, Veritomyx, Inc., which is completing development and commercialization of a tool in accurate peptide, protein and isoform identification and characterization. Prior to joining TDI, Mr. Peterson served as CEO of Sharpe, Peterson, Ocheltree & Associates, an international business development consulting firm assisting Fortune 500 and many smaller firms in business expansion and strategy, for three years prior to incorporating TDI. Prior to that, he spent 9 years in key management roles in Abbott Laboratories' Diagnostics and International (Pharmaceuticals, Hospital Products, Nutritionals, Consumer) businesses, last serving as CEO and General Manager of Abbott South Africa. Mr. Peterson's experience prior to Abbott Laboratories included 11 years with General Electric's Engineered Materials and Plastics businesses, spanning roles in strategic planning, business development, technology licensing, marketing and sales, operations, quality control and R&D. Mr. Peterson holds BSChE and MSChE (Chemical Engineering) degrees from MIT. He serves as Chair Emeritus of the BayBio Institute, a non-profit organization serving the life science community, and on the board of BayBio, a trade association for the life sciences industry in Northern California. He is a member of the Coalition for 21st Century Medicine, and of BIO's Personalized Medicine & Diagnostics Group. Mr. Peterson has served on the board of directors SanGlobal Ed Corp. (d/b/a MyVerse), a teen and collegiate personal and professional development web and mobile resource site.

Mr. J. Donald Payne has served as a director since December 2003. Commencing in 2011, Mr. Payne has served as the Senior Vice President and Chief Financial and Administrative Officer of Oncolix, Inc., a privately-held pharmaceutical company engaged in cancer research. Mr. Payne previously served as President and a Director of Nanospectra Biosciences, Inc., a privately-held medical device company developing products for cancer from 2001 until 2011. Prior to that, Mr. Payne held various executive positions in finance and administration of public and private life science companies since 1992, served as a financial executive in the energy industry from 1980 through 1990, and was in public accounting from 1976 to 1980. Mr. Payne received an MBA from Rice University in 1992 and a BBA from Texas A&M University in 1976. He is a Certified Public Accountant in Texas, and a member of the AICPA and Financial Executives Institute.

Mr. Alan D. Rosenson has served as a director since September 2009. Mr. Rosenson currently serves as President of ALJAR Investments, Inc., an investment firm which he founded in 1994 and through which he manages stock and bond portfolios for private clients. In 1987, Mr. Rosenson founded Consulting Innovations, Inc., an information systems firm, that currently provides consulting services and technology training to high-level executives and business owners. Mr. Rosenson has been a volunteer for various charities from 1990 to the present. Mr. Rosenson earned his B.A. degree from Indiana University with honors, and his MBA degree from Washington University in St. Louis.

Mr. Alan I. Goldberg has served as a director since July 2010. Mr. Goldberg has served as Chairman in the private investment company, Alphi Investment Management Co., from 1987 until 2000. He has been a member of the Chicago Board of Trade since 1977 and currently holds two memberships. He was a Vice President of Morgan Stanley Dean Witter from 1970 to 1977. He has a finance degree from the Kellogg School of Management at Northwestern University. He has served on private and public company boards, and is active in several educational and community charities.

Mr. Gregory G. Freitag, JD, CPA, has served as a director since July 2010. He has served as the Chief Financial Officer and a member of the Board of Directors of AxoGen, Inc. (formerly LecTec Corporation), an intellectual property licensing and holding company since June 2010, and as Chief Financial Officer and director of AxoGen Corporation, a wholly owned subsidiary of AxoGen, Inc., since October 2011. From June 2010 to September 2011, he also served as Chief Executive Officer of LecTec Corporation. Since May 2009, Mr. Freitag has been a founder and principal of FreiMc, LLC, a consulting and advisory firm, and EmployRx, Inc., a business that provides services to

self–insured employers relating to prescription drug benefits. Mr. Freitag founded both FreiMc, LLC and EmployRx, Inc. Mr. Freitag previously served as the Director of Business Development at Pfizer Health Solutions, a former subsidiary of Pfizer, Inc., from January 2006 to May 2009. From July 2005 to January 2006, Mr. Freitag was a consultant for Guidant Corporation in their business development group. Prior to Guidant Corporation, Mr. Freitag was the Chief Executive Officer of HTS Biosystems, a biotechnology tools start–up company, from March 2000 until its sale in early 2005. Mr. Freitag was the Chief Operating Officer, Chief Financial Officer and General Counsel of Quantech, Ltd., a public point of care diagnostic company, from December 1995 to March 2000. Mr. Freitag received a B.A. degree in Business and Economics from Macalester College and a J.D. degree from the University of Chicago.

Board Independence

Our board of directors has reviewed the qualifications of each of Messrs. Payne, Goldberg, Freitag, Rosenson, Peterson and Dr. Saravis, constituting more than a majority of our directors, and has affirmatively determined that each individual is “independent” as such term is defined under the current listing standards of the Nasdaq Stock Market. The board of directors has determined that none of these directors has a material relationship with us that would interfere with the exercise of independent judgment. In addition, each member of the Audit Committee is independent as required under Section 10A(m)(3) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”).

Transactions with Related Persons

In June 2010, our board of directors extended the engagement of Mr. Wayne Fritzsche, our Chairman, as an investor relations consultant for us, with an increase of annual cash compensation to $110,000. In connection with this engagement, Mr. Fritzsche has not been on our Audit Committee since April 1, 2009.

On November 18, 2009, pursuant to the terms of a Securities Purchase Agreement entered into as of November 18, 2009, we sold an aggregate of 62,039 units (the “Series B Units”) for a purchase price of $18.80 per unit, resulting in gross proceeds of $1,166,333. This was the first tranche of a private placement (the “Series B Private Placement”). We closed the second tranche of the Series B Private Placement on March 18, 2010 with the sale of an additional 26,672 Series B Units with gross proceeds of $501,434. Each Series B Unit consisted of (i) one share of Series B Convertible Preferred Stock convertible into 10 shares of our common stock and (ii) a warrant to purchase one share of Series B Convertible Preferred Stock at an exercise price equal to $23.80 per share for the warrants issued in November 18, 2009 and at an exercise price equal to $28.80 per share for the warrants issued in March 2010, in each case with a term originally expiring on August 11, 2011 (“Series B Warrant”). The Series B Warrants have since been amended as to the exercise price and the securities for which they are exercisable. Mr. Gregory G. Freitag, one of our directors, participated in the Series B Private Placement on the same terms as the other investors. Mr. Freitag received 2,664 Series B Units for a purchase price of $50,083.20.

On April 8, 2011 and April 12, 2011, we completed the first tranche of a private placement, pursuant to which we sold an aggregate of 55,048 units for a purchase price of $15.00 per unit, resulting in gross proceeds to us of $825,720 (the “Series C Private Placement”). This was the first tranche of the Series C Private Placement. In connection with the second tranche, the purchase price was reduced to $12.50 per unit and we issued an additional 11,011 units to the purchasers who participated in the first tranche, without any additional gross proceeds to us. The second tranche closed on June 20, 2011 for the sale of 22,039 units for a purchase price of $12.50 per unit with gross proceeds of $275,485. Each unit consisted of (i) one share of Series C Preferred Stock convertible into 10 shares of our common stock (subject to adjustment for stock splits, stock dividends, recapitalization, etc.) and (ii) a three-year warrant to purchase 10 shares of our common stock at a per share exercise price equal to the sum of (a) the common stock equivalent of the Series C Purchase Price (b) plus $0.88 (the “Series C Warrant”). The Series C Warrants have since been amended as to the exercise price. Mr. Richard T. Schumacher, our President, Chief Executive Officer, Chief Financial Officer and a director, participated in the Series C Private Placement on the same terms as the other investors. Mr. Schumacher received 6,021 Series C Units for a purchase price of $75,262.50.

On September 7, 2011, we received a loan in the amount of $100,000 from Mr. Schumacher. The loan was made pursuant to a convertible promissory note (the "Note") with a maturity date of March 7, 2012, which may be extended with mutual consent of the parties. The interest rate under the Note is 20% per annum. The Note may be repaid, at Mr. Schumacher's election (i) in cash, (ii) by conversion into that number of securities issued in the next financing completed by us having an aggregate purchase price equal to the then outstanding principal amount of the Note, together with any accrued and unpaid interest due at the time of conversion or (iii) conversion into shares of our common stock at a conversion price of $1.00 per share. In connection with the loan, we issued warrants to Mr. Schumacher to purchase 12,048 shares of common stock, at an exercise price of $0.83 per share, and warrants to purchase 105,882 shares of common stock, at an exercise price of $0.85 per share, both sets of warrants are exercisable on or after March 07, 2012 and expire on September 7, 2014.

## EXECUTIVE AND DIRECTOR COMPENSATION

### Executive Officer Compensation

#### General

Messrs. Payne, Peterson and Rosenson and Dr. Saravis are currently the members of the Compensation Committee. The Compensation Committee operates pursuant to a written charter, a current copy of which is publicly available on the investor relations portion of our website at www.pressurebiosciences.com. The primary functions of the Compensation Committee include (i) reviewing and approving our executive compensation, (ii) reviewing the recommendations of the President and Chief Executive Officer regarding the compensation of our executive officers, (iii) evaluating the performance of the President and Chief Executive Officer, (iv) overseeing the administration and approval of grants of stock options and other equity awards under our equity incentive plans, and (v) recommending compensation for our board of directors and each committee thereof for review and approval by the board of directors.

The Compensation Committee may form and delegate authority to one or more subcommittees as it deems appropriate from time to time under the circumstances (including (a) a subcommittee consisting of a single member and (b) a subcommittee consisting of at least two members, each of whom qualifies as a "non-employee director," as such term is defined from time to time in Rule 16b-3 promulgated under the Exchange Act, and an "outside director," as such term is defined from time to time in Section 162(m) of the Internal Revenue Code of 1986, as amended, and the rules and regulations thereunder).

#### Compensation Objectives

In light of the relatively early stage of commercialization of our products, we recognize the importance of attracting and retaining key employees with sufficient experience, skills, and qualifications in areas vital to our success, such as operations, finance, sales and marketing, research and development, engineering, and individuals who are committed to our short- and long-term goals. The Compensation Committee has designed our executive compensation programs with the intent of attracting, motivating, and retaining experienced executives and, subject to our limited financial resources, rewarding them for their contributions by offering them a competitive base salary, potential for annual cash incentive bonuses, and long-term equity-based incentives, typically in the form of stock options. The Compensation Committee strives to balance the need to retain key employees with financial prudence given our history of operating losses, limited financial resources and the early stage of our commercialization.

#### Executive Officers and Director Compensation Process

The Compensation Committee considers and determines executive compensation according to an annual objective setting and measurement cycle. Specifically, corporate goals for the year are initially developed by our executive

officers and are then presented to our board of directors and Compensation Committee for review and approval. Individual goals are intended to focus on contributions that facilitate the achievement of the corporate goals. Individual goals are first proposed by each executive officer, other than the President and Chief Executive Officer, then discussed by the entire senior executive management team and ultimately compiled and prepared for submission to our board of directors and the Compensation Committee, by the President and Chief Executive Officer. The Compensation Committee sets and approves the goals for the President and Chief Executive Officer. Generally, corporate and individual goals are set during the first quarter of each calendar year. The objective setting process is coordinated with our annual financial planning and budgeting process so our board of directors and Compensation Committee can consider overall corporate and individual objectives in the context of budget constraints and cost control considerations. Annual salary increases, bonuses, and equity awards, such as stock option grants, if any, are tied to the achievement of these corporate and individual performance goals as well as our financial position and prospects.

Under the annual performance review program, the Compensation Committee evaluates individual performance against the goals for the recently completed year. The Compensation Committee's evaluation generally occurs in the first quarter of the following year. The evaluation of each executive (other than the President and Chief Executive Officer) begins with a written self-assessment submitted by the executive to the President and Chief Executive Officer. The President and Chief Executive Officer then prepares a written evaluation based on the executive's self-assessment, the President and Chief Executive Officer's evaluation, and input from others within the Company. This process leads to a recommendation by the President and Chief Executive Officer for a salary increase, bonus, and equity award, if any, which is then considered by the Compensation Committee. In the case of the President and Chief Executive Officer, the Compensation Committee conducts his performance evaluation and determines his compensation, including salary increase, bonus, and equity awards, if any. We generally expect, but are not required, to implement salary increases, bonuses, and equity awards, for all executive officers, if and to the extent granted, by April 1 of each year.

Non-employee director compensation is set by our board of directors upon the recommendation of the Compensation Committee. In developing its recommendations, the Compensation Committee is guided by the following goals: compensation should be fair relative to the required services for directors of comparable companies in our industry and at our company's stage of development; compensation should align directors' interests with the long-term interest of stockholders; the structure of the compensation should be simple, transparent, and easy for stockholders to understand; and compensation should be consistent with the financial resources, prospects, and competitive outlook for the Company.

In evaluating executive officer and director compensation, the Compensation Committee considers the practices of companies of similar size, geographic location, and market focus. In order to develop reasonable benchmark data the Compensation Committee has referred to publicly available sources such as Salary.com and the BioWorld Survey. While the Compensation Committee does not believe benchmarking is appropriate as a stand-alone tool for setting compensation due to the unique aspects of our business objectives and current stage of development, the Compensation Committee generally believes that gathering this compensation information is an important part of its compensation-related decision making process.

The Compensation Committee has the authority to hire and fire advisors and compensation consultants as needed and approve their fees. No advisors or compensation consultants were hired or fired in fiscal 2010.

The Compensation Committee is also authorized to delegate any of its responsibilities to subcommittees or individuals as it deems appropriate. The Compensation Committee did not delegate any of its responsibilities in fiscal 2010.

Summary Compensation Table

The Summary Compensation Table below sets forth the total compensation paid or earned for the fiscal years ended December 31, 2010 and 2009 for: (i) each individual serving as our Chief Executive Officer ("CEO") or acting in a similar capacity during any part of fiscal 2010; and (ii) the other two most highly paid executive officers (collectively, the "Named Executive Officers") who were serving as executive officers at the end of fiscal 2010.

| Name and Principal Position | Fiscal Year | Salary(1) | Option Awards(2) | All other Compensation(3) | Total |
|---|---|---|---|---|---|
| Richard T. Schumacher | 2010 | $ 281,456 | $- | $ 26,640 | $308,096 |
| President, Chief Executive Officer and Chief Financial Officer | 2009 | 279,594 | 88,517 | 18,720 | 386,831 |
| Edmund Ting, Ph.D | 2010 | &# | | | |