BIOLIFE SOLUTIONS INC
Form S-1/A
January 23, 2014

As filed with the Securities and Exchange Commission on January 23, 2014

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

FORM S-1
(Amendment No. 1)
REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

BioLife Solutions, Inc.
(Exact name of registrant as specified in its charter)

Delaware	3845	94-3076866
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification No.)

3303 Monte Villa Parkway
Bothell, Washington 98021
(425) 402-1400
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Daphne Taylor
Chief Financial Officer
3303 Monte Villa Parkway
Bothell, Washington 98021
(425) 402-1400
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Christopher L. Doerksen
Kimberley R. Anderson
Dorsey & Whitney LLP
701 Fifth Avenue, Suite 6100
Seattle, Washington 98104

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: þ

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 registration statement for the same offering. o

If this Form is 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. o

If this Form is a post-effective amendment filed 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. o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. (Check one):

Large Accelerated Filer o	Accelerated Filer o	Non-Accelerated Filer o (Do not check if a smaller reporting company)	Smaller Reporting Company þ

CALCULATION OF REGISTRATION FEE

Title of each class of securities to be registered	Proposed maximum aggregate offering price(1)	Amount of registration fee	
Units, each consisting of one share of common stock, $0.001 par value and one-half of one common stock warrant (2)			
Shares of common stock included as part of the units (3)			
Common stock warrants included as part of the units			
Shares of common stock acquirable upon exercise of the common stock warrants(3)			
TOTAL	$23,929,500	$3,083	(4)

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(1) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended. Includes estimated proceeds from the exercise of the common stock warrants.

(2) No fee pursuant to Rule 457(g) under the Securities Act of 1933, as amended.

(3) Pursuant to Rule 416 under the Securities Act of 1933, as amended, the securities being registered hereunder include such indeterminate number of additional shares of common stock as may be issued after the date hereof as a result of stock splits, stock dividends or similar transactions.

(4) $1,288 of the registration fee was previously paid.

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 (the “Securities Act”), or until this Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

The information contained 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 we are not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject To Completion, Dated January 22, 2014

PRELIMINARY PROSPECTUS

BioLife Solutions, Inc.

2,150,000 Units
Each Unit Consisting of
One Share of Common Stock and
One-Half of One Warrant to Purchase One Share of Common Stock

We are offering 2,150,000 units, each unit consisting of one share of common stock, $0.001 par value and one-half of one common stock warrant at a public offering price of $ [ ] per unit. The warrants will become exercisable and separately transferable from the shares upon the closing of this offering . At any time until five years following the date of the closing , each whole warrant entitles the holder to purchase one share at an exercise price of $[ ], subject to adjustment.

Our common stock is currently quoted on the OTCQB, under the symbol “BLFS”. We have applied to list our common stock on the Nasdaq Capital Market under the symbol “BLFS”. As of January 21, 2014 the last reported sale price of our common stock was $ 8.40 per share on the OTCQB , as adjusted for our planned 1-for-14 reverse stock split . We do not intend to apply for listing of the warrants on any securities exchange or other trading system.

We have retained Ladenburg Thalmann & Co. Inc. to act as our exclusive placement agent in connection with this offering until the expiration date of the offering. We intend to enter into a placement agency 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 but will use its best efforts to solicit offers to purchase the units being offered. Therefore, we will enter into a purchase agreement directly with investors in connection with this offering and 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. This best-efforts offering does not have a minimum purchase requirement and therefore is not certain to raise any specific amount. We will pay the placement agent a cash fee equal to: (i) 7% of aggregate gross proceeds of $1.00 up to $5,000,000 to us from the sale of the units; (ii) 8% of aggregate gross proceeds of $5,000,001 up to $10,000,000 to us from the sale of the units; and (iii) 10% of the incremental amount of aggregate gross proceeds above $10,000,000 to us from the sale of units. In addition, we will grant the placement agent or its designees warrants to purchase the number of shares that is equivalent to 3% of the number of shares sold in the transaction at an exercise price equal to 125% of the per share equivalent paid in the offering by investors. See “Plan of Distribution” beginning on page 44 of this prospectus for more information regarding this arrangement.

Investing in our common stock involves a high degree of risk. You should read this entire prospectus carefully, including the section entitled “Risk Factors” beginning on page 5 of this prospectus.

	Per Unit	Total

Public offering price	$	[ ]	$	[ ]
Placement agent's fees(1)	$	[ ]	$	[ ]
Proceeds to us, before expenses(2)	$	[ ]	$	[ ]

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(1) For the purpose of estimating the placement agent's fees, we have assumed that they will receive their maximum commission on all sales made in the offering. We have agreed to reimburse the placement agent's expenses in an amount not to exceed 1% of the aggregate gross proceeds raised in the offering. See "Plan of Distribution" beginning on page 44 of this prospectus for more information regarding this arrangement.

(2) We estimate the total expenses of this offering, excluding the placement agent fees, will be approximately $ 645,000 . Because there is no minimum offering amount required as a condition to closing in this offering, the actual public offering amount, placement agent fees, and proceeds to us, if any, are not presently determinable and may be substantially less than the total maximum offering set forth above. Once the offering price has been determined, the unit offering price and warrant exercise price will remain fixed for the duration of the offering. See "Plan of Distribution" beginning on page 44 of this prospectus for more information on this offering and the placement agent arrangements.

This offering will terminate on [ ], 2014, unless the offering is fully subscribed before that date or we decide to terminate the offering prior to that date. In either event, the offering may be closed without further notice to you. We expect that delivery of the units being offered pursuant to this prospectus will be made to the purchasers on or about [ ], 2014.

Neither the Securities and Exchange Commission, or SEC, 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 [ ], 2014

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You should rely only on the information contained in this prospectus that we have authorized for use in connection with this offering. Neither we nor the placement agent has authorized any other person to provide you with additional or different information. If anyone provides you with different or inconsistent information, you should not rely on it. Neither we nor the placement agent is making an offer to sell these securities in any jurisdiction where an offer or sale is not permitted. You should assume that the information in this prospectus is accurate only as of the date on the front cover of this prospectus, regardless of the time of delivery of this prospectus or any sale of our securities. 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, while other information is based on our internal sources. Although we believe that each source is reliable as of its respective date, the information contained in such sources has not been independently verified, and neither we, nor the placement agent can assure you as to the accuracy or completeness of this information.

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PROSPECTUS SUMMARY

This summary highlights information contained elsewhere in this prospectus and does not contain all of the information you should consider before buying shares of our securities. You should read the entire prospectus carefully, especially the "Risk Factors" section and our financial statements and the related notes appearing at the end of this prospectus, before deciding to invest in shares of our securities. Unless otherwise noted, all share and per share data in this prospectus gives effect to (i) the 1-for- 14 reverse stock split of our common stock a pproved by our board of directors on January 17 , 2014, which will convert each block of 14 shares of the common stock issued and outstanding as of the close of business on January 29 , 2014 into one share and is based on 70,414,877 pre-reverse split shares of common stock issued and outstanding as of January 21, 2014 , see "Description of Securities" below; and (ii) the issuance of approximately 2,032,635 units to two investors in exchange for the conversion of $10.6 million principal amount of outstanding promissory notes and approximately $3.6 million of interest accrued thereon, assuming an initial public offering price for the units in this offering of $ 7.00 per unit and a conversion date of February 28 , 2014. For more information about our reverse stock split, see "Recent Developments" below. Unless the context provides otherwise, all references to "BioLife," "we," "us," "our," or similar terms, refer to BioLife Solutions, Inc. In this prospectus, all references to "$" or "dollars" mean the U.S. dollar, and unless otherwise indicated all currency amounts in this prospectus are stated in U.S. dollars.

About Our Company

We develop, manufacture and market patented hypothermic storage and cryopreservation solutions for cells and tissue. Our product offerings include:

Patented biopreservation media products for cells, tissues, and organs
Generic formulations of blood stem cell freezing media products
Custom product formulation and custom packaging services
Precision thermal packaging products
Contract aseptic manufacturing formulation, fill, and finish services of liquid media products

We market our proprietary HypoThermosol® FRS and CryoStor®, generic BloodStor®, and SAVSU® 's biopreservation media products and precision thermal packaging products to the biobanking, drug discovery, and regenerative medicine markets, including hospital-based stem cell transplant centers, pharmaceutical companies, cord blood and adult stem cell banks, hair transplant centers, and suppliers of cells to the drug discovery, toxicology testing and diagnostic markets. All of our products are serum-free and protein-free, fully defined, and are manufactured under current Good Manufacturing Practices ("cGMP") using United States Pharmacopeia ("USP")/Multicompendial or the highest available grade components.

Our patented biopreservation media products are formulated to reduce preservation-induced, delayed-onset cell damage and death. Our platform enabling technology provides our customers significant shelf life extension of biologic source material and final cell products, and also greatly improved post-preservation cell, tissue, and organ viability and function. We believe that our products have been incorporated into the manufacturing, storage, shipping, freezing, and clinical delivery processes of over 100 pre-clinical and clinical trial stage regenerative medicine products and therapies.

The discoveries made by our scientists and consultants relate to how cells, tissues, and organs respond to the stress of hypothermic storage, cryopreservation, and the thawing process. These discoveries enabled the formulation of truly innovative biopreservation media products that protect biologic material from preservation-related cellular injury, much of which is not apparent immediately after return to normothermic body temperature. Our product formulations

have demonstrated remarkable reduction in apoptotic (programmed) and necrotic (pathologic) cell death mechanisms and are enabling the clinical and commercial development of dozens of innovative regenerative medicine products.

We were incorporated in Delaware in 1987 under the name Trans Time Medical Products, Inc. In 2002, the Company, then known as Cryomedical Sciences, Inc., and engaged in manufacturing and marketing cryosurgical products, completed a merger with our wholly-owned subsidiary, BioLife Solutions, Inc., which was engaged as a life sciences tools provider. Following the merger, we changed our name to BioLife Solutions, Inc. We do not have any subsidiaries.

Our principal executive offices are located at 3303 Monte Villa Parkway, Suite 310, Bothell, Washington 98021 and the telephone number is (425) 402-1400. Information about us is available on our internet website www.biolifesolutions.com. The information contained on our website or that can be accessed through our website does not constitute part of this prospectus and is not incorporated in any manner into this prospectus.

Recent Developments

Reverse Stock Split

On January 17, 2014, our board approved an amendment to our certificate of incorporation to effect a reverse stock split by a ratio of 1-for- 14 , with no reduction in the number of shares of common stock previously authorized in our certificate of incorporation. The reverse stock split will take effect on January 29, 2014 . No fractional shares of our common stock will be issued as a result of the reverse stock split. In the event the reverse stock split leaves a stockholder with a fraction of a share, the number of shares due to the stockholder will be rounded up to the nearest whole share. On December 16, 2013, our stockholders had authorized our board to approve such a reverse stock split.

Conversion of Promissory Notes in Exchange for Units

On December 16, 2013, we entered into a note conversion agreement with each of Thomas Girschweiler, a director and stockholder of the Company, and Walter Villiger, an affiliate of the Company. The noteholders hold, as of December 31 , 2013, an aggregate of $14.1 million, including $10.6 million principal amount of outstanding promissory notes and approximately $3.5 million of accrued and unpaid interest under secured convertible multi-draw term loan facility agreements entered into with each of the noteholders on January 11, 2008, which we refer to as the facility agreements. Pursuant to the note conversion agreements, the noteholders have agreed to convert on a private placement basis the outstanding indebtedness, including accrued interest thereon through the closing date, into units on substantially similar terms as the offering. In connection with the note conversion, the noteholders will release all security and the facility agreements will be terminated. Such conversion will occur concurrently with the closing of the offering. Cash will be paid in lieu of any fractional units that would otherwise be issuable.

The Offering

Units:	
Units offered	2,150,000 units, at $[ ] per unit. Each unit consists of one share and one-half of one warrant. This best-efforts offering does not have a minimum purchase requirement and therefore is not certain to raise any specific amount .
Common Stock:	
Common stock offered	2,150,000 shares
Common stock outstanding before the offering	5,029,635 shares
Common stock outstanding after the offering (including common stock issued pursuant to the note conversion agreements)	9,212,270 shares
Quoting	Our common stock is currently quoted on the OTCQB under the symbol “BLFS”.
Warrants:	
Exercisability	Each whole warrant is exercisable for one share.
Exercise Price	$[ ]
Exercise Period	The warrants become exercisable upon the closing of this offering . The warrants will expire at 5 p.m., Eastern Standard Time, on the fifth anniversary of the closing of the

	offering .
Use of Proceeds:	We intend to use the net proceeds from this offering for general corporate purposes, including working capital.
Risk Factors:	Investing in our common stock involves risks that are described in the “Risk Factors” section beginning on page 5 of this prospectus.

Summary Financial Information

The following tables summarize our financial data for the periods presented. The summary statements of operations data for the years ended December 31, 2012 and 2011, and the balance sheet data as of December 31, 2012 and 2011, have been derived from our audited financial statements, which are included elsewhere in this prospectus. The summary statements of operations data for the nine months ended September 30, 2013 and 2012, and the balance sheet data as of September 30, 2013, have been derived from our unaudited financial statements, which are included elsewhere in this prospectus. The historical results are not necessarily indicative of the results to be expected for any future periods. You should read this data together with our financial statements and the related notes included elsewhere in this prospectus, as well as "Management's Discussion and Analysis of Financial Condition and Results of Operations" beginning on page 17 of this prospectus.

Statements of Operations Data

	Years Ended December 31,		Nine Months Ended September 30,	
	2012	2011	2013	2012
Total revenue	$5,662,990	$ 2,758,729	$ 6,660,521	$ 3,614,770
Total operating expenses	3,234,657	2,612,841	2,843,390	2,175,463
Net loss	(1,659,586)	(1,956,639)	(599,592)	(1,147,998)
Basic and diluted net loss per share(1)	4,977,133	4,977,133	5,000,373	4,977,133
Basic and diluted weighted average shares used to calculate net loss per share(1)	$(0.33)	$ (0.39)	$ (0.12)	$ (0.23)

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(1) The basic and diluted net loss per share and shares used in loss per share calculation have not been adjusted to reflect the conversion of the outstanding promissory notes.

Balance Sheet Data

	December 31,		September 30,
	2012	2011	2013
Cash and cash equivalents	$196,478	$16,864	$79,287
Total assets	3,169,829	1,662,017	3,207,024
Total liabilities	15,655,852	12,842,503	16,066,394
Total shareholders' equity (deficiency)	(12,486,023)	(11,180,486)	(12,859,370)

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should consider carefully the risks and uncertainties described below, together with all of the other information contained in this prospectus, before deciding to invest in our common stock. If any of the following risks materialize, our business, financial condition, results of operation and future prospects will likely be materially and adversely affected. In that event, the market price of our common stock could decline and you could lose all or part of your investment.

Risks Related to Our Business

The majority of our net sales come from a relatively small number of customers and a limited number of market sectors; if we lose any of these customers or if there are problems in those market sectors, our net sales and operating results could decline significantly.

We derived approximately 46% of our product revenue in the fiscal year ended December 31, 2012, and approximately 55% of our product revenue in the first three quarters of 2013, from our relationship with one contract manufacturing customer, which we commenced deliveries to in the second quarter of 2012. Our principal customers may vary from period to period, and our principal customers may not continue to purchase products from us at current levels, or at all. Significant reductions in net sales to any of these customers, the loss of our major contract manufacturing customer, or our failure to make appropriate choices as to the customers we serve could seriously harm our business. In addition, we focus our net sales to customers in only a few market sectors. Each of these sectors is subject to macroeconomic conditions as well as trends and conditions that are sector specific. Shifts in the performance of a sector served by us, as well as the economic, business and/or regulatory conditions that affect the sector, or our failure to choose appropriate sectors can particularly impact us. Any weakness in the market sectors in which our customers are concentrated could affect our business and results of operations.

We have a history of losses and may never achieve or maintain profitability.

We have incurred annual operating losses since inception, and may continue to incur operating losses. For the fiscal years ended December 31, 2012 and December 31, 2011, we had net losses of $1,659,586 and $1,956,639, respectively. For the nine months ended September 30, 2013, we had a net loss of $599,592. As of September 30, 2013, our accumulated deficit was approximately $56.4 million. Of this amount, approximately $18 million has accumulated since our merger in 2002. We may not be able to successfully achieve or sustain profitability. Successful transition to profitable operations is dependent upon achieving a level of revenues adequate to support our cost structure.

We may need additional capital to reach and maintain a sustainable level of positive cash flow and if we raise such additional capital through the issuance of equity or convertible debt securities, your ownership will be diluted, and equity securities issued may have rights, preferences and privileges superior to the shares.

If we are unable to achieve profitability sufficient to permit us to fund our operations and other planned actions, we may be required to raise additional capital. There can be no assurance that such capital would be available on favorable terms, or at all. If we raise additional capital through the issuance of equity or convertible debt securities, the percentage ownership held by existing stockholders may be reduced, and the market price of our common stock could fall as a result of resales of any shares due to an increased number of shares available for sale in the market. Further, our board has the authority to establish the designation of additional shares of preferred stock that may be convertible into common stock without any action by our stockholders, and to fix the rights, preferences, privileges and restrictions, including voting rights, of such shares. Any such additional shares of preferred stock may have rights, preferences and privileges senior to those of outstanding common stock, and the issuance and conversion of any such

preferred stock would further dilute the percentage ownership of our stockholders. Debt financing, if available, may involve restrictive covenants, which may limit our operating flexibility with respect to certain business matters. If we are unable to secure additional capital as circumstances require, we may not be able to fund our planned activities or continue our operations.

There is uncertainty surrounding our ability to successfully commercialize our HypoThermosol® FRS , CryoStor® and BloodStor® biopreservation media products, biopreservation thermal packaging products and contract manufacturing services.

Our growth depends, in part, on our continued ability to successfully develop, commercialize and market our HypoThermosol® FRS , CryoStor®, and BloodStor® biopreservation media products, precision thermal packaging products and contract and manufacturing services. Even in markets that do not require us to obtain regulatory approvals, our products will not be used unless they present an attractive alternative to competitive products and the benefits and cost savings achieved through their use outweigh the cost of our products. If we are unable to develop and sustain a market for our products, this will have a material adverse effect on our results of operations and our ability to continue and grow our business.

The success of our HypoThermosol® FRS and CryoStor® biopreservation media products is dependent, in part, on the commercial success of new regenerative medicine technologies.

Our HypoThermosol® FRS and CryoStor® biopreservation media products are marketed to biotechnology companies and research institutions engaged in research and development of cell, gene and tissue engineering therapies. The end-products or therapies developed by these biotechnology companies and research institutions are subject to substantial regulatory oversight by the United States Food and Drug Administration ("FDA") and other regulatory bodies, and many of these therapies are years away from commercialization. Thus demand, if any, for HypoThermosol® FRS and CryoStor® is expected to be limited for several years. Failure of the end-products that use our biopreservation media products to receive regulatory approvals and be successfully commercialized will have an adverse effect in the demand for our products.

We face significant competition.

The life sciences industry is highly competitive. We anticipate that we will continue to face increased competition as existing companies develop new or improved products and as new companies enter the market with new technologies. Many of our competitors are significantly larger than us and have greater financial, technical, research, marketing, sales, distribution and other resources than us. There can be no assurance that our competitors will not succeed in developing or marketing technologies and products that are more effective or commercially attractive than any that are being developed or marketed by us, or that such competitors will not succeed in obtaining regulatory approval, or introducing or commercializing any such products, prior to us. Such developments could have a material adverse effect on our business, financial condition and results of operations. Also, even if we are able to compete successfully, there can be no assurance that we could do so in a profitable manner.

We are dependent on outside suppliers for all of our manufacturing supplies.

We rely on outside suppliers for all of our manufacturing supplies, parts and components. Although we believe we could develop alternative sources of supply for most of these components within a reasonable period of time, there can be no assurance that, in the future, our current or alternative sources will be able to meet all of our demands on a timely basis. Unavailability of necessary components could require us to re-engineer our products to accommodate available substitutions which could increase costs to us and/or have a material adverse effect on manufacturing schedules, products performance and market acceptance. In addition, an uncorrected defect or supplier's variation in a component or raw material, either unknown to us or incompatible with our manufacturing process, could harm our ability to manufacture products. We might not be able to find a sufficient alternative supplier in a reasonable time period, or on commercially reasonable terms, if at all. If we fail to obtain a supplier for the components of our products, our operations could be disrupted.

Our success will depend on our ability to attract and retain key personnel.

In order to execute our business plan, we must attract, retain and motivate highly qualified managerial, scientific, manufacturing, and sales personnel. If we fail to attract and retain skilled scientific and sales personnel, our sales efforts will be hindered. Our future success depends to a significant degree upon the continued services of key scientific and technical personnel. If we do not attract and retain qualified personnel we will not be able to achieve our growth objectives.

If we were to be successfully sued related to our products or operations, we could face substantial liabilities that may exceed our resources.

We may be held liable if any of our products or operations cause injury or death. These risks are inherent in the development of life sciences industry products. We currently maintain commercial general and umbrella liability policies with combined limits of $7 million per occurrence and in the aggregate, in addition to a $5 million per claim and annual aggregate product liability insurance policy consistent with industry standards. When necessary for our products, we intend to obtain additional product liability insurance. Insurance coverage may be prohibitively expensive, may not fully cover potential liabilities or may not be available in the future. Inability to obtain sufficient insurance coverage at an acceptable cost or otherwise to protect against potential product liability claims could prevent or inhibit the commercialization of our products. If we were to be sued for any injury caused by or associated with our products or operations, or if our existing litigation proceeds , the litigation could consume substantial time and attention of our management, and the resulting liability could have a material adverse effect on us .

Regulatory or other difficulties in manufacturing could have an adverse effect upon our expenses and our product revenues.

We currently manufacture our products ourselves. The manufacture of our products is difficult, complex and highly regulated. To support our current and prospective clinical customers, we intend to comply with cGMP in the manufacture of our products. Our ability to adequately and in a timely manner manufacture and supply our products is dependent on the uninterrupted and efficient operation of our facilities and those of third-parties producing supplies upon which we rely in our manufacturing. The manufacture of our products may be impacted by:

availability or contamination of raw materials and components used in the manufacturing process, particularly those for which we have no other source or supplier;
the ongoing capacity of our facilities;
our ability to comply with regulatory requirements, including our ability to comply with cGMP;
inclement weather and natural disasters;
changes in forecasts of future demand for product components;
potential facility contamination by microorganisms or viruses;
updating of manufacturing specifications; and
product quality success rates and yields.

If the efficient manufacture and supply of our products is interrupted, we may experience delayed shipments or supply constraints. If we are at any time unable to provide an uninterrupted supply of our products to customers, our customers may be unable to supply their end-products incorporating our products to their patients and other customers, which could materially and adversely affect our product sales and results of operations.

We are registered with FDA as a contract manufacturer. Our contract manufacturing customers may require us to comply with cGMP requirements and may audit our compliance with cGMP standards. If a customer finds us to be out of compliance with cGMP standards, this could have a material adverse effect on our ability to retain and attract contract manufacturing customers.

Failure to comply with the covenants and conditions of promissory notes issued by us to the noteholders could result in the acceleration of our outstanding indebtedness, and we may not have sufficient funds available to repay the amounts due.

Pursuant to the note conversion agreement, we have agreed to issue units to each of the noteholders in exchange for the conversion of $10.6 million principal amount of outstanding promissory notes and accrued and unpaid interest. Until the promissory notes are converted, they remain secured by all of our assets. An event of default, including from the failure to observe or comply with any material covenant or condition in the promissory notes or the facility agreements, could, if not cured or waived, result in the acceleration of the outstanding indebtedness and the loss of some or all of our assets. If our operations are insufficiently profitable to permit us to pay such notes when due, and these stockholders are unable or unwilling to provide access to additional funds and/or amend the terms of the facility agreements, we would need to find immediate additional sources of capital. There can be no assurance that such capital would be available on favorable terms, or at all. As such, we may have to cease operations and you could lose your investment.

If we become subject to additional regulatory requirements, the manufacture and sale of our products may be delayed or prevented, or we may become subject to increased expenses.

As an ancillary or excipient reagent used in the production, transportation, and infusion of our customers' regulated clinical products, HypoThermosol® FRS , CryoStor®, and BloodStor® are not currently subject to specific FDA or other non-US pre-market approval for drugs, devices, or biologics. In particular, we are not required to sponsor formal prospective, controlled clinical-trials in order to establish safety and efficacy. However, there can be no assurance that we will not be required to obtain approval from the FDA, or foreign regulatory authorities, as applicable, prior to marketing any of our products in the future. Any such requirements could delay or prevent the sale of our products, or may subject us to additional expenses.

We may be adversely affected if our controls over external financial reporting fail or are circumvented.

We regularly review and update our internal controls, disclosure controls and procedures, and corporate governance policies. We are required under the Sarbanes-Oxley Act of 2002 to report annually on our internal control over financial reporting, but as a smaller reporting company we are exempt from the requirement to have our independent accountants attest to our internal control over financial reporting. If it were to be determined that our internal control over financial reporting is not effective, such shortcoming could have an adverse effect on our business and financial results and the price of our common stock could be negatively affected. This reporting requirement could also make it more difficult or more costly for us to obtain certain types of insurance, including director and officer liability insurance, and we may be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. Any system of internal controls, however well designed and operated, is based in part on certain assumptions and can provide only reasonable, not absolute, assurances that the objectives of the system are met. Any failure or circumvention of the controls and procedures or failure to comply with regulation concerning

control and procedures could have a material effect on our business, results of operation and financial condition. Any of these events could result in an adverse reaction in the financial marketplace due to a loss of investor confidence in the reliability of our financial statements, which ultimately could negatively affect the market price of our shares, increase the volatility of our stock price and adversely affect our ability to raise additional funding. The effect of these events could also make it more difficult for us to attract and retain qualified persons to serve on our board and our board committees and as executive officers.

Risks Related to Our Intellectual Property

Our proprietary rights may not adequately protect our technologies and products.

Our commercial success will depend on our ability to obtain patents and/or regulatory exclusivity and maintain adequate protection for our technologies and products in the United States and other countries. We will be able to protect our proprietary rights from unauthorized use by third parties only to the extent that our proprietary technologies and products are covered by valid and enforceable patents or are effectively maintained as trade secrets.

We intend to apply for additional patents covering both our technologies and products, as we deem appropriate. We may, however, fail to apply for patents on important technologies or products in a timely fashion, if at all. Our existing patents and any future patents we obtain may not be sufficiently broad to prevent others from practicing our technologies or from developing competing products and technologies. In addition, the patent positions of life science industry companies are highly uncertain and involve complex legal and factual questions for which important legal principles remain unresolved. As a result, the validity and enforceability of our patents cannot be predicted with certainty. In addition, we cannot guarantee that:

- we were the first to make the inventions covered by each of our issued patents and pending patent applications;
- we were the first to file patent applications for these inventions;
- others will not independently develop similar or alternative technologies or duplicate any of our technologies;
- any of our pending patent applications will result in issued patents;
- any of our patents will be valid or enforceable;
- any patents issued to us will provide us with any competitive advantages, or will not be challenged by third parties; and
- we will develop additional proprietary technologies that are patentable, or the patents of others will not have an adverse effect on our business.

The actual protection afforded by a patent varies on a product-by-product basis, from country to country and depends on many factors, including the type of patent, the scope of its coverage, the availability of regulatory related extensions, the availability of legal remedies in a particular country and the validity and enforceability of the patents. Our ability to maintain and solidify our proprietary position for our products will depend on our success in obtaining effective claims and enforcing those claims once granted. Our issued patents and those that may be issued in the future, or those licensed to us, may be challenged, invalidated, unenforceable or circumvented, and the rights granted under any issued patents may not provide us with proprietary protection or competitive advantages against competitors with similar products. We also rely on trade secrets to protect some of our technology, especially where it is believed that patent protection is appropriate or obtainable. However, trade secrets are difficult to maintain. While we use reasonable efforts to protect our trade secrets, our employees, consultants, contractors or scientific and other advisors may unintentionally or willfully disclose our proprietary information to competitors. Enforcement of claims that a third party has illegally obtained and is using trade secrets is expensive, time consuming and uncertain. In addition, non-U.S. courts are sometimes less willing than U.S. courts to protect trade secrets. If our competitors independently develop equivalent knowledge, methods and know-how, we would not be able to assert our trade secrets against them and our business could be harmed.

We may not be able to protect our intellectual property rights throughout the world.

Filing, prosecuting and defending patents on all of our products in every jurisdiction would be prohibitively expensive. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products. These products may compete with our products, and may not be covered by any patent claims or other intellectual property rights.

The laws of some non-U.S. countries do not protect intellectual property rights to the same extent as the laws of the United States, and many companies have encountered significant problems in protecting and defending such rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to biotechnology, which could make it difficult for us to stop the infringement of our patents. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our business.

If we fail to protect our intellectual property rights, our competitors may take advantage of our ideas and compete directly against us.

Our success will depend to a significant degree on our ability to secure and protect intellectual property rights and enforce patent and trademark protections relating to our technology. While we believe that the protection of patents and trademarks is important to our business, we also rely on a combination of copyright, trade secret, nondisclosure and confidentiality agreements, know-how and continuing technological innovation to maintain our competitive position. From time to time, litigation may be advisable to protect our intellectual property position. However, these legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep any competitive advantage. Any litigation in this regard could be costly, and it is possible that we will not have sufficient resources to fully pursue litigation or to protect our intellectual property rights. This could result in the rejection or invalidation of our existing and future patents. Any adverse outcome in litigation relating to the validity of our patents, or any failure to pursue litigation or otherwise to protect our patent position, could materially harm our business and financial condition. In addition, confidentiality agreements with our employees, consultants, customers, and key vendors may not prevent the unauthorized disclosure or use of our technology. It is possible that these agreements will be breached or that they will not be enforceable in every instance, and that we will not have adequate remedies for any such breach. Enforcement of these agreements may be costly and time consuming. Furthermore, the laws of foreign countries may not protect our intellectual property rights to the same extent as the laws of the United States.

The patent protection for our products may expire before we are able to maximize their commercial value, which may subject us to increased competition and reduce or eliminate our opportunity to generate product revenue.

The patents for our products have varying expiration dates and, when these patents expire, we may be subject to increased competition and we may not be able to recover our development costs. In some of the larger economic territories, such as the United States and Europe, patent term extension/restoration may be available. We cannot, however, be certain that an extension will be granted or, if granted, what the applicable time period or the scope of patent protection afforded during any extended period will be.

If we are unable to obtain patent term extension/restoration or some other exclusivity, we could be subject to increased competition and our opportunity to establish or maintain product revenue could be substantially reduced or eliminated. Furthermore, we may not have sufficient time to recover our development costs prior to the expiration of our U.S. and non-U.S. patents.

We may incur substantial costs as a result of litigation or other proceedings relating to patent and other intellectual property rights and we may be unable to protect our rights to, or use of, our technology.

If we choose to go to court to stop someone else from using the inventions claimed in our patents or our licensed patents, that individual or company has the right to ask the court to rule that these patents are invalid and/or should not be enforced against that third party. These lawsuits are expensive and would consume time and other resources even if we were successful in stopping the infringement of these patents. In addition, there is a risk that the court will decide that these patents are invalid or unenforceable and that we do not have the right to stop the other party from using the inventions. There is also the risk that, even if the validity or unenforceability of these patents is upheld, the court will refuse to stop the other party on the grounds that such other party's activities do not infringe our rights.

If we wish to use the technology claimed in issued and unexpired patents owned by others, we will need to obtain a license from the owner, enter into litigation to challenge the validity or enforceability of the patents or incur the risk of litigation in the event that the owner asserts that we infringed its patents. The failure to obtain a license to technology or the failure to challenge an issued patent that we may require to discover, develop or commercialize our products may have a material adverse effect on us.

If a third party asserts that we infringed its patents or other proprietary rights, we could face a number of risks that could seriously harm our results of operations, financial condition and competitive position, including:

- patent infringement and other intellectual property claims, which would be costly and time consuming to defend, whether or not the claims have merit, and which could delay a product and divert management's attention from our business;
- substantial damages for past infringement, which we may have to pay if a court determines that our product or technologies infringe a competitor's patent or other proprietary rights;
- a court prohibiting us from selling or licensing our technologies unless the third party licenses its patents or other proprietary rights to us on commercially reasonable terms, which it is not required to do; and
- if a license is available from a third party, we may have to pay substantial royalties or lump-sum payments or grant cross licenses to our patents or other proprietary rights to obtain that license.

The biotechnology industry has produced a proliferation of patents, and it is not always clear to industry participants, including us, which patents cover various types of products or methods of use. The coverage of patents is subject to interpretation by the courts, and the interpretation is not always uniform. If we are sued for patent infringement, we would need to demonstrate that our products or methods of use either do not infringe the patent claims of the relevant patent, and/or that the patent claims are invalid, and/or that the patent is unenforceable and we may not be able to do this. Proving invalidity, in particular, is difficult since it requires a showing of clear and convincing evidence to overcome the presumption of validity enjoyed by issued patents.

U.S. patent laws as well as the laws of some foreign jurisdictions provide for provisional rights in published patent applications beginning on the date of publication, including the right to obtain reasonable royalties, if a patent subsequently issues and certain other conditions are met.

Because some patent applications in the United States may be maintained in secrecy until the patents are issued, because patent applications in the United States and many foreign jurisdictions are typically not published until 18 months after filing, and because publications in the scientific literature often lag behind actual discoveries, we cannot be certain that others have not filed patent applications for technology covered by our issued patents or our pending applications, or that we were the first to invent the technology.

Patent applications filed by third parties that cover technology similar to ours may have priority over our patent applications and could further require us to obtain rights to issued patents covering such technologies. If another party files a U.S. patent application on an invention similar to ours, we may elect to participate in or be drawn into an interference proceeding declared by the U.S. Patent and Trademark Office to determine priority of invention in the United States. The costs of these proceedings could be substantial, and it is possible that such efforts would be unsuccessful, resulting in a loss of our U.S. patent position with respect to such inventions. Some of our competitors may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have a material adverse effect on our ability to raise the funds necessary to continue our operations. We cannot predict whether third parties will assert these claims against us, or whether those claims will harm our business. If we are forced to defend against these claims, whether they are with or without any merit and whether they are resolved in favor of or against us, we may face costly litigation and diversion of management's attention and resources. As a result of these disputes, we may have to develop costly non-infringing technology, or enter into licensing agreements. These agreements, if necessary, may be unavailable on terms acceptable to us, if at all, which could seriously harm our business or financial condition.

Risks Related to our Common Stock and Other Securities and the Offering

The market for our common stock is limited and our stock price is volatile.

Our common stock, traded on the OTCQB, has historically traded at low average daily volumes, resulting in a limited market for the purchase and sale of our common stock.

The market prices of many publicly traded companies, including emerging companies in the life sciences industry, have been, and can be expected to be, highly volatile. The future market price of our common stock could be significantly impacted by numerous factors, including, but not limited to:

Future sales of our common stock or other fundraising events;
Changes in our capital structure, including stock splits or reverse stock splits;
Announcements of technological innovations for new commercial products by our present or potential competitors;
Developments concerning proprietary rights;
Adverse results in our field or with clinical tests of our products in customer applications;
Adverse litigation;
Unfavorable legislation or regulatory decisions;
Public concerns regarding our products;
Variations in quarterly operating results;
General trends in the health care industry; and
Other factors outside of our control.

The actual offering amount, the offering price and the net proceeds to us, if any, in this offering may be substantially less than the amounts set forth above.

Because there is no minimum offering amount or offering price required as a condition to closing in this offering, the actual public offering amount, offering price and net proceeds to us, if any, in this offering are not presently determinable and may be substantially less than the amounts set forth above. We are not required to sell any specific number or dollar amount of the securities offered in this offering, but the placement agent will use its best efforts to sell the securities offered.

A significant percentage of our outstanding common stock is held by two stockholders, who have also provided us with our debt financing facilities, and these stockholders therefore have significant influence on us and our corporate actions.

As of December 31 , 2013, two of our existing stockholders, Thomas Girschweiler and Walter Villiger, beneficially owned, collectively, approximately 52.4% of our outstanding shares. In addition, these two stockholders hold, as of December 31 , 2013, an aggregate $10.6 million principal amount of outstanding promissory notes and approximately $3.5 million of accrued and unpaid interest under secured convertible multi-draw term loan facility agreements. On December 16, 2013, we entered into note conversion agreements, with each of Mr. Girschweiler and Mr. Villiger. Pursuant to the note conversion agreements, Mr. Girschweiler and Mr. Villiger have agreed to convert on a private placement basis the outstanding indebtedness, including accrued interest thereon, into units pursuant to a private placement on substantially similar terms as the offering. Following conversion, the beneficial ownership of Messrs. Girschweiler and Villiger will increase from approximately 52.4% to 55.4 %, assuming we will sell 2,150,000 units on February 28, 2014 at a price of $7.00 per unit in this offering. If we sell a smaller number of units in this offering, the beneficial ownership of Messrs. Girschweiler and Villiger will be greater. Mr. Girschweiler, is also a member of our board. Accordingly, these stockholders have had, and will continue to have, significant influence in determining the outcome of any corporate transaction or other matter submitted to the stockholders for approval, including mergers, consolidations and the sale of all or substantially all of our assets, election of directors and other significant corporate actions. In addition, without the consent of these stockholders, we could be prevented from entering into transactions that could be beneficial to us. For more information regarding our principal stockholders, see "Security Ownership of Certain Beneficial Owners and Management" beginning on page 41 of this prospectus.

Trading of our stock may be restricted by the SEC's "Penny Stock" regulations, which may limit a stockholder's ability to buy and sell our stock.

The SEC has adopted regulations that include in the definition of "penny stock" any equity security that has a market price less than $5.00 per share. Our securities are covered by the penny stock rules, which impose additional sales practice requirements on broker-dealers who sell to persons other than established customers or "accredited investors." The term "accredited investor" refers generally to institutions with assets in excess of $5,000,000 or individuals with a net worth in excess of $1,000,000 or annual income exceeding $200,000 or $300,000 jointly with his or her spouse. The penny stock rules require a broker-dealer, prior to a transaction in a penny stock not otherwise exempt from the rules, to deliver a standardized risk disclosure document in a form prepared by the SEC, which provides information about penny stocks and the nature and level of risks in the penny stock market. The broker-dealer also must provide the customer with current bid and offer quotations for the penny stock, the compensation of the broker-dealer and its salesperson in the transaction and monthly account statements showing the market value of each penny stock held in the customer's account. The bid and offer quotations, and the broker-dealer and salesperson compensation information, must be given to the customer orally or in writing prior to effecting the transaction and must be given to the customer in writing before or with the customer's confirmation. In addition, the penny stock rules require that, prior to a transaction in a penny stock not otherwise exempt from these rules, the broker-dealer must make a special written determination that the penny stock is a suitable investment for the purchaser and receive the purchaser's written

agreement to the transaction. These disclosure requirements may have the effect of reducing the level of trading activity in the secondary market for the stock that is subject to these penny stock rules. Consequently, these penny stock rules may affect the ability of broker-dealers to trade our securities. We believe that the penny stock rules may discourage investor interest in, and limit the marketability of, our common stock.

FINRA sales practice requirements may also limit a stockholder's ability to buy and sell our stock.

In addition to the "penny stock" rules described above, 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 stock and have an adverse effect on the market for our shares.

You will experience immediate and substantial dilution in the book value of the shares you purchase in this offering.

The offering price is substantially higher than the net tangible book value per share of our outstanding common stock. As a result, based on our capitalization as of September 30, 2013 you will incur immediate dilution in the book value of the shares you purchase in the offering. Based upon the issuance and sale of 2,150,000 units on an assumed closing date of February 28, 2014 at an assumed initial public offering price of $ 7.00 per unit, and the issuance of approximately 2,032,635 units to the noteholders at the closing , you will incur immediate dilution of approximately $ 5.46 in the net tangible book value per share included in such units if you purchase units in this offering. In addition to this offering, subject to market conditions and other factors, we may pursue additional financings in the future, as we continue to build our business, which may result in further dilution to you.

We are at risk of securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because our stock price and those of other biotechnology and life sciences companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business. We do maintain insurance, but the coverage may not be sufficient and may not be available in all instances.

Anti-takeover provisions in our charter documents and under Delaware law could make a third-party acquisition of us difficult.

Our amended and restated certificate of incorporation and amended and restated bylaws contain provisions that may discourage unsolicited takeover proposals that stockholders may consider to be in their best interests. These provisions include the ability of our board to designate the terms of and issue new series of preferred stock without stockholder approval and to amend our bylaws without stockholder approval. Further, as a Delaware corporation, we are subject to Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years following the date that the stockholder became an interested stockholder, unless certain specific requirements are met as set forth in Section 203. Collectively, these provisions could make a third-party acquisition of us difficult or could discourage transactions that otherwise could involve payment of a premium over prevailing market prices for our common stock.

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

Our management will have broad discretion as to the application of the net proceeds. Our stockholders may not agree with the manner in which our management chooses to allocate and spend the net proceeds. Moreover, our management may use some of the net proceeds for corporate purposes that may not increase our market value or profitability.

Our use of the offering proceeds may not yield a favorable return on your investment.

We currently intend to use the net proceeds received from the sale of the securities for general corporate purposes, including working capital. Our management has broad discretion over how these proceeds are used and could spend the proceeds in ways with which you may not agree. Pending the use of the proceeds in this offering, we will invest them. However, the proceeds may not be invested in a manner that yields a favorable or any return.

Future sales of our common stock by our existing stockholders may negatively impact the trading price of our common stock.

If a substantial number of our existing stockholders decide to sell shares of their common stock in the public market following the completion of this offering, the price at which our common stock trades could decline. Additionally, the public market's perception that such sales might occur may also depress the price of our common stock. Certain existing stockholders holding approximately 4.5 million shares and options and warrants to purchase 2.5 million shares, after giving effect to the note conversion, will enter into lockup agreements pursuant to which they will agree not to sell shares of our common stock in the public market for a period of 180 days following the completion of this public offering. There is no public market for the warrants.

There is no active market for trading of the warrants, which will limit the liquidity of the warrants.

There is no established public trading market for the warrants, and we do not expect a market to develop. In addition, we do not intend to apply for listing of the warrants on any securities exchange. Without an active market, the liquidity of the warrants will be limited.

The warrants may not have any value.

The warrants will be exercisable for five years from the date of the closing of the offering at an initial exercise price per share equal to $[ ]. In the event that the price of a share does not exceed the exercise price of the warrants during

the period when the warrants are exercisable, the warrants may not have any value.

Holders of the warrants will have no rights as a common stockholder until they acquire our common stock.

Until you acquire shares upon exercise of your warrants, you will have no rights with respect to our common stock. Upon exercise of your warrants, you will be entitled to exercise the rights of a common stockholder only as to matters for which the record date occurs after the exercise date.

An effective registration statement may not be in place when an investor desires to exercise warrants, thus precluding such investor from being able to exercise his, her or its warrants at that time.

No warrant held by an investor will be exercisable and we will not be obligated to issue common stock unless at the time such holder seeks to exercise such warrant, a prospectus relating to the common stock issuable upon exercise of the warrant is current (or an exemption from registration is available) and the common stock has been registered or qualified or deemed to be exempt under the securities laws of the state of residence of the holder of the warrants. Under the terms of the warrant agreement, we have agreed to use our best efforts to meet these conditions and to maintain a current prospectus relating to the common stock issuable upon exercise of the warrants until the expiration of the warrants. However, we cannot assure you that we will be able to do so, and if we do not maintain a current prospectus related to the common stock issuable upon exercise of the warrants (and an exemption from registration is not available), holders will be unable to exercise their warrants and we will not be required to net cash settle any such warrant exercise. If we are unable to issue the shares upon exercise of the warrants by an investor because there is no current prospectus relating to the common stock issuable upon exercise of the warrant (and an exemption from registration is not available) or the common stock has not been registered or qualified or deemed to be exempt under the securities laws of the state of residence of the holder of the warrants, the warrants will not expire until ten days after the date we are first able to issue the shares. Nevertheless, because an investor may not be able to exercise the warrants at the most advantageous time, the warrants held by an investor may have no value, the market for such warrants may be limited and such warrants may expire worthless.

Risks Associated with Our Reverse Stock Split

Our board of directors has adopted an amendment to our certificate of incorporation to effect a 1 for 14 reverse stock split of our common stock. There are risks associated with a reverse stock split.

On January 17, 2014, our board approved an amendment to our certificate of incorporation to effect a reverse stock split by a ratio of 1 for 14, with no reduction in the number of shares of common stock that were previously authorized in our certificate of incorporation. The reverse stock split will take effect on January 29, 2014. No fractional shares of our common stock will be issued as a result of the reverse stock split. In the event the reverse stock split leaves a stockholder with a fraction of a share, the number of shares due to the stockholder will be rounded up to the nearest whole share.

There are certain risks associated with the reverse stock split, including the following:

- The board has not reduced the number of authorized shares of common stock in the same proportion as the reverse split, and as a result , we will have additional authorized shares of common stock that the board could issue in future without stockholder approval, and such additional shares could be issued, among other purposes, in financing transactions or to resist or frustrate a third-party transaction that is favored by a majority of the independent stockholders. This could have an anti-takeover effect, in that additional shares could be issued, within the limits imposed by applicable law, in one or more transactions that could make a change in control or takeover of us more difficult.
- There can be no assurance that the reverse stock split will achieve the benefits that we hope it will achieve. The total market capitalization of our common stock and the company after the reverse stock split may be lower than

the total market capitalization before the reverse stock split.

The reverse stock split may not increase our stock price sufficiently and we may not be able to list our common stock on the Nasdaq Capital Market, in which case this offering may not be completed.

We expect that the reverse stock split of our outstanding common stock will increase the market price of our common stock so that we will be able to meet the minimum bid price requirement of the Listing Rules of the Nasdaq Capital Market. However, the effect of a reverse stock split upon the market price of our common stock cannot be predicted with certainty, and the results of reverse stock splits by companies in similar circumstances have been varied. It is possible that the market price of our common stock following the reverse stock split will not increase sufficiently for us to be in compliance with the minimum bid price requirement. If we are unable meet the minimum bid price requirement, we may be unable to list our shares on the Nasdaq Capital Market, in which case this offering may not be completed.

Even if the reverse stock split achieves the requisite increase in the market price of our common stock, we cannot assure you that we will be able to continue to comply with the minimum bid price requirement of the Nasdaq Capital Market.

Even if the reverse stock split achieves the requisite increase in the market price of our common stock to be in compliance with the minimum bid price of the Nasdaq Capital Market, there can be no assurance that the market price of our common stock following the reverse stock split will remain at the level required for continuing compliance with that requirement. It is not uncommon for the market price of a company's common stock to decline in the period following a reverse stock split. If the market price of our common stock declines following the effectuation of the reverse stock split, the percentage decline may be greater than would occur in the absence of a reverse stock split. In any event, other factors unrelated to the number of shares of our common stock outstanding, such as negative financial or operational results, could adversely affect the market price of our common stock and jeopardize our ability to meet or maintain the Nasdaq Capital Market's minimum bid price requirement. In addition to specific listing and maintenance standards, the Nasdaq Capital Market has broad discretionary authority over the initial and continued listing of securities, which it could exercise with respect to the listing of our common stock.

Even if the reverse stock split increases the market price of our common stock, there can be no assurance that we will be able to comply with other continued listing standards of the Nasdaq Capital Market.

Even if the market price of our common stock increases sufficiently so that we comply with the minimum bid price requirement, we cannot assure you that we will be able to comply with the other standards that we are required to meet in order to maintain a listing of our common stock on the Nasdaq Capital Market. Our failure to meet these requirements may result in our common stock being delisted from the Nasdaq Capital Market, irrespective of our compliance with the minimum bid price requirement.

The reverse stock split may decrease the liquidity of the shares of our common stock.

The liquidity of the shares of our common stock may be affected adversely by the reverse stock split given the reduced number of shares that will be outstanding following the reverse stock split, especially if the market price of our common stock does not increase as a result of the reverse stock split. In addition, the reverse stock split may increase the number of stockholders who own odd lots of our common stock, creating the potential for such stockholders to experience an increase in the cost of selling their shares and greater difficulty effecting such sales.

Following the reverse stock split, the resulting market price of our common stock may not attract new investors, including institutional investors, and may not satisfy the investing requirements of those investors. Consequently, the trading liquidity of our common stock may not improve.

Although we believe that a higher market price of our common stock may help generate greater or broader investor interest, there can be no assurance that the reverse stock split will result in a share price that will attract new investors, including institutional investors. In addition, there can be no assurance that the market price of our common stock will satisfy the investing requirements of those investors. As a result, the trading liquidity of our common stock may not necessarily improve.

FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements. These forward-looking statements involve a number of risks and uncertainties. We caution readers that any forward-looking statement is not a guarantee of future performance and that actual results could differ materially from those contained in the forward-looking statement. These statements are based on current expectations of future events. Such statements include, but are not limited to, statements about future financial and operating results, plans, objectives, expectations and intentions, costs and expenses, interest rates, outcome of contingencies, financial condition, results of operations, liquidity, business strategies, cost savings, objectives of management and other statements that are not historical facts. You can find many of these statements by looking for words like “believes,” “expects,” “anticipates,” “estimates,” “may,” “should,” “will,” “could,” “plan,” “inten expressions in this prospectus. We intend that such forward-looking statements be subject to the safe harbors created thereby. Examples of these forward-looking statements include, but are not limited to:

anticipated regulatory filings and requirements;
timing and amount of future contractual payments, product revenue and operating expenses;
market acceptance of our products and the estimated potential size of these markets; and
our anticipated future capital requirements and the terms of any capital financing agreements.

These forward-looking statements are based on the current beliefs and expectations of our management and are subject to significant risks and uncertainties. If underlying assumptions prove inaccurate or unknown risks or uncertainties materialize, actual results may differ materially from current expectations and projections. Factors that might cause such a difference include those discussed under “Risk Factors,” as well as those discussed elsewhere in the prospectus.

You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this prospectus.

All subsequent written or oral forward-looking statements attributable to us or any person acting on our behalf are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. We do not undertake any obligation to release publicly any revisions to these forward-looking statements to reflect events or circumstances after the date of this prospectus or to reflect the occurrence of unanticipated events, except as may be required under applicable U.S. securities law. If we do update one or more forward-looking statements, no inference should be drawn that we will make additional updates with respect to those or other forward-looking statements.

USE OF PROCEEDS

We estimate that the net proceeds from our sale of units in this offering, assuming a public offering price of $7.00 per unit and all units are sold, after deducting underwriting discounts and estimated offering expenses payable by us, will be approximately $ 13.1 million. This amount does not include the proceeds which we may receive in connection with the exercise of the warrants. We cannot predict when or if the warrants will be exercised, and it is possible that the warrants may expire and never be exercised. The offering does not specify any minimum sale of any specific number of units and, as a result, the net proceeds actually received by us may be considerably less than the estimated net proceeds above. The principal reasons for this offering are to raise capital for general corporate purposes, including working capital, and to facilitate the listing of our common stock on the Nasdaq Capital Market.

We intend to use the net proceeds from this offering for general corporate purposes, including working capital.

We will have broad discretion over the manner in which the net proceeds of the offering will be applied, and we may not use these proceeds in a manner desired by our shareholders. Although we have no present intention of doing so, future events may require us to reallocate the offering proceeds.

PRICE RANGE OF COMMON STOCK

Our common stock is traded on the OTCQB under the ticker symbol “BLFS.” There is currently no public trading market for our warrants.

Our board of directors has approved an amendment to our certificate of incorporation to effect a 1 for 14 reverse stock split of our common stock on January 29, 2014 . The share and per share information in the table below reflects the reverse stock split.

The following table sets forth the range of high and low quarterly closing sales prices of our common stock for the periods indicated:

	High	Low
Year ended December 31, 2013		
4th Quarter	$19.60	$7.84
3rd Quarter	12.18	5.04
2nd Quarter	5.74	4.06
1st Quarter	5.88	3.50
Year ended December 31, 2012		
4th Quarter	$6.30	$1.96
3rd Quarter	2.38	0.98
2nd Quarter	1.68	0.98
1st Quarter	1.68	0.56
Year ended December 31, 2011		
4th Quarter	$1.40	$0.28
3rd Quarter	1.26	0.28
2nd Quarter	1.40	0.84
1st Quarter	1.54	0.84

The closing price per share for our common stock on January 21, 2014 as reported by the OTCQB; adjusted for the reverse stock split, the closing price per share for our common stock on such date would have been $8.40.

CAPITALIZATION

The following table sets forth our: (i) cash and cash equivalents; (ii) total assets; (iii) promissory notes payable (iv) components of shareholders' equity (deficiency); (v) total shareholders' equity (deficiency); and (vi) total liabilities and shareholders' equity (deficiency) as of September 30, 2013:

on an actual basis; and

on a pro forma as adjusted basis to reflect (i) the 1-for-14 reverse stock split to be implemented on January 29, 2014 , (ii) the sale by us of 2,150,000 units in this offering on an assumed closing date of February 28, 2014, based on an assumed initial public offering price of $7.00 per unit; (iii) the deduction of estimated placement agent fees, commissions and advisory fees and estimated offering expenses payable by us, and (iv) the issuance of 2,032,635 units to the noteholders in exchange for the conversion of $10.6 million principal amount of outstanding promissory notes and accrued and unpaid interest of approximately $3.6 million through the assumed closing date.

You should read this table together with the section of this prospectus entitled "Management's Discussion and Analysis of Financial Condition and Results of Operation", as well as our financial statements and related notes and the other financial information, appearing elsewhere in this prospectus.

	September 30, 2013	
	Actual	Pro Forma as Adjusted
Cash and cash equivalents	$79,287	$13,229,204
Total assets	$3,207,024	$16,356,941
Promissory notes payable, related parties	$10,603,127	$-
Shareholders' equity (deficiency):		
Common stock, $0.001 par value; 150,000,000 shares authorized; 70,414,877 and 9,212,270 shares issued and outstanding at September 30, 2013	70,415	9,213
Additional paid-in capital	43,480,884	70,920,443
Accumulated deficit	(56,410,669)	(56,719,927)
Total shareholders' equity (deficiency)	(12,859,370)	14,209,729
Total liabilities and shareholders' equity (deficiency)	$3,207,024	16,356,941

DILUTION

The difference between the public offering price per share, assuming no value is attributed to the warrants included in the units we are offering by this prospectus, and the pro forma net tangible book value per share after this offering constitutes the dilution to investors in this offering. Such calculation does not reflect any dilution associated with the sale and exercise of warrants. Net tangible book value per share represents the amount of our total tangible assets less total liabilities, divided by the number of shares of common stock outstanding as of September 30, 2013.

Our historical net tangible book value as of September 30, 2013 was $ (12.9) million , or approximately $(0.18) per share of common stock . After giving effect to (i) the sale of our common stock in this offering at an assumed public offering price of $ 7 per share, (ii) the deduction of estimated placement agent fees and commissions and estimated offering expenses payable by us, (iii) the 1-for- 14 reverse stock-split and (iv) the issuance of 2,032,635 units to the noteholders in exchange for the conversion of $10.6 million principal amount of outstanding promissory notes and interest of approximately $3.6 million through the assumed conversion date, our adjusted net tangible book value at September 30, 2013 would have been $ 14.2 million or $ 1.54 per share. This represents an immediate increase in net tangible book value per share of $ 1.39 to existing stockholders and noteholders, collectively , and dilution in net tangible book value per share of $5.46 to new investors who purchase units in the offering. If a smaller number of units are issued in the offering, the dilution per share experienced by new investors will be greater.

The following table illustrates this per share dilution to new investors, based on the foregoing assumptions :

Assumed initial public offering price per share		$ 7.00
Pro forma net tangible book value per share as of September 30, 2013 (as adjusted for reverse stock split and note conversions)	$ 0.15	
Increase in pro forma as adjusted net tangible book value per share attributable to this offering per share to existing investors	$ 1.39	
Pro forma as adjusted net tangible book value per share after this offering		$ 1.54
Dilution per share to new investors		$ 5.46

The following table sets forth, on the as adjusted basis described above, as of September 30, 2013, the difference between the number of shares purchased from us, the total consideration paid, and the average price per share paid by the existing stockholders and noteholders , collectively , and by investors purchasing shares in this offering, before deducting estimated placement agent fees and commissions and estimated offering expenses.

	Shares Purchased		Total Consideration		
	Number	Percent	Amount	Percent	Average Price Per Share
Existing stockholders and noteholders, collectively	7,062,270	79 %	55,026,801	79 %	$ 7.79
New investors	2,150,000	21 %	15,050,000	21 %	7.00
Total	9,212,270	100 %	70,076,801	100 %	$ 7.61

The discussions and tables above are based on 9,212,270 shares of common stock outstanding as of September 30, 2013 after giving effect to the issuance of common stock comprising a portion of the units sold in the offering. This number excludes 4,095,103 shares subject to warrants and options outstanding as of September 30, 2013 (including any warrants comprising a portion of the units sold in this offering), but gives effect to the 1-for- 14 reverse stock-split and the issuance of 2,032,635 units to the noteholders in exchange for the conversion of $10.6 million principal amount of outstanding promissory notes and interest of approximately $3.6 million through the assumed conversion date.

DIVIDEND POLICY

We have never paid cash dividends on our common stock and do not anticipate that any cash dividends will be paid in the foreseeable future. Our future dividend policy will be determined from time to time by our board.

HOLDERS OF OUR COMMON STOCK

As of December 16, 2013, we had approximately 3,090 shareholders of our common stock and 5,029,635 shares of common stock outstanding.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND OPERATING RESULTS

Except as otherwise indicated, all information included under this "Management's Discussion and Analysis of Financial Condition and Operating Results" heading does not reflect (i) the 1-for-14 reverse stock split to be effective January 29, 2014, or (ii) the issuance of an estimated 2,032,635 units to the noteholders in exchange for the conversion of $10.6 million principal amount of outstanding promissory notes and the approximate $3.6 million of accrued and unpaid interest thereon through the assumed conversion date of February 28, 2014.

General

You should read the following discussion and analysis of our financial condition and results of operations together with our financial statements, including the related notes, set forth elsewhere in this prospectus. This discussion and analysis contains forward-looking statements that involve risks, uncertainties and assumptions. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of many factors, including, but not limited to, those set forth under "Risk Factors" and elsewhere in this prospectus.

Our financial statements are stated in United States dollars and are prepared in accordance with United States generally accepted accounting principles.

Recent Accounting Pronouncements

There have been no new accounting pronouncements made effective during the nine month period ended September 30, 2013 or not yet effective, that are of significance, or potential significance, to us.

Recent Developments

On January 17, 2014, our board approved an amendment to our certificate of incorporation to effect a reverse stock split by a ratio of 1 for 14 , with no reduction in the number of shares of common stock that were previously authorized in our certificate of incorporation. The reverse stock split will take effect on January 29, 2014. No fractional shares of our common stock will be issued as a result of the reverse stock split. In the event the reverse stock split leaves a stockholder with a fraction of a share, the number of shares due to the stockholder will be rounded up to the nearest whole share. On December 16, 2013, our stockholders had authorized our board to approve such a reverse stock split.

On January 6, 2014, we announced preliminary revenue of approximately $9.0 million for the fiscal year ended December 31, 2013, of which approximately $4.4 million was attributable to contract manufacturing services, approximately $3.9 million was attributable to core product sales, and approximately $0.6 million was attributable to licensing revenue.

On December 16, 2013, we entered into a note conversion agreement with each of Thomas Girschweiler, a director and stockholder of the Company, and Walter Villiger, an affiliate of the Company. The noteholders hold, as of December 31 , 2013, an aggregate $10.6 million principal amount of outstanding promissory notes and approximately $3.5 million of accrued interest under facility. Pursuant to the note conversion agreements, the noteholders have agreed to convert on a private placement basis the outstanding indebtedness, including accrued interest thereon through the closing date, into units on substantially similar terms as the offering. Such conversion will occur concurrently with the closing of the offering. Cash will be paid in lieu of any fractional units that would otherwise be issuable.

On December 16, 2013, we filed an application to list our common stock on the Nasdaq Capital Market. We cannot assure you that we will be able to comply with the standards necessary in order to obtain a listing of our common stock on the Nasdaq Capital Market.

Results of Operations

Comparison of Results of Operations for the Three and Nine Month Periods Ended September 30, 2013 and 2012

Percentage comparisons have been omitted within the following table where they are not considered meaningful.

Revenue and Gross Margin

	Three Month Period Ended September 30,			
	2013	2012	% Change	
Revenue:				
Core product sales	$1,002,086	$620,627	61	%
Contract manufacturing services	1,168,405	1,055,853	15	%
Licensing revenue	—	5,000		
Total revenue	2,170,491	1,681,480	29	%
Cost of sales	1,281,634	1,086,031	18	%
Gross profit	$888,857	$595,449	49	%
Gross margin %	41.0 %	35.4 %		

	Nine Month Period Ended September 30,			
	2013	2012	% Change	
Revenue:				
Core product sales	$2,713,787	$2,202,634	23	%
Contract manufacturing services	3,337,567	1,397,136	146	%
Licensing revenue	609,167	15,000		
Total revenue	6,660,521	3,614,770	84	%
Cost of sales	3,817,737	2,073,909	84	%
Gross profit	$2,842,784	$1,540,861	84	%
Gross margin %	42.7 %	42.6 %		

Core Product Sales. Our core products are sold through both direct and indirect channels. Sales to our core customers in the three and nine months ended September 30, 2013 increased compared to the same periods in 2012 due primarily to higher direct product sales to the regenerative medicine market segment. Higher core product sales for the three and nine months ended September 30, 2013 were the result of a 40% and 9%, respectively, increase in volume sold and a 15% and 13%, respectively, increase in our average selling price per liter. Sales to the regenerative medicine segment tend to be uneven due to the pace of product evaluation, adoption, and clinical trials.

Contract Manufacturing Services. Contract manufacturing services in 2013 represents sales of product to one significant customer. Contract manufacturing services revenue increased in the three and nine months ended September 30, 2013 due to the ramp up of business after commencing in the second quarter of 2012.

Licensing Revenue. During the first quarter of 2013, we negotiated a new intellectual property license agreement that provides one customer with limited access to our intellectual property under certain conditions. This customer paid upfront fees for the specific rights and there are no future performance obligations. The upfront fee of $500,000 was

recognized as revenue during the quarter and $109,167 in deferred revenue associated with this customer was recognized as all future performance obligations associated with the previous license agreements were cancelled with the agreement signed in the first quarter of 2013.

Cost of Sales. Cost of sales consists of raw materials, labor and overhead expenses. Cost of sales in the three and nine months ended September 30, 2013 increased compared to the same periods in 2012 due primarily to the significant increase in sales to our contract manufacturing services customer.

Gross Margin. Gross margin as a percentage of revenue increased in the three months ended September 30, 2013 compared to the same period in 2012 due primarily to the significant increase in core product sales which has a higher gross margin, compared to contract manufacturing services compared to 2012. Gross margin as a percent of revenue was relatively flat for the nine months ended September 30, 2013 compared to the same period in 2012. Gross margin in the nine months ended September 30, 2013 includes the impact of recognition of significant license revenue during the quarter with no associated costs. In addition, gross margin increased during the nine months ended September 30, 2013 due to the increase in core product sales, offset by increased contract manufacturing services, which has a higher cost of sales, compared to core product sales.

Operating Expenses

Our operating expenses for the three and nine month periods ended September 30, 2013 and 2012 were:

	Three Month Period Ended September 30,			
	2013	2012	% Change	
Operating Expenses:				
Research and development	$160,528	$110,689	45	%
Sales and marketing	208,080	145,735	43	%
General and administrative	630,342	487,733	29	%
Operating Expenses	998,950	744,157	34	%
% of revenue	46 %	44 %		

	Nine Month Period Ended September 30,			
	2013	2012	% Change	
Operating Expenses:				
Research and development	$361,404	$353,837	2	%
Sales and marketing	625,600	379,774	65	%
General and administrative	1,856,386	1,441,852	29	%
Operating Expenses	2,843,390	2,175,463	31	%
% of revenue	43 %	60 %		

Research and Development. Research and Development expenses consist primarily of salaries and other personnel expenses, consulting and other outside services, laboratory supplies, and other costs. We expense all R&D costs as incurred. R&D expenses for the three and nine months ended September 30, 2013 increased compared to the same periods in 2012 primarily due to spending on consulting and supplies related to the development of new products.

Sales and Marketing. Sales and marketing expenses consist primarily of salaries and other personnel-related expenses, consulting, trade shows and advertising. The significant increase in the three and nine months ended September 30, 2013 compared to the same periods in 2012 was due to primarily increased personnel costs which resulted from adding team members to this team, primarily in the second quarter of 2012.

General and Administrative Expenses. General and administrative expenses consist primarily of salaries and other personnel-related expenses, non-cash stock-based compensation for administrative personnel and non-employee members of the board, professional fees, such as accounting and legal, corporate insurance and facilities costs. The increase in general and administrative expenses in the three and nine months ended September 30, 2013 compared to the same periods in 2012 was due primarily to higher corporate costs, including higher director’s fees, higher legal fees, higher consulting fees for investor relations, information technology and shareholder communication.

Other Income (Expenses)

Other Income. Other income for the nine months ended September 30, 2012 is primarily the result of $87,215 related to inventory received in a non-monetary transaction during the first quarter of 2012 and gains on the sale of equipment.

Interest Expense. The increase in interest expense in the first nine months of 2013 compared to the same period in 2012 is due to a higher debt balance related to additional borrowings of $475,000 in the first half 2012.

Amortization of Deferred Financing Costs. Amortization of deferred financing costs represents the cost of warrants issued which are being amortized over the life of the debt.

Comparison of Results of Operations for the Fiscal Years Ended December 31, 2012 and 2011

Percentage comparisons have been omitted within the following table where they are not considered meaningful.

Revenue and Gross Margin

	Year Ended December 31,			
	2012	2011	% Change	
Revenue:	(dollars in thousands)			
Product revenue				
Direct	$2,291	$1,893	21	%
Indirect	728	565	29	%
Core product sales	3,019	2,458	23	%
Contract manufacturing services	2,624	281	834	%
Total product sales	5,643	2,739	106	%
Licensing revenue	20	20	—	
Total revenue	5,663	2,759	105	%
Cost of sales	3,371	1,356	149	%
Gross profit	$2,292	$1,403	63	%
Gross margin %	40.5 %	50.9 %		

Core Product Sales. Our core products are sold through both direct and indirect channels to the customers in the biobanking, drug discovery, and regenerative medicine markets. Sales to our direct customers in 2012 increased compared to 2011 due primarily to higher sales to existing customers, sales to new customers, higher selling prices in 2012 compared to 2011 for our family of core products, and the addition of three team members engaged in product sales.

Contract Manufacturing Services. To leverage our capacity and the market opportunity for contract manufacturing services, we are manufacturing products for third parties pursuant to contractual arrangements. In 2012, contract manufacturing services primarily represented shipments to one significant customer, a company engaged in the development and marketing of organ preservation solutions and devices. This customer accounted for 46% of total revenue in 2012 and $1.2 million, or 60% of total revenue in the fourth quarter of 2012.

Cost of Product Sales. Cost of sales consists of raw materials, labor and overhead expenses. Cost of sales in 2012 increased compared to 2011 due to the significant increase in sales of both core and contract manufacturing products.

Gross Profit and Gross Margin. Gross profit increased in 2012 compared to 2011 due to the significant increase in sales of both core and contract manufacturing products. Gross margin as a percentage of revenue decreased significantly in 2012 compared to 2011 due primarily to the increase in contract manufacturing product sales, which has a higher cost of sales, compared to core product sales. Additionally, gross margin declined due to additional personnel and other costs included in cost of goods sold related to the expansion of our production operations.

Licensing Revenue. We have entered into license agreements with one customer that provides this customer with limited access to our intellectual property under certain conditions. This customer paid upfront fees for the specific rights and we recognize license revenue ratably over the term of the agreements.

Revenue Concentration. In 2012, we derived approximately 46% of our product revenue from our relationship with one contract manufacturing customer, which we commenced deliveries to in the second quarter of 2012. Either party may terminate the agreement with this contract manufacturing customer for any reason on six months' notice. No other customer accounted for more than 10% of revenue in 2012. In 2011, no individual customer accounted for more than 10% of sales. Revenue from customers located in foreign countries represented 11% and 13% of total revenue during

the years ended December 31, 2012 and 2011, respectively.

Operating Expenses

Our operating expenses for the years ended December 31, 2012 and 2011 were:

(dollars in thousands)	Year Ended December 31, 2012		2011	
Research and development	$464		$516	
% of revenue	8	%	19	%
Sales and marketing	619		267	
% of revenue	11	%	10	%
General and administrative	2,152		1,829	
% of revenue	38	%	66	%
Total operating expenses	3,235		2,613	
% of revenue	57	%	95	%

Research and Development. Research and Development expenses consist primarily of salaries and other personnel-related expenses, consulting and other outside services, laboratory supplies, and other costs. We expense all research and development costs as incurred. Research and development expenses decreased in 2012 compared to 2011 due primarily to reduced spending with contract research organizations, which accounted for approximately $25,000 of the variance and lower spending on patent related legal expenses, which accounted for $45,000 of the difference. This was offset slightly by an increase in personnel related costs.

Sales and Marketing. Sales and marketing expenses consist primarily of salaries, trade association sponsorships, and other personnel-related expenses, consulting, trade shows and advertising. The increase in sales and marketing expenses in 2012 compared to 2011 was primarily due to increased personnel costs which resulted from the additional team members on this team which were added in the second quarter of 2012. The additional team members were added to focus on our sales of our core products through both direct sales to customers and through our indirect distribution network.

General and Administrative Expenses. General and administrative expenses consist primarily of salaries, bonuses and other personnel-related expenses, non-cash stock-based compensation for administrative personnel and non-employee members of the board of directors, professional fees, such as accounting and legal, corporate insurance and facilities costs. General and administrative expenses were higher in 2012 compared to 2011 due to higher personnel costs in 2012, offset somewhat by a reduction in consulting expenses due to the termination of one consulting agreement in the third quarter of 2011.

Other Income (Expenses)

Interest Expense. The increase in interest expense in 2012 compared to 2011 was due to a higher average debt balance.

Amortization of Deferred Financing Costs. Amortization of deferred financing costs represents the cost of warrants issued which are being amortized over the life of the warrants.

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Liquidity

We have been unable to generate sufficient income from operations in order to meet our operating needs and have an accumulated deficit of approximately $56.4 million as of September 30, 2013. Of this amount, approximately $18 million has accumulated since our merger in 2002.

We believe our current cash and cash provided by operations will satisfy our working capital requirements, debt obligations and capital expenditures for the foreseeable future. Our future capital requirements and the adequacy of our available funds will depend on many factors, including future profitable operations, debt repayment, and competing technological and market developments.

Our working capital factors, such as inventory turnover and days sales outstanding, fluctuate on a quarterly basis and, on an interim basis during the year, may require an influx of short-term working capital. We will continuously assess the most appropriate method of financing our short and long term operations. While conditions of the credit market at any given time may impact our ability to obtain credit, we believe that we have the ability to raise funds, if needed, through public and private markets.

Future debt repayment or future acquisitions may be financed by a combination of cash on hand, our positive cash flow generation, a revolving credit facility, or an issuance of new debt or stock.

As of September 30, 2013, we had outstanding $10.6 million principal amount of promissory notes, plus accrued interest thereon , due January 11, 2016 under the facilities held by the noteholders, secured by all of our assets. Pursuant to the note conversion agreements, based on an assumed conversion date of February 28, 2014 and the 1-for-14 reverse stock split , we will issue approximately 2,032,635 units to the noteholders in exchange for the conversion of the outstanding promissory notes, including accrued interest thereon through the conversion date. However, prior to the conversion, an event of default, including from the failure to observe or comply with any material covenant or condition in the promissory notes could, if not cured or waived, result in the acceleration of our outstanding indebtedness.

As of September 30, 2013, we had cash and cash equivalents of $79,287, compared to cash and cash equivalents of $196,478 at December 31, 2012 and $16,864 at December 31, 2011. At September 30, 2013, we had working capital of $426,512, compared to working capital of $262,421 at December 31, 2012 and $581,159 at December 31, 2011. The increase in our working capital from December 31, 2012 to September 30, 2013 is due primarily to an increase in our accounts receivable, offset by a smaller decrease in accounts payable. The decline in our working capital from December 31, 2011 to December 31, 2012 is due primarily to an increase in our accounts payable related to purchases of materials, which significantly increased in 2012.

Net Cash Provided By Operating Activities

During the nine months ended September 30, 2013, net cash provided by operating activities was $67,460 compared to $686,128 for the nine months ended September 30, 2012. Cash provided by operating activities included an increase in deferred rent related to tenant improvements which were funded by our landlord, offset by payment to the landlord and amortization of deferred rent, of $88,258 and $766,082 during the nine months ended September 30, 2013 and 2012, respectively. Cash provided by operating activities also includes the use of cash to fund net losses and changes in operating assets and liabilities, offset by non-cash compensation related to stock options and depreciation.

During the year ended December 31, 2012, net cash provided by operating activities was $854,934 compared to net cash used by operating activities of $989,917 for the year ended December 31, 2011. Cash used in operating activities relates primarily to funding net losses and changes in operating assets and liabilities, offset by non-cash compensation

related to stock options and depreciation. In 2012, cash provided by operating activities included an increase in deferred rent of $901,000 related to lease incentives received from our landlord.

Net Cash Used in Investing Activities

Net cash used in investing activities totaled $235,109 and $1,170,463 during the nine months ended September 30, 2013 and 2012, respectively. Cash used in investing activities was primarily due to the increase in tenant improvements related to our expanded manufacturing facility and the purchase of equipment.

Net cash used in investing activities totaled $1,150,320 during the year ended December 31, 2012, and $91,430 during the year ended December 31, 2011. Cash used in investing activities was due primarily to the increase in tenant improvements related to our expanded manufacturing facility and the purchase of equipment.

Net Cash Provided by Financing Activities

Net cash provided by financing activities of $50,458 during the nine months ended September 30, 2013 was the result of proceeds received from warrant and employee stock option exercises. Net cash provided by financing activities of $475,000 during the nine months ended September 30, 2012, resulted from funding from two existing shareholders under the existing Facilities.

Net cash provided by financing activities was $475,000 and $1,095,000 during the years ended December 31, 2012 and 2011, respectively. Cash provided by financing activities resulted from funding from two existing shareholders under the existing Facilities.

As of September 30, 2013 and December 31, 2012, the unused portion of the Facilities was approximately $900,000.

Off-Balance Sheet Arrangements

As of September 30, 2013 and December 31, 2012, we did not have any off-balance sheet arrangements.

Critical Accounting Policies and Significant Judgments and Estimates

The discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of financial statements requires that we make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements as well as reported revenues and expenses during the reporting periods. On an ongoing basis, we evaluate estimates, including, but not limited to those related to accounts receivable allowances, determination of fair value of share-based compensation, contingencies, income taxes, and expense accruals. We base our estimates on historical experience and on other factors that we believes are 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 may differ materially from these estimates under different assumptions or conditions.

Share-based Compensation

We account for share-based compensation by estimating the fair value of share-based compensation using the Black-Scholes option pricing model on the date of grant. We utilize assumptions related to stock price volatility, stock option term and forfeiture rates that are based upon both historical factors as well as management's judgment. Non-cash compensation expense is recognized on a straight-line basis over the applicable requisite service period of one to four years, based on the fair value of such share-based awards on the grant date.

Income Taxes

We follow the asset and liability method of accounting for income taxes. Under this method, deferred tax assets and liabilities are determined based on differences between the financial reporting and tax basis of assets and liabilities and on the expected future tax benefits to be derived from net operating loss carryforwards measured using current tax rates. A valuation allowance is established if it is more likely than not that some portion or all of the deferred tax assets will not be realized. We have not recorded any liabilities for uncertain tax positions or any related interest and penalties. Our tax returns are open to audit for the years ending December 31, 2009 to 2012.

BUSINESS

We develop, manufacture and market patented hypothermic storage and cryopreservation solutions for cells and tissue. Our product offerings include:

Patented biopreservation media products for cells, tissues, and organs
Generic formulations of blood stem cell freezing media products
Custom product formulation and custom packaging services
Precision thermal packaging products
Contract aseptic manufacturing formulation, fill, and finish services of liquid media products

Our proprietary HypoThermosol® FRS and CryoStor®, generic BloodStor® and SAVSU®'s biopreservation media products and precision thermal packaging products are marketed to the biobanking, drug discovery, and regenerative medicine markets, including hospital-based stem cell transplant centers, pharmaceutical companies, cord blood and adult stem cell banks, hair transplant centers, and suppliers of cells to the drug discovery, toxicology testing and diagnostic markets. All of our products are serum-free and protein-free, fully defined, and are manufactured under cGMP using USP/Multicompendial or the highest available grade components.

Our patented biopreservation media products are formulated to reduce preservation-induced, delayed-onset cell damage and death. Our platform enabling technology provides our customers significant shelf life extension of biologic source material and final cell products, and also greatly improved post-preservation cell, tissue, and organ viability and function. We believe that our products have been incorporated into the manufacturing, storage, shipping, freezing, and clinical delivery processes of over 100 pre-clinical and clinical trial stage regenerative medicine products and therapies.

The discoveries made by our scientists and consultants relate to how cells, tissues, and organs respond to the stress of hypothermic storage, cryopreservation, and the thawing process. These discoveries enabled the formulation of innovative biopreservation media products that protect biologic material from preservation-related cellular injury, much of which is not apparent immediately after return to normothermic body temperature. Our product formulations have demonstrated notable reduction in apoptotic (programmed) and necrotic (pathologic) cell death mechanisms and are enabling the clinical and commercial development of dozens of innovative regenerative medicine products.

We were incorporated in Delaware in 1987 under the name Trans Time Medical Products, Inc. In 2002, the Company, then known as Cryomedical Sciences, Inc., and engaged in manufacturing and marketing cryosurgical products, completed a merger with our wholly-owned subsidiary, BioLife Solutions, Inc., which was engaged as a life sciences tools provider. Following the merger, we changed our name to BioLife Solutions, Inc. We do not have any subsidiaries.

Our principal executive offices are located at 3303 Monte Villa Parkway, Suite 310, Bothell, Washington 98021 and the telephone number is (425) 402-1400. Information about us is available on our internet website www.biolifesolutions.com. The information contained on our website or that can be accessed through our website does not constitute part of this prospectus and is not incorporated in any manner into this prospectus.

Mission

We strive to be the leading provider of biopreservation tools for cells, tissues, and organs; to facilitate basic and applied research and commercialization of new therapies by maintaining the health and function of biologic source material and finished products during the preservation process.

Technological Overview

Stability (shelf life) and functional recovery are crucial aspects of academic research and clinical practice in the biopreservation of biologic-based source material, intermediate derivatives, and isolated/derived/expanded cellular products. Limited stability is especially critical in the regenerative medicine field, where harvested cells and tissue, if not maintained appropriately at normothermic body temperature (98.6ºF/37ºC), or stored in an effective preservation medium, will lose viability over time. Chilling (hypothermia) is used to reduce metabolism and delay degradation of harvested cells, tissues, and organs. However, subjecting biologic material to hypothermic environments produces mixed results. Although cooling successfully reduces metabolism (i.e., lowers demand for energy), various levels of cellular damage and death occur when using suboptimal methods. To solve this problem, transplant surgeons, for example, flush the donor tissue with an engineered preservation solution designed to provide short-term biopreservation support after removal of the organ from the donor and during transportation. Companies and hospital cell transplantation centers engaged in regenerative medicine product development also maintain the original and derived cellular material in a solution before and after cell manipulation and processing, and during necessary transportation up to the point of infusion/injection into the patient. Traditional support solutions range from simple "balanced salt" (electrolyte) formulations to complex mixtures of electrolytes, energy substrates such as sugars, osmotic buffering agents and antibiotics. The limited stability which results from these traditional biopreservation media formulations is a significant shortcoming that our optimized products address with great success.

Our scientific research activities over the last 20 years enabled a detailed understanding of the molecular basis for the hypothermic and cryogenic (low-temperature induced) damage/destruction of cells through apoptosis and necrosis. This research led directly to the development of our HypoThermosol®, HypoThermosol® FRS and CryoStor® technologies. Our products are specifically formulated to:

Minimize cell and tissue swelling
Reduce free radical levels upon formation
Maintain appropriate low temperature ionic balances
Provide regenerative, high energy substrates to stimulate recovery upon warming
Avoid the creation of an acidic state (acidosis)
Inhibit the onset of apoptosis and necrosis

A key feature of our products is their “fully-defined” nature. All of our cGMP products are serum-free, protein-free and are formulated and filled using aseptic processing, utilizing USP/Multicompendial grade or highest quality available synthetic components. All of these features benefit prospective customers by facilitating the qualification process required to incorporate our products into their manufacturing regulatory filings and patient delivery processes.

The results of independent testing demonstrate that our HypoThermosol® FRS and CryoStor® biopreservation media products significantly extend shelf-life and improve cell and tissue post-thaw viability and function, which may, in turn, improve clinical and commercial outcomes for existing and new cell and tissue therapy applications. Our products have demonstrated improved biopreservation outcomes for a broad array of cell and tissue types including stem cells isolated from umbilical and peripheral blood, bone marrow, adipose tissue, liver, tendon, and umbilical cord tissue, and also for induced pluripotent stem cells including hepatocytes, endothelial cells, and neuronal cells, hepatocytes isolated from non-transplantable livers, chondrocytes isolated from cartilage, and dermal fibroblasts and

muscle cells isolated from tissue biopsies.

Our proprietary HypoThermosol® FRS technology is optimized based on low temperature cellular and molecular biology principles. Competing biopreservation media products are often formulated with simple isotonic media cocktails, animal serum, potentially a single sugar or human protein, and in the case of cryopreservation media, a single permeating cryoprotectant such as dimethyl sulfoxide ("DMSO"). A key differentiator of our proprietary formulations is the engineered optimization of the key ionic component concentrations for low temperature environments, as opposed to normothermic body temperature around 37°C, as found in culture media or saline-based isotonic formulas. Furthermore, our CryoStor® formulations incorporate multiple permeating and non-permeating cryoprotectant agents, which allow for multiple mechanisms of cryogenic protection and reduces the dependence on a single cryoprotectant.

Our research and intellectual property related to the cellular stress response to cold temperature also led to discoveries in the field of cryosurgery. Specifically, through contracted research and completion of the specific aims of two National Institutes of Health ("NIH") Small Business Innovative Research ("SBIR") grants awarded to Cryomedical Sciences, our predecessor, and to BioLife, we determined via in vitro experiments on cancer cells, that the combination of chemotherapy and cryosurgery was more effective than cryosurgery alone. This intellectual property was excluded from the asset sold to Endocare in 2002, and has been the subject of extensive publications.

Products

HypoThermosol®

HypoThermosol® biopreservation media is a novel, engineered, optimized hypothermic storage and shipping media product.

Serum-free, protein-free HypoThermosol® is designed to provide maximum storage and shipping stability for biologics at 2°-8°C.

This proprietary, optimized formulation mitigates temperature-induced molecular cell stress responses that occur during chilling and re-warming of biologics, intermediate products, and final cell products intended for research and clinical applications.

Similar to our companion freeze media CryoStor®, HypoThermosol® includes components that scavenge free radicals, provide pH buffering, oncotic/osmotic support, energy substrates, and ionic concentrations that balance the intracellular state at low temperatures.

Across a broad spectrum of cell and tissue types, intracellular-like HypoThermosol® has proven more effective in reducing post-preservation necrosis and apoptosis as compared to commercial and home-brew isotonic and extracellular formulations. This results in greatly extended shelf life and improved post-preservation viability.

HypoThermosol is manufactured under cGMP and is tested to USP <71> Sterility and USP <85> Endotoxin standards.

HypoThermosol® FRS

Our newer formulation of HypoThermosol®, HypoThermosol® FRS, is the version of HypoThermosol® we are currently selling to our customers. In addition to providing intracellular-like balance to cells and tissues at low temperatures, this solution has been formulated to decrease the free radical accumulation in cells undergoing prolonged hypothermic preservation. Numerous investigators have shown that an increase in free radicals can lead to either necrosis (pathological cell death) or apoptosis (programmed cell death) in clinical conditions. HypoThermosol® FRS is very effective at extending the shelf life and improving the post-preservation viability and function of numerous cell and tissue types.

PrepaStor®

PrepaStor®, formerly branded as HypoThermosol® PURGE is a flush solution specifically designed for use during the transitions from normothermic to mild hypothermic conditions (37°C to 20°C) to rinse culture media and native fluids from tissue and whole organ systems prior to suspension in a preservation solution. PrepaStor® is also used to support the transition from hypothermic to normothermic temperatures following the preservation interval.

CryoStor®

CryoStor® cryopreservation freeze media products have been designed to mitigate temperature-induced molecular cell stress responses during freezing and thawing. CryoStor® proprietary freeze media products are intended for cryopreservation of biologics at subzero temperatures (most often utilized within -80 to -196°C) and are based upon the novel HypoThermosol® platform. All CryoStor® products are pre-formulated with USP/EP grade DMSO, a permeating cryoprotective agent which helps mitigate damage from the formation of intracellular and extracellular ice.

Across a broad spectrum of cell types, CryoStor® products have proven more effective in reducing post-preservation necrosis and apoptosis as compared to commercial and home-brew isotonic and extracellular formulations without the addition of serum or protein. This enables improved post-thaw cell yield, viability, and recovery.

CryoStor® is manufactured under cGMP and is tested to USP <71> Sterility and USP <85> Endotoxin standards.

CryoStor® is offered in several packages and pre-formulated with DMSO in final concentrations of 2%, 5%, and 10%.

CryoStor® CS2

Pre-formulated with 2% DMSO, in some cell types, CryoStor® CS2 has demonstrated biopreservation efficacy at or above the levels of competing commercial and in-house formulated freeze media, even in the presence of significantly reduced levels of DMSO.

CryoStor® CS5

Pre-formulated with 5% DMSO, CryoStor® CS5 routinely outperforms competing freeze media containing 10% DMSO and is recommended for cryopreservation of most cell types.

CryoStor® CS10

Pre-formulated with 10% DMSO, CryoStor® CS10 has demonstrated remarkable biopreservation efficacy in numerous cell types, including sensitive cells such as hepatocytes. CryoStor® CS10 has demonstrated improved post-thaw cell survival and function in specific cell systems that may be more sensitive to cryopreservation-induced cell damage and death. This variant has also been adopted by customers with cell processing methods that might entail some dilution of the cryopreservation media.

BloodStor®

BloodStor® freeze media is specifically designed for cryopreservation of cells isolated from umbilical cord blood, peripheral blood, and bone marrow where the processing methods require addition of high concentration DMSO.

BloodStor® 55-5 is pre-formulated with 55% (w/v) DMSO USP/EP, 5% (w/v) Dextran-40 USP/EP, and water for injection (WFI) quality water. BloodStor® 100 contains 100% (w/v) DMSO USP/EP.

BloodStor® is manufactured under cGMP and tested to USP <71> Sterility and USP <85> Endotoxin standards.

Precision Thermal Packaging Products

On a worldwide exclusive basis, we distribute a portfolio of precision thermal packaging products to the regenerative medicine and stem cell markets. The products are designed and manufactured by SAVSU Technologies, Inc., a wholly owned subsidiary of Barson Corporation. We believe there is a significant unmet need for improved temperature stability during the transportation and shipping of cells and tissues, which is not currently met by the commercially available thermal shippers. Current commercial alternatives range from Styrofoam and EPS “beer cooler” type containers inside a cardboard box, up to and including vacuum panel insulation cartons. These alternatives suffer from reduced performance due to the form factor design and/or materials used. We believe that the design and superinsulating material used in SAVSU thermal shippers, along with the robustness of the products and reusability, will present a very favorable value proposition to the regenerative medicine and stem cell markets.

PHD™ 2 – 8 C Shipper

The PHD™ line is designed for the shipment of materials, which must be maintained at 2-8˚C and or controlled room temperature (CRT) temperatures and is designed for small volume shipments from single dose to 3 liters in volume. Utilizing our antifreeze technology the PHD™ reduces the risk of freezing of 2-8˚C shipments. We believe the improved insulation performance of the PHD™ will also allow for extended shipping periods and thereby give greater product safety assurance. The packout process is completed in minutes, saving labor time.

CryoQ™ Dry Ice Shipper

The CryoQ™ line is designed for the shipment of small volumes of biomaterials, which need to be shipped at extremely stable deep-frozen temperatures when used with small volumes of dry ice. The CryoQ™ utilizes a Vial Rack system to deliver precision temperature management even after significant sublimation of dry ice has occurred. The Vial Rack system allows for reliable temperature stability even during rigorous shipping conditions. The unique benefit of the Vial Rack and CryoQ design is the ability to maintain uniform temperature around the entire payload volume, providing thermal protection for the biologic payload inside the shipper.

Market Opportunity

Recent advances in cord blood banking, adult stem cell banking, cell therapy, and tissue engineering have highlighted the significant and unmet need to maintain the stability and shelf life of biologics in the development and commercialization of new regenerative medicine products and therapies. Scarce and fragile source cells or tissues are extracted from a patient, transported to a cell processing and culture laboratory, and then transported back to the clinic for patient infusion or injection. Because this entire process can take months and may involve transportation over long distances, maintenance of cellular viability is of paramount importance.

The Visiongain report "Translational Regenerative Medicine: Market Prospects 2012-2022" values the regenerative medicine market at $1.4 billion in 2012, and anticipates the market growing to $10 billion by 2020. More recently, in March 2013, TriMarkPublications forecasted that the regenerative medicine market will catapult to over $35 billion by 2019. BioLife's addressable portion of the market is the demand for reagents used to store, ship and freeze source material and manufactured doses of cell-based products and therapies.

Our target markets include:

Regenerative Medicine

Our proprietary HypoThermosol® FRS and CryoStor® biopreservation media products are used by customers to store, transport, and freeze biologic source material and cell-or tissue-based final products. Our scientific discoveries related to preservation-induced cell stress enabled the development and commercialization of a new class of patented biopreservation media formulations that have demonstrated broad and significant ability to extend shelf life/stability and improve post-preservation viability and function of numerous biologics. A number of regenerative medicine products may be non-frozen with shelf life less than 24 hours. This limited shelf life would constrain clinical distribution and create manufacturing limitations for the products. Our products specifically address this need by extending shelf life.

This market is comprised of nearly 700 commercial companies and numerous other hospital-based transplant centers developing and delivering cellular therapies such as stem cells isolated from bone marrow, peripheral and umbilical cord blood as well as engineered tissue-based products.

MedMarket Diligence, LLC, estimates that the current worldwide market for regenerative medicine products and services is growing at 20 percent annually. We expect pre-formulated biopreservation media products such as our

HypoThermosol® FRS and CryoStor® to continue to displace “home-brew” cocktails due to increased regulatory and quality oversight, creating demand for high quality clinical grade preservation reagents that will grow at greater than the overall end market rate. We estimate that “home-brew” in-house formulated storage and freeze media comprise 80 percent of the market.

We have shipped our proprietary biopreservation media products to over 250 regenerative medicine customers. We estimate that our products are now incorporated in over 100 regenerative medicine cell or tissue-based products in pre-clinical and clinical trial stages of development.

While this market is still in an early stage, we have secured a valuable position as a supplier of critical reagents to several commercial companies. Short-term revenue can be highly variable as customer therapies navigate the regulatory approval process, but we estimate that annual revenue from a typical regenerative medicine customer could reach $1 million per year within three to five years following their product approval. Our position as the leading provider of optimized clinical grade hypothermic storage and cryopreservation freeze media has also led to increased recognition of our scientific expertise.

Drug Discovery

Our customers in the drug screening market are pharmaceutical companies that grow and preserve various cell types to measure pharmacologic effects and toxicity of new drug compounds, and also cell suppliers that provide preserved live cells for end-user testing in pharmaceutical companies. Our products specifically address this need by enhancing yield, viability and functionality of previously preserved cells.

To leverage our scientific discoveries and presence in this market, we continue to develop a proprietary disposable labware product that may address a significant workflow bottleneck in the drug screening market - insufficient supply of preserved cells required in high-throughput screening of new drug compounds. We have pending patent applications in the U.S., Australia, Canada, and Europe to protect our intellectual property rights for our inventions which may for the first time enable bulk freezing of cells in multiwell tissue culture plates.

Biobanking

Our customers in this segment include public and private cord blood banks, adult stem cell banks, tissue banks, hair transplant centers, and biorepositories. Since the product launch in the third quarter of 2009, we continue to realize increased sales of our BloodStor® 55-5, a GMP version of the traditional “home-brew” cord blood stem cell freeze media. Sales of CryoStor® and HypoThermosol® FRS in this segment also continue to increase as we displace home-brew preservation media due to the quality and performance profile of our proprietary products. In the hair restoration segment, over fifty different physicians and centers now use HypoThermosol® FRS as an improved ex vivo holding solution for grafts during the procedure. We estimate that HypoThermosol® FRS is used in approximately 2% of the total worldwide procedures and have increased our marketing activities to capture additional share of this growing opportunity.

Sales and Marketing

Our sales and marketing strategy supports our objective of building equity in BioLife Solutions as the brand that manufactures and delivers the best-in-class cGMP, serum-free, protein-free, biopreservation media products for cells, tissues, and organs. We provide premiere offerings to life science researchers and professionals applying biology in their work, such as commercial cell therapy and tissue engineering companies, hospital based stem cell transplant centers, university-based research labs, umbilical cord blood banks, adult stem cell banks, tissue banks, biorepositories, hair transplantation centers, pharmaceutical companies, cell suppliers, and toxicity testing labs.

We are committed to being a partner of choice for our customers, which requires us to employ scientific personnel for our sales and service roles. Our sales team consists primarily of technical sales specialists, who are responsible for total customer account management. These individuals have an extensive background in biology or other scientific fields of study. Having a thorough understanding of biological techniques and the research process allows our team to act as advisors to our customers. If our customers have questions about their products, orders or other support areas, they have full access by phone or online, to our technical and customer service professionals.

We participate in numerous scientific conferences and industry trade events by exhibiting, presenting scientific and business lectures, and sponsoring industry association events. We are a corporate or affiliate member of AABB, the Alliance for Regenerative Medicine, the BEST Collaborative, and the International Society for Cellular Therapy. In addition to our direct sales activities, our products are marketed and distributed by STEMCELL Technologies, Sigma-Aldrich, and several other regional distributors under non-exclusive agreements.

Manufacturing

Our initial internal production facility was validated and became operational during the second quarter of 2009. In December 2009, our quality and manufacturing systems became certified to ISO 13485:2003. The systems are organized according to 21 CFR Part 820 - Quality System Regulation for Good Manufacturing Practice of medical devices, 21 CFR Parts 210 and 211 covering GMP for Aseptic Production, Volume 4, EU Guidelines, Annex 1 for the Manufacture of Sterile Medicinal Products, ISO 13408 for aseptic processing of healthcare products, and ISO 14644, clean rooms and associated controlled environments.

In 2012 we completed the design and build out of an additional cGMP clean room suite. This facility is validated and operational. We now have the capacity to meet the current and future demand for our proprietary products and also to serve select contract manufacturing customers.

In 2012, approximately 46% of total revenue was generated from contract manufacturing for a supplier in the field of transplant medicine, Organ Recovery Systems, Inc. This contract manufacturing was performed pursuant to our

manufacturing services agreement with Organ Recovery Systems, Inc., effective as of December 22, 2011. The manufacturing services agreement has an initial term of three years, but may be terminated by either party with six months prior notice. The manufacturing services agreement restricts for a period of two years our ability to manufacture or sell any solution that is approved for clinical use in the perfusion, flushing, irrigation or static storage of human organs that are harvested, transported or otherwise made ready for transplant. Management believes that our opportunity in the regenerative medicine market will start to become fully realized over the next three to five years as some customers receive regulatory and marketing approvals for their clinical cell and tissue-based products. During the interim period until then, we are utilizing our manufacturing capacity to generate revenue from contract manufacturing customers.

Governmental Regulation

As an ancillary reagent or excipient used in the production, transportation, and patient administration of our customers' regulated clinical products, HypoThermosol® FRS , CryoStor®, and BloodStor® are not subject to specific FDA or other non-US pre-market approval for drugs, devices, or biologics. In particular, we are not required to sponsor formal prospective, controlled clinical-trials in order to establish safety and efficacy. However, to support our current and prospective clinical customers, we comply with cGMP.

To assist customers with regulatory applications, we have submitted Type II Master Files to the FDA for CryoStor® and HypoThermosol® FRS , which provide the FDA with information regarding our manufacturing facility and process, our quality system, and stability and safety testing that has been performed. Customers engaged in clinical applications who wish to notify the FDA of their intention to use our products in their product development and manufacturing process can now request a cross-reference to our master files.

There can be no assurance that we will not be required to obtain approval from the FDA or foreign regulatory authorities prior to marketing any of our products in the future.

Intellectual Property

Currently, we have three issued U.S. patents, two pending U.S. patent applications, one issued European patent, one issued Japanese patent, and several pending patent applications in foreign jurisdictions.

In addition to our corporate logo and name, we have registered the following marks:

HYPOTHERMOSOL
GELSTOR
POWERING THE PRESERVATION SCIENCES
BIOPRESERVATION TODAY
BLOODSTOR
CRYOSTOR
PREPASTOR
PRESERVATION CHAIN

We have applied for trademark protection in the following marks:

KATA
CELLENERGY
GRAFTSTOR

While we believe that the protection of patents and trademarks is important to our business, we also rely on a combination of trade secrets, nondisclosure and confidentiality agreements, scientific expertise and continuing technological innovation to maintain our competitive position. Despite these precautions, it may be possible for unauthorized third parties to copy certain aspects of our products and/or to obtain and use information that we regard as proprietary. The laws of some foreign countries in which we may sell our products do not protect our proprietary rights to the same extent as do the laws of the United States.

Research and Development

Currently, we employ a small team of researchers, some of whom hold Ph.D. degrees in molecular biology or related fields, who also engage in customer support and marketing activities. Also, we conduct collaborative research with several leading academic and commercial entities in our strategic markets.

During 2012 and 2011, we spent approximately $463,600 and $516,500, respectively, on research and development activities.

Our Scientific Advisory Board is comprised of leaders in the fields of regenerative medicine, biopreservation, quality systems, and regulatory compliance. These members advise us on our product development, quality systems, and overall marketing strategies.

Competition

The markets for our products are competitive and are characterized by the application of advanced technologies. Our competition comes from a wide array of competitors with a high degree of technical proficiency, ranging from in-house formulated biopreservation media, whereby the user purchases raw ingredients and manually mixes the ingredients, to larger manufacturers such as Life Technologies Corp. (formally Invitrogen), and distributors including STEMCELL Technologies, Sigma-Aldrich, VWR, Fisher, and smaller specialized companies, offering a broad array of biotechnology products and services that have significantly more financial, operational, sales and marketing and other resources than we do. These and other companies may have developed or could in the future develop new technologies that compete with our products or even render our products obsolete. It is our belief that in-house formulated biopreservation media, whereby the user purchases raw ingredients and manually mixes the ingredients, satisfies the large majority of the annual worldwide demand.

We believe that our products offer significant advantages over in-house formulations including, time saving, improved quality of components, more rigorous quality control release testing, and improved preservation efficacy. We believe that a company’s competitive position in the markets we compete in is determined by product function, product quality, speed of delivery, technical support, price, and distribution capabilities. Our customers are diverse and may place varying degrees of importance on the competitive attributes listed above. While it is difficult to rank these attributes for all our customers in the aggregate, we believe we are well positioned to compete in each category.

We expect competition to intensify with respect to the areas in which we are involved as technical advances are made and become more widely known.

Employees

As of January 21, 2014 , we had 24 employees, all of whom were full time. Our employees are not covered by any collective bargaining agreement. We consider relations with our employees to be good.

PROPERTIES

We lease approximately 26,000 square feet of property being used in current operations in our Bothell, Washington principal location which contains office, manufacturing, storage and laboratory facilities.

We consider the facilities to be in a condition suitable for their current uses. Because of anticipated growth in the business and due to the increasing requirements of customers or regulatory agencies, we may need to acquire additional space or upgrade and enhance existing space prior to the expiry of the lease in 2021. We believe that adequate facilities will be available upon the conclusion of our leases.

All of our products and services are manufactured or provided from our Bothell, Washington facility.

LEGAL PROCEEDINGS

On February 7, 2007, Kristi Snyder, a former employee of the Company filed a complaint in the New York State Supreme Court, County of Broome, against us alleging a breach of an employment agreement and seeking damages of up to $300,000 plus attorneys' fees. This case currently is in discovery. We are vigorously defending our position.

On April 6, 2007, we were served with a complaint filed by John G. Baust, our former Chief Executive Officer and President, and thereafter, until January 8, 2007, the Chairman, Sr. Vice President and Chief Scientific Officer, in the New York State Supreme Court, County of Tioga, against us seeking, among other things, damages under his employment agreement to be determined upon trial of the action plus attorneys' fees, a declaratory judgment that he did not breach his fiduciary duties to the Company, and that his covenant not to compete is void as against public policy or unenforceable as a matter of law, and to enjoin us from commencing an action against him in Delaware courts seeking damages for breaches of his fiduciary obligations to us. The parties have engaged in extensive motion practice. By decision of December 18, 2009, Justice Tait rejected Plaintiff Baust's efforts to obtain partial summary judgment. This case currently is in discovery. We are vigorously defending our position.

On June 15, 2007, we filed a lawsuit in the State of New York Supreme Court, County of Tioga against Cell Preservation Services, Inc. ("CPSI") and Coraegis Bioinnovations, Inc. ("Coraegis"), both of which are owned and/or controlled by John M. Baust, a former employee of the Company and the son of John G. Baust, both of whose employment with us was terminated on January 8, 2007.

On March 15, 2004, we had entered into a Research Agreement with CPSI, pursuant to which CPSI took over the processing of our existing SBIR grants, on our behalf and was to apply for additional SBIR grants and, in each case, was to perform the research with respect to such grants. In connection therewith, we granted to CPSI a limited license to use our technology ("BioLife's Technology"), including our proprietary cryopreservation solutions (collectively, "Intellectual Property"), solely for the purpose of conducting the research pertaining to the SBIR grants, and CPSI agreed to keep confidential all of our confidential information disclosed to CPSI ("Confidential Information"). On January 8, 2007, we informed CPSI that the Research Agreement would not be extended and would terminate in accordance with its terms on March 15, 2007.

The lawsuit states various causes of action, including, (1) repeated violations of the Research Agreement by CPSI by improperly using BioLife's Technology, Intellectual Property and Confidential Information for its own purposes, (2) the unlawful misappropriation by CPSI and Coraegis of our trade secrets, (3) unfair competition on the part of CPSI and Coraegis through their unlawful misappropriation and misuse of BioLife's Technology, Intellectual Property and Confidential Information, and (4) the conversion of BioLife's Technology, Intellectual Property and Confidential Information by CPSI and Coraegis to their own use without our permission.

The lawsuit seeks, among other things, (1) to enjoin CPSI from continuing to violate the Research Agreement, (2) damages as a result of CPSI's breaches of the Research Agreement, (3) to enjoin CPSI and Coraegis from any further use of the Company's trade secrets, (4) damages (including punitive damages) as a result of CPSI's and Coraegis' misappropriation of the Company's trade secrets, (5) to enjoin CPSI and Coraegis from any further use of BioLife's Technology, Intellectual Property and Confidential Information, (6) damages (including punitive damages) as a result of CPSI's and Coraegis' unfair competition against the Company, and (7) damages (including punitive damages) as a result of CPSI's and Coraegis' conversion of BioLife's Technology, Intellectual Property and Confidential Information to their own use. On September 30, 2008, Justice Jeffrey Tait issued a Letter Decision and Order which provides for a multi-phase process for discovery concerning contested discovery disclosures. By letter dated January 14, 2009, Justice Tait ordered that CPSI deliver by February13, 2009 certain confidential documents to chambers for an in camera review. The parties are awaiting Justice Tait's review of these confidential documents in order to move forward with discovery. The parties have also engaged in extensive motion practice. By decision of December 18, 2009,

Justice Tait denied the attempt of the Defendants to dismiss Plaintiff's complaint. This case currently is in discovery. The Company is vigorously pursuing its position.

On December 4, 2007, John M. Baust, the son of John G. Baust, filed a complaint in the New York State Supreme Court, County of Tioga, against the Company and Michael Rice, our Chief Executive Officer and former chairman of the board, alleging, among other things, a breach of an employment agreement and defamation of character and seeking damages against us in excess of $300,000 plus attorney's fees. This case currently is in discovery. We are vigorously defending our position.

DIRECTORS AND EXECUTIVE OFFICERS

The following table and text set forth the names and ages of our directors and executive officers as of January 21, 2014 . The board is comprised of only one class. All of the directors will serve until the next annual meeting of shareholders, and until their successors are elected and qualified, or until their earlier death, retirement, resignation or removal. There are no family relationships among directors and executive officers. Also provided herein are brief descriptions of the business experience of each director and executive officer during the past five years (based on information supplied by them) and an indication of directorships held by each director in other public companies subject to the reporting requirements under the Federal securities laws. During the past ten years, none of our directors or executive officers has been involved in any legal proceedings that are material to an evaluation of the ability or integrity of such person.

Name	Age	Position and Offices With the Company
Joe Annicchiarico	38	Vice President, Manufacturing
Aby J. Mathew, Ph.D.	41	Chief Technology Officer and Senior Vice President
Michael Rice	50	Chief Executive Officer, President, and Director
Mark Sandifer	55	Chief Quality Officer
Daphne Taylor	47	Secretary, Chief Financial Officer and Vice President, Finance and Administration
Raymond Cohen	54	Chairman of the Board
Thomas Girschweiler	56	Director
Andrew Hinson	50	Director
Joseph Schick	52	Director
Rick Stewart	61	Director

Joe Annicchiarico has served as Vice President, Manufacturing since September 2012 and as Director of Manufacturing from December 2011 through August 2012. Prior to joining the Company, Mr. Annicchiarico served in various roles at Mediquest Therapeudics, Inc., from May 2005 through September 2011, including Scientist, Formulation Manager, and most recently, as Director of Manufacturing and Clinical Supplies. From January 2004 through September 2005, Mr. Annicchiarico worked in specialty chemical sales at Drummond American and prior to that, he spent four years as a formulation development Chemist.

Dr. Aby J. Mathew, Ph.D., has been Senior Vice President and Chief Technology Officer since February 2011. From January 2007 through February 2011, Dr. Mathew served as Senior Scientist, Director of Strategic Relations, and Senior Director of Strategic Relations. From June 2003 through January 2007, Dr. Mathew served as Director of Manufacturing. From September 2000 through June 2003, Dr. Mathew served as Clinical Accounts Manager and Director of Hypothermic Preservation for Cryomedical Sciences/BioLife Solutions. Dr. Mathew has been working on low temperature biopreservation since 1994, and his studies contributed to the development of our current commercial HypoThermosol® and CryoStor® product platforms and intellectual property foundation. Beginning in 1994 to 2000, Dr. Mathew performed research at the State University of New York at Binghamton (now Binghamton University) related to research grants (including as a consultant) co-supervised by the Vice President of Research and Development of Cryomedical Sciences, Inc., the former parent of BioLife Solutions.

Michael Rice has been President and Chief Executive Officer and a director of the Company since August 2006, and chairman of the board from August 2007 to November 2013. Mr. Rice has more than 20 years of leadership and entrepreneurial experience in the medical and high tech industries. He was most recently the senior business development manager for medical and wireless products at AMI Semiconductor, from October 2004 to August 2006. From October 2000 to October to August 2006, Mr. Rice also served as the director of marketing and business development at Cardiac Science, Inc., a manufacturer of automated external defibrillators. Prior to that, from May

1998 to October 2000, he was the Vice President, Sales and Marketing for TEGRIS Corporation, a privately held network services provider. Mr. Rice also spent 12 years, from May 1986 to May 1998 at Physio Control Corporation in several sales and marketing management roles prior to its acquisition by Medtronic Inc. The board has determined that Mr. Rice should serve as a director because it values management's insight.

Mark Sandifer has served as Chief Quality Officer since September 2012. From February 2011 through September of 2012, he served as Vice President of Quality and from August 2008 through February 2011 as Director of Quality. From July 2008 through August 2008 Mr. Sandifer served as Quality Assurance Manager. Prior to joining the Company, Mr. Sandifer was Senior Quality Analyst for Nastech Pharmaceutical, where he worked from January 2006 through August 2008. From March 1997 through June of 2005, Mr. Sandifer worked as Research Assistant, Medical Program Coordinator, and Senior Administrative Coordinator at Georgetown University Hospital.

Daphne Taylor has been Vice President, Finance & Administration, and Chief Financial Officer since August 2011, and Secretary since January 30, 2013 and from March 2011 through July 2011 she served as Corporate Controller. Prior to joining the Company, Ms. Taylor served as Vice President, Corporate Controller and Chief Accounting Officer of Cardiac Science Corporation from November 2005 through January 2009. From April 2002 through November 2005, she held various positions, including Vice President and Corporate Controller for LookSmart, Inc.

Raymond W. Cohen joined the board in May 2006, and has served as chairman of the board since November 2013. Mr. Cohen is an Accredited Public Company Director and currently serves as the Chairman of Lombard Medical Technologies a UK-based public company manufacturing and marketing endovascular stent graphs, and as Chairman of JenaValve Technology, a Munich-based venture-capital backed manufacturer and marketer of transcatheter aortic valve systems and as a member of the board of directors and the audit committee of Spectrum Pharmaceuticals, a oncology drug manufacturer based in Irvine, CA. Previously, from 2010, Mr. Cohen served as the Chief Executive Officer and member of the board of directors of Vessix Vascular, Inc., a developer of a novel RF balloon catheter technology for treatment of hypertension that was acquired by Boston Scientific Corp. in November 2013. Previously, from 1997 to 2006, Mr. Cohen served as Chairman and Chief Executive Officer of publicly-traded Cardiac Science, Inc., which in 2004 was ranked as the 4th fastest growing technology company in North America on Deloitte & Touche's Fast 500 listing. Mr. Cohen has also currently serves as the Chairman of the board of directors of Syncroness, Inc., a private engineering and product development firm since 2006. In addition, Mr. Cohen is a member of the board of directors of LoneStar Heart, Inc. (formerly CardioPolymers, Inc.) a privately-held developer of novel biotherapeutics for the treatment of congestive heart failure and also serves an advisor to Fjord Ventures, LLC., a life science incubator. In 2008, Mr. Cohen was named by AeA as the Private Company Life Science CEO of the Year. Mr. Cohen was named Entrepreneur of the Year in 2002 by the Orange County Business Journal and was a finalist for Ernst & Young's Entrepreneur of the Year in the medical company category in 2004. Mr. Cohen holds a B.S. in Business Management from Binghamton University. The board has determined that Mr. Cohen should serve as a director because of his extensive experience with public companies.

Thomas Girschweiler joined the board in 2003. Mr. Girschweiler has been engaged in corporate financing activities on his own behalf since 1996. From 1981 to 1996 he was an investment banker with Union Bank of Switzerland. Mr. Girschweiler is a graduate of the Swiss Banking School. The board has determined that Mr. Girschweiler should serve as a director because of his substantial shareholdings.

Andrew Hinson joined the board in February 2007. He is currently the Vice President of Clinical and Regulatory Affairs for LoneStar Heart, Inc., a global developer of medical devices, small molecule, and cellular-based therapies for cardiovascular disease. Mr. Hinson joined CardioPolymers, now a wholly-owned subsidiary of LoneStar Heart, in November 2004. From 2001 to 2004, Mr. Hinson served as the Senior Director of research and clinical development at AnGes MG, Inc. (TSE: 4563) a biotechnology firm engaged in the development and commercialization of novel gene and cell therapies for the treatment of cardiovascular disease. Prior to that Mr. Hinson had a long career with Procter & Gamble Pharmaceutical (NYSE:PG) holding multiple technical and management positions in research, clinical development and medical affairs. Mr. Hinson has diverse experience in the cell and gene therapy markets and extensive experience with regulatory affairs and clinical development of new therapies for cardiac, neurologic, and gastrointestinal diseases. The board has determined that Mr. Hinson should serve as a director because of his experience and knowledge of companies in the biotechnology space.

Joseph Schick joined the board in November 2013. He is currently Chief Financial Officer of Corbis, a global digital media company, since May 2013. Prior to his position at Corbis, from March 2009 through July 2013, Mr. Schick was Chief Financial Officer at Talyst, a pharmacy automation hardware and software company. Mr. Schick served as Chief Financial Officer at Vertafore from October 2006 through January 2009, an enterprise software company for the insurance industry. Mr. Schick was also in various roles at travel company Expedia (NASDAQ: EXPE), including Senior Vice President of Finance. Mr. Schick has significant experience with SEC reporting, strategic planning, and mergers and acquisitions. Mr. Schick started his career with Arthur Andersen and is a CPA who received his B.S. in Accounting from the University of Illinois. The board has determined that Mr. Schick should serve as a director because of his financial expertise.

Rick Stewart joined the board in February 2013. Mr. Stewart has served as President and Chief Executive Officer, and a member of the board of directors of Cardiac Dimensions since 2001. From 1998 to 2001 he was President and Chief

Executive Officer of Tegris Corporation, a leading IT infrastructure and enterprise applications provider for vertical markets. Prior to that Mr. Stewart had a long career within Eli Lilly in its Medical Device and Diagnostics Unit, holding multiple executive positions in general and technical management, sales, marketing and business development. Mr. Stewart was a member of the senior team that led a buyout of the Physio-Control subsidiary from Eli-Lilly in 1994 which shortly thereafter was taken public. He received an MBA from the University of Washington. The board has determined that Mr. Stewart should serve as a director because his experience in the medical device field and executive acumen.

CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

Each of the transactions described below was reviewed and approved or ratified by the audit committee of the board. It is anticipated that any future transactions between us and our officers, directors, principal stockholders and affiliates will be on terms no less favorable to us than could be obtained from unaffiliated third parties and that such transactions will be reviewed and approved by our Audit Committee and a majority of the independent and disinterested members of the board.

Facility Agreements

On January 11, 2008, we entered into the facility agreements with each of Thomas Girschweiler, a director and stockholder of the Company, and Walter Villiger, an affiliate of the Company, pursuant to which each noteholder extended to the Company a secured convertible multi-draw term loan facility of $2,500,000, which facility (a) incorporated (i) a refinancing of then existing indebtedness of the Company to the Investor, and accrued interest thereon, in the aggregate amount of $1,431,563.30, (ii) a then current advance of $300,000, and (iii) a commitment to advance to us, from time to time, additional amounts up to a maximum of $768,436.70, (b) bears interest at the rate of 7% per annum on the principal balance outstanding from time to time, (c) is evidenced by a secured convertible multi-draw term loan, which was due and payable, together with accrued interest thereon, the earlier of (i) January 11, 2010, or (ii) a certain events of default, and (d) is secured by all of our assets.

In May and July 2008, we received $1,000,000 in total from the noteholders pursuant to the facility agreements. On October 20, 2008, the amounts available under each of the facility agreements was increased by $2,000,000 to $4,500,000 (an aggregate of $9,000,000), and, on October 24, 2008, we received $600,000 in total from the noteholders pursuant to the amended facility agreements. In 2009, we received an additional $2,825,000 in total from the noteholders pursuant to the amended facility agreements. In December 2009, the noteholders extended the repayment date to January 11, 2011. On November 16, 2010, the amount available under each of the facility agreements was increased by $250,000 to $4,750,000 (an aggregate of $9,500,000) and the noteholders granted an extension of the repayment date to January 11, 2013. In 2010, we received $1,145,000 in total from the noteholders pursuant to the amended facility agreements. In 2011, we received $1,095,000 in total from the noteholders pursuant to the amended facility agreements. In August 2011 we entered into an amendment to each of the facility agreements pursuant to which the amount of each facility agreement was increased to $5,250,000. The multi-draw term loan notes previously delivered to each of the noteholders also was amended to reflect the changes to the facility agreements. In consideration of such amendments, we issued to each of the noteholders a five-year warrant to purchase 1,000,000 shares of our common stock at a price of $0.063 per share, which share amount and price will be adjusted to 71,429 and $0.88, to reflect the reverse stock split effective January 29, 2014. On May 30, 2012, the amounts available under each of the facility agreements were increased to $5,750,000 (an aggregate of $11,500,000) and the noteholders granted an extension of the repayment date to January 11, 2016. The multi-draw term loan notes previously delivered to each of the noteholders also was amended to reflect the changes to the facility agreements. In consideration of such amendments, we issued to each of the noteholders a five-year warrant to purchase 1,000,000 shares, at a price of $0.08 per share, which share amount and price will be adjusted to 71,429 and $1.12 respectively, to reflect the reverse stock split effective January 29 , 2014.

On December 16, 2013, we entered into note conversion agreements with the noteholders. Pursuant to the note conversion agreements, we will issue units pursuant to a private placement on substantially similar terms as the offering to each of the noteholders in exchange for the conversion of the $10.6 million principal amount outstanding under the promissory notes and accrued and unpaid interest of approximately $3.6 million through the assumed conversion date. In connection with the note conversions, the noteholders will release all security interests and the facility agreements will be terminated such conversions will occur concurrently with the conversion.

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DIRECTOR COMPENSATION

During the year ended December 31, 2013 , non-employee directors were compensated with an annual retainer fee of $ 25,000. Beginning in December 2013, the Board Chairman was compensated an additional $10,000 per month. Committee chairpersons and members were compensated with additional annual retainers as follows:

	Annual Retainer
Audit and Finance Committee Chairman	$ 5,000
Audit and Finance Committee Member	$ 5,000