ARBIOS SYSTEMS INC
Form POS AM
May 13, 2008

As filed with the Securities and Exchange Commission on May 13, 2008
Registration Statement No. 333-143447

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

PRE-EFFECTIVE AMENDMENT NO. 1 TO
POST-EFFECTIVE AMENDMENT NO. 1
ON FORM S-1 TO
REGISTRATION STATEMENT
ON FORM SB-2

REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

_____

Arbios Systems, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**3841**	**91-1955323**
(State or Other Jurisdiction of Incorporation or Organization)	(Primary Standard Industrial Classification Number)	(I.R.S. Employer Identification No.)

_____

1050 Winter Street, Suite 1000
Waltham, MA 02451
(781) 839-7292
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

_____

Shawn P. Cain
Interim President and Chief Executive Officer
1050 Winter Street, Suite 1000
Waltham, MA 02451
(781) 839-7292
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copy to:

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One Financial Center
Boston, Massachusetts 02111
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Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this registration statement.

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. ý

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. 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 registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions of “large accelerated filer,” “accelerated filer,” and “smaller reporting company” in Rule 12b-2 of the Exchange Act. (Check one):

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

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 or until the registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

EXPLANATORY NOTE

Arbios Systems, Inc. has previously filed a Registration Statement on Form SB-2 (No. 333-143447) to register shares of its common stock issuable upon the exercise of outstanding warrants held by certain selling stockholders. Pursuant to Rule 429 of the Securities Act of 1933, as amended, the Registration Statement on Form SB-2 (No. 333-143447) also served as a post-effective amendment to each of Arbios’ previously filed Registration Statements on Form SB-2 (Nos. 333-116439, 333-122655, 333-133577). This Pre-Effective Amendment No. 1 to Post-Effective Amendment No. 1 on Form S-1 to Registration Statement on Form SB-2 is being filed to convert all of such Registration Statements on Form SB-2 into Registration Statements on Form S-1 because registration statements of Form SB-2 are no longer available for use. All filing fees payable in connection with the initial filing of such Registration Statements were previously paid in connection with the initial filing of such Registration Statements.

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

SUBJECT TO COMPLETION, DATED MAY 13, 2008

PROSPECTUS

ARBIOS SYSTEMS, INC.

18,715,675 Shares of Common Stock

This prospectus relates to the sale or other disposition of up to 9,993,593 shares of our currently outstanding shares of common stock that are owned by some of our stockholders, and 8,722,082 shares of our common stock issuable upon the exercise of currently outstanding common stock purchase warrants held by some of our stockholders. For a list of the selling stockholders, please refer to the “Selling Stockholders” section of this prospectus. We are not selling any shares of common stock in this offering and therefore will not receive any proceeds from this offering. We will, however, receive the exercise price of the warrants if and when those warrants are exercised by the selling stockholders. None of the warrants have been exercised as of the date of this prospectus. We will pay the expenses of registering these shares.

Our common stock is traded in the over-the-counter market and is quoted on the OTC Bulletin Board under the symbol ABOS. On April 18, 2008 the closing price of our common stock was $0.29 per share.

The shares included in this prospectus may be disposed of on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices. We will not control or determine the price at which a selling stockholder decides to sell or otherwise dispose of its shares. Brokers or dealers effecting transactions in these shares should confirm that the shares are registered under applicable state law or that an exemption from registration is available.

You should understand the risks associated with investing in our common stock. Before making an investment, please read the “Risk Factors” section of this prospectus, which begins on page 3.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of the prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is May , 2008

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PROSPECTUS SUMMARY

This summary highlights information contained elsewhere in this prospectus; it does not contain all of the information you should consider before investing in our common stock. Read the entire prospectus before making an investment decision.

Throughout this prospectus, the terms “we,” “us,” “our,” and “our company” refer to Arbios Systems, Inc., a Delaware corporation.

A glossary of certain terms used in this prospectus is contained on page 36 under “Glossary of Terms.”

Company Overview

Arbios Systems, Inc., or Arbios, is a Delaware corporation with its corporate office in Waltham, Massachusetts, research facility in Medford, Massachusetts, and accounting and administrative office in Pasadena, California. We seek to develop, manufacture and market liver assist therapies to meet the urgent need for medical treatment of liver failure.

We are a medical device and cell-therapy company that is focusing on the development of product candidates for the treatment of liver failure. Our lead product candidates under development currently consist of a novel extracorporeal blood purification therapy called the SEPET™ Liver Assist Device and an extracorporeal, bioartificial liver therapy referred to as the HepatAssist™ Cell-Based Liver Support System which incorporates porcine pig liver cells. We have postponed further clinical development of our HepatAssist™ program until we secure additional funding or a corporate partner for this program. In addition to the five patents and six patent applications acquired on March 29, 2007 from Immunocept, LLC, we currently own four United States and five foreign patents on our liver support product candidates, have two patent applications pending, and are the licensee of twelve additional liver support patents.

SEPET™ Liver Assist Device. In September 2007, we announced the results of our 15-patient feasibility clinical study of our SEPET™ Liver Assist Device, targeted for the treatment of acute episodes of chronic liver disease, in which 79% of the 14 treated patients met the primary clinical effectiveness endpoint. Based on the results of the feasibility study, in February 2008, the U.S. Food and Drug Administration, or FDA, granted us conditional approval of an Investigational Device Exemption, or IDE, application to begin the pivotal clinical trial for SEPET™ while we respond to the FDA’s conditions and request for additional information. After discussions with FDA, we submitted a revised trial design to the FDA and in May 2008 the FDA granted us approval of an IDE to begin the pivotal trial for SEPET™. The revised trial design has co-primary endpoints of (i) a two-stage drop in hepatic encephalopathy, or HE, and (ii) the 30-day transplant free survival in patients who reach a two-stage drop in HE. We expect to enroll an aggregate of 121 patients in the first two stages of this trial and we expect to initiate the first segment of this trial by the end of the second quarter of 2008.

We further intend to use our clinical data to support the marketing authorization process in the European Union to receive CE Marking for our SEPET™ Liver Assist Device. We have engaged a notified body, British Standards Institute, to assist us in our efforts to obtain a CE Mark for the device, which is a sterile, disposable cartridge with proprietary membrane permeability characteristics for use in treating patients with liver failure. CE Marking indicates that the product complies with the essential requirements of the relevant European health, safety and environmental protection legislation and allows sale of the product within the European Union (28 countries) and the European Free Trade Association (3 countries).

We hope to raise additional funds to support the development of the CE Marking and the planned Phase III pivotal trial for SEPET™ during 2008. We anticipate that the current cash and cash equivalents are only sufficient to fund operations through part of the third quarter of 2008, and a significant capital raise is necessary in order to continue

operations and planned projects including the pivotal trial.

HepatAssist™ Cell-Based Liver Support System. Our HepatAssist™ Cell-Based Liver Support System is an enhanced version of a product system which we acquired in 2004 from Circe Biomedical, Inc., which had tested HepatAssist™ in an unsuccessful Phase II/III pivotal clinical trial. We currently hold a Phase III investigational new drug application, or IND, for conducting an additional pivotal clinical trial of the HepatAssist™ system. Our current plan is to focus on reintroducing this important liver assist technology into clinical development in the United States and in Asia to the extent that we obtain additional funding for this program from a potential corporate marketing partner or a significant capital raise.

Company History. Arbios Systems, Inc. was originally incorporated in February 1999 as Historical Autographs U.S.A., Inc., or HAUSA. Until October 2003, HAUSA was an e-commerce based company engaged in the business of acquiring and marketing historical documents. On October 30, 2003, HAUSA completed a reorganization (the "Reorganization") in which HAUSA, through its wholly-owned subsidiary, acquired all of the outstanding shares of Arbios Technologies, Inc., or ATI, the holder of the SEPET™ technology, in exchange for 11,930,598 shares of HAUSA common stock. As a result of the Reorganization, ATI became the wholly-owned subsidiary of HAUSA. After the Reorganization, HAUSA, changed its name to "Arbios Systems, Inc.," replaced its officers and directors with those of ATI, ceased its e-commerce business, and moved its offices to Los Angeles, California. In April 2004, Arbios Systems, Inc. purchased assets of Circe Biomedical, Inc. related to bioartificial liver devices. On July 25, 2005, Arbios Systems, Inc. completed its reincorporation as a Delaware corporation by merging with and into Arbios Systems, Inc., a Delaware corporation. The foregoing merger was approved by the Company's stockholders at the annual meeting of stockholders held on July 7, 2005. In order to consolidate the functions and operations of Arbios Systems, Inc. and ATI, on July 26, 2005, ATI merged into Arbios Systems, Inc. As a result, Arbios Systems, Inc. now owns all of the assets of ATI and all of the operations of the two companies have been consolidated into Arbios Systems, Inc.

Our principal operations and executive offices are located at 1050 Winter Street, Suite 1000, Waltham, Massachusetts 02451 and our telephone number at this office is (781) 839-7292. We have a research facility located at 200 Boston Road, Medford, Massachusetts and also maintain an administrative office at 200 E. Del Mar Blvd., Suite 208, Pasadena, California 91105 and our telephone number at this office is (626) 356-3105. We also maintain a web site at *www.arbios.com*. The information on our web site is not, and you should not consider such information to be, a part of this filing.

The Offering

Common stock covered hereby	18,715,675 shares, consisting of 9,993,593 outstanding shares owned by selling stockholders and 8,722,082 shares issuable to selling stockholders upon exercise of outstanding warrants.
Common stock currently outstanding	25,603,461 shares (1)
Common stock to be outstanding assuming the sale of all shares covered hereby and assuming no exercise of the warrants for the shares covered by this prospectus	25,603,461 shares (1)
Common stock to be outstanding assuming the sale of all shares covered hereby and assuming the exercise of all warrants for the shares covered by this prospectus	34,325,543 shares (1)
OTC Bulletin Board Trading Symbol	ABOS
Risk Factors	An investment in our common stock involves significant risks. See "Risk Factors" beginning on page 3.

(1) In addition to these outstanding shares of common stock, as of April 18, 2008, there were outstanding (i) options to purchase 3,115,677 shares of our common stock (with exercise prices ranging from $0.15 per share to $3.40 per

share), and (ii) warrants (other than the warrants owned by the selling stockholders covered by this prospectus) to purchase 8,430,074 shares of our common stock (with exercise prices ranging from $0.65 per share to $3.50 per share)

RISK FACTORS

An investment in our common stock involves a high degree of risk. You should carefully consider the risks described below and the other information contained in this prospectus and in the documents incorporated by reference before deciding to invest in our company. If any of the following risks actually occur, our business, financial condition or operating results and the trading price or value of our securities could be materially adversely affected.

Risks Related to Our Business

We are an early-stage company subject to all of the risks and uncertainties of a new business, including the risk that we may never market any products or generate revenues.

We are an early-stage company that has not generated any operating revenues to date (our only revenues were derived from two government research grants). Accordingly, while we have been in existence since February 1999, and ATI, our operating subsidiary, has been in existence since 2000, we should be evaluated as an early-stage company, subject to all of the risks and uncertainties normally associated with an early-stage company. As an early-stage company, we expect to incur significant operating losses for the foreseeable future, and there can be no assurance that we will be able to validate and market products in the future that will generate revenues or that any revenues generated will be sufficient for us to become profitable or thereafter maintain profitability.

Our ability to continue as a going concern is dependent on future financing.

Our independent registered public accounting firm, has included an explanatory paragraph in its report on our financial statements for the fiscal year ended December 31, 2007, which expresses substantial doubt about our ability to continue as a going concern. The inclusion of a going concern explanatory paragraph in our accountant's report on our financial statements could have a detrimental effect on our stock price and our ability to raise additional capital.

Our financial statements have been prepared on the basis of a going concern, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. We have not made any adjustments to the financial statements as a result of the outcome of the uncertainty described above. Accordingly, our value in liquidation may be different from the amounts set forth in our financial statements.

Our continued success will depend on our ability to continue to raise capital in order to fund the development and commercialization of our product candidates. Failure to raise additional capital may result in substantial adverse circumstances, including our inability to continue the development of our product candidates and our liquidation.

We need to obtain significant additional capital to complete the development of our liver assist devices and meet contractual obligations related to our licensed patents, which additional funding may dilute our existing stockholders.

Based on our current proposed plans and assumptions, we estimate that we do not have cash to operate for the next 12 months, and therefore we will need to obtain significant additional funds during the first half of 2008. The clinical development expenses of our product candidates will be very substantial. Based on our current assumptions, we estimate that the clinical cost of developing the SEPET™ liver assist device will be approximately $5 million to $10 million, and the clinical cost of developing the HepatAssist™ cell-based liver support system will be between $10 million and $15 million, in excess of the cost of our basic operations. These amounts, which could vary substantially if our assumptions are not correct and we need to enroll significantly more patients in our trials, are well in excess of the amount of cash that we currently have available to us. Accordingly, we will be required to (i) obtain additional debt or equity financing in order to fund the further development of our product candidates and working capital needs, and/or (ii) enter into a strategic alliance with a larger pharmaceutical or medical device company to provide its required funding. The amount of funding needed to complete the development of one or both of our product

candidates will be very substantial and may be in excess of our ability to raise capital.

As a result of a decrease in our available financial resources, we have significantly curtailed the research, product development, preclinical testing and clinical trials of certain product candidates. The amount and timing of our future capital requirements will depend on numerous factors, including the timing of resuming our research and development programs, if at all, the number and characteristics of product candidates that we pursue, the conduct of preclinical tests and clinical studies, the status and timelines of regulatory submissions, the costs associated with protecting patents and other proprietary rights, the ability to complete strategic collaborations and the availability of third-party funding, if any.

We have not yet identified the sources for the additional financing that we will require, and we do not have commitments from any third parties to provide this financing. There can be no assurance that sufficient funding will be available to us at acceptable terms or at all. If we are unable to obtain sufficient financing on a timely basis, the development of our product candidates could be delayed and we could be forced to reduce the scope of our pre-clinical studies and clinical trials or otherwise limit or terminate our operations altogether. Any equity additional funding that we obtain will reduce the percentage ownership held by our existing security holders.

The cost of conducting clinical trials of HepatAssist™ and SEPET™ exceeds our current financial resources. Accordingly, we will not be able to conduct such studies until we obtain additional funding.

The feasibility clinical trial for the SEPET™ Liver Assist Device has been completed and we have obtained approval from the FDA to initiate the pivotal trial of SEPET™; however, we must raise additional funds to support the further development of SEPET™. We have not yet established with the FDA the nature and number of additional clinical trials that the FDA may require in connection with its review and approval of the SEPET™ liver assist device. Based on our internal projections of our operating costs and the costs normally associated with pivotal trials, we do not believe that we currently have sufficient funds to conduct any such pivotal trial(s) but are attempting to identify sources for obtaining the required funds.

We have considered requesting FDA approval of a revised Phase III clinical trial for the HepatAssist™ Cell-Based Liver Support System. Such a request will require that we supplement and/or amend the existing Phase III clinical protocol that was approved by the FDA for the original HepatAssist™ system. The preparation of a modified or supplemented Phase III clinical protocol will be expensive and difficult to prepare. Although the cost of completing the Phase III clinical trial in the manner that we currently contemplate is uncertain and could vary significantly, if that Phase III clinical trial is authorized by the FDA, we currently estimate that the cost of conducting the trial would approximately be between $10 million and $15 million, excluding the manufacturing infrastructure. We currently do not have sufficient funds to conduct this trial and have not identified any sources for obtaining the required funds. In addition, no assurance can be given that the FDA will accept our proposed changes to the previously approved Phase III clinical protocol. The clinical tests that we would conduct under any FDA-approved protocol are very expensive and will cost much more than our current financial resources. Accordingly, even if the FDA approves the modified Phase III clinical protocol that we submit for HepatAssist™ cell-based liver support system, we will not be able to conduct any clinical trials until we raise substantial amounts of additional financing.

Our capital needs beyond 2008 will depend on many factors, including our research and development activities and the success thereof, the scope of our clinical trial program, the timing of regulatory approval for our product candidates under development and the successful commercialization of our product candidates. Our needs may also depend on the magnitude and scope of the activities, the progress and the level of success in our clinical trials, the costs of preparing, filing, prosecuting, maintaining and enforcing patent claims and other intellectual property rights, competing technological and market developments, changes in or terminations of existing collaboration and licensing arrangements, the establishment of new collaboration and licensing arrangements and the cost of manufacturing scale-up and development of marketing activities, if undertaken by us. We currently do not have committed external sources of funding and may not be able to secure additional funding on any terms or on terms that are favorable to us. If we raise additional funds by issuing additional stock, further dilution to our existing stockholders will result, and new investors may negotiate for rights superior to existing stockholders. If adequate funds are not available, we may be required to:

- delay, reduce the scope of or eliminate one or more of our development programs;
- obtain funds through arrangements with collaboration partners or others that may require us to relinquish rights to some or all of our technologies, product candidates or products that we would otherwise seek to develop or commercialize ourselves;

· license rights to technologies, product candidates or products on terms that are less favorable to us than might otherwise be available;

- seek a buyer for all or a portion of our business; or

- wind down our operations and liquidate our assets on terms that are unfavorable to us.

We have had no product sales to date, and we can give no assurance that there will ever be any sales in the future.

All of our product candidates are still in research or development, and no revenues have been generated to date from product sales. There is no guarantee that we will ever develop commercially viable products. To become profitable, we will have to successfully develop, obtain regulatory approval for, produce, market and sell our product candidates. There can be no assurance that our product development efforts will be successfully completed, that we will be able to obtain all required regulatory approvals, that we will be able to manufacture our products at an acceptable cost and with acceptable quality, or that our products can be successfully marketed in the future. We currently do not expect to receive revenues from the sale of any of our product candidates for another year or longer. We have postponed further clinical development of our HepatAssist™ program until we are able to secure additional funding for this project or a corporate partner for this program.

Before we can market any of our product candidates, we must obtain governmental approval for each of our product candidates, the application and receipt of which is time-consuming, costly and uncertain.

The development, production and marketing of our product candidates are subject to extensive regulation by government authorities in the United States and other countries. In the United States, our SEPET™ Liver Assist Device and our HepatAssist™ Cell-Based Liver Support System will require approval from the FDA to allow clinical testing and ultimately commercialization. The process for obtaining FDA approval to market therapeutic products is both time-consuming and costly, with no certainty of a successful outcome. This process includes the conduct of extensive pre-clinical and clinical testing, which may take longer or cost more than we currently anticipate due to numerous factors, including, without limitation, difficulty in securing centers to conduct trials, difficulty in enrolling patients in conformity with required protocols and/or projected timelines, unexpected adverse reactions by patients in the trials to our liver assist systems, temporary suspension and/or complete ban on trials of our product candidates due to the risk of transmitting pathogens from the xenogeneic biologic component, and changes in the FDA's requirements for our testing during the course of that testing. We have not yet established with the FDA the nature and number of clinical trials that the FDA will require in connection with its review and approval of either SEPET™ or our HepatAssist™ product candidates and these requirements may be more costly or time-consuming than we currently anticipate. If we are required to increase the number of patients that we must enroll in our trials or conduct additional clinical trials, the cost of developing SEPET™ may be significantly increased. This could negatively impact our ability to raise additional capital and could delay the potential commercialization of SEPET™ in the United States and abroad.

SEPET™ and HepatAssist™ are both novel in terms of their composition and function. Thus, we may encounter unexpected safety, efficacy or manufacturing issues as we seek to obtain marketing approval for our product candidates from the FDA, and there can be no assurance that we will be able to obtain approval from the FDA or any foreign governmental agencies for marketing of any of our product candidates. The failure to receive, or any significant delay in receiving, FDA approval, or the imposition of significant limitations on the indicated uses of our product candidates, would have a material adverse effect on our business, operating results and financial condition. The health regulatory authorities of certain countries, including those of Japan, France and the United Kingdom, have previously objected, and other countries' regulatory authorities could potentially object, to the marketing of any therapy that uses pig liver cells (which our bioartificial liver systems are designed to utilize) due to safety concerns that pig cells may transmit viruses or diseases to humans. If the health regulatory agencies of other countries impose a ban on the use of therapies that incorporate pig cells, such as our HepatAssist™ Cell-Based Liver Support System, we would be prevented from marketing this product, if approved, in those countries. If we are unable to obtain the approval of the health regulatory authorities in Japan, France, the United Kingdom or other countries, the potential market for our product candidates will be reduced.

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Because our product candidates are at an early stage of development and have never been marketed, we do not know if any of our product candidates will ever be approved for marketing, and any such approval will take several years to obtain.

Before obtaining regulatory approvals for the commercial sale of our product candidates, significant and potentially very costly preclinical and clinical work will be necessary. There can be no assurance that we will be able to successfully complete all required testing of our SEPET™ or HepatAssist™ product candidates. While the time periods for testing our product candidates and obtaining the FDA's approval are dependent upon many future variable and unpredictable events, we estimate that it could take between two to three years to obtain approval for SEPET™ and approximately three to four years for HepatAssist™. We have not independently confirmed any of the third party claims made with respect to patents, licenses or technologies we have acquired concerning the potential safety or efficacy of these product candidates and technologies. Before we can begin clinical testing of these product candidates, we will need to amend and have the FDA approve the active Phase III IND to resume clinical testing of our HepatAssist™ product candidate. The FDA may require significant revisions to our clinical testing plans or require us to demonstrate efficacy endpoints that are more time-consuming or difficult to achieve than what we currently anticipate. Because of the early stage of development of each of our product candidates, we do not know if we will be able to generate additional clinical data that will support the filing of the FDA applications for these product candidates or the FDA's approval of any product marketing approval applications or biologic license approval application that we do file.

Our cell-based liver support system utilizes a biological component obtained from pigs that could prevent or restrict the release and use of those product candidates.

Use of liver cells harvested from pig livers carries a risk of transmitting viruses harmless to pigs but potentially deadly to humans. For instance, all pig cells carry genetic material of the porcine endogenous retrovirus, or PERV, but its ability to infect people is still unknown. Repeated testing, including a 1999 study of 160 xenotransplantation (transplantation from animals to humans) patients and the Phase II/III testing of the HepatAssist™ system by Circe Biomedical, Inc., has produced no sign of the transmission of PERV to humans. Still, no one can prove that PERV or another virus would not infect bioartificial liver-treated patients and cause potentially serious disease. This may result in the FDA or other health regulatory agencies not approving our HepatAssist™ Cell-Based Liver Support System or subsequently banning any further use of our product candidate should health concerns arise after the product has been approved. At this time, it is unclear whether we will be able to obtain clinical and product liability insurance that covers the PERV risk.

In addition to the potential health risks associated with the use of pig liver cells, our use of xenotransplantation technologies may be opposed by individuals or organizations on health, religious or ethical grounds. Certain animal rights groups and other organizations are known to protest animal research and development programs or to boycott products resulting from such programs. Previously, some groups have objected to the use of pig liver cells by other companies, including Circe Biomedical, that were developing bioartificial liver support systems, and it is possible that such groups could object to our HepatAssist™ Cell-Based Liver Support System. Litigation instituted by any of these organizations, and negative publicity regarding our use of pig liver cells in a bioartificial liver device, could have a material adverse effect on our business, operating results and financial condition.

Because our product candidates represent new approaches to treatment of liver disease, there are many uncertainties regarding the development, the market acceptance and the commercial potential of our product candidates.

Our product candidates represent new therapeutic approaches for disease conditions. We may, as a result, encounter delays as compared to other product candidates under development in reaching agreements with the FDA or other applicable governmental agencies as to the development plans and data that will be required to obtain marketing approvals from these agencies. There can be no assurance that these approaches will gain acceptance among doctors or patients or that governmental or third-party medical reimbursement payers will be willing to provide

reimbursement coverage for our product candidates, if approved. Moreover, we do not have the marketing data resources possessed by the major pharmaceutical companies, and we have not independently verified the potential size of the commercial markets for any of our product candidates. Since our product candidates represent new approaches to treating liver diseases, it may be difficult, in any event, to accurately estimate the potential revenues from our product candidates, as there currently are no directly comparable products being marketed.

As a new small company that will be competing against numerous large, established companies that have substantially greater financial, technical, manufacturing, marketing, distribution and other resources than us, we will be at a competitive disadvantage.

The pharmaceutical, medical device and biotechnology industries are characterized by intense competition and rapid and significant technological advancements. Many companies, research institutions and universities are working in a number of areas similar to our primary fields of interest to develop new products, some of which may be similar and/or competitive to our product candidates. Furthermore, many companies are engaged in the development of medical devices or products that are or will be competitive with our proposed products. Most of the companies with which we compete have substantially greater financial, technical, manufacturing, marketing, distribution and other resources than us.

We will need to outsource and rely on third parties for the clinical development and manufacture, supply and marketing of our product candidates.

Our business model calls for the outsourcing of the clinical development, manufacturing, supply and marketing of our product candidates, if approved, in order to reduce our capital and infrastructure costs as a means of potentially improving the profitability of these product candidates for us. We have not yet entered into any strategic alliances or other licensing arrangements and there can be no assurance that we will be able to enter into satisfactory arrangements for these services or marketing of our product candidates. We will be required to expend substantial amounts to retain and continue to utilize the services of one or more clinical research management organizations without any assurance that the product candidates covered by the clinical trials conducted under their management ultimately will generate any revenues for SEPET™ and/or HepatAssist™. Consistent with our business model, we will seek to enter into strategic alliances with other larger companies to market and sell our product candidates. In addition, we plan to utilize contract manufacturers to manufacture our product candidates or even our commercial supplies, and we may contract with independent sales and marketing firms to use their pharmaceutical or medical device sales force on a contract basis.

To the extent that we rely on other companies or institutions to manage the conduct of our clinical trials and to manufacture or market our product candidates, we will be dependent on the timeliness and effectiveness of their efforts. If the clinical research management organization that we utilize is unable to allocate sufficient qualified personnel to our studies or if the work performed by them does not fully satisfy the rigorous requirement of the FDA, we may encounter substantial delays and increased costs in completing our clinical trials. If the manufacturers of the raw material and finished product for our clinical trials are unable to meet our time schedules, quality specifications or cost parameters, the timing of our clinical trials and development of our product candidates may be adversely affected. Any manufacturer or supplier that we select, including Membrana and NxStage, may encounter difficulties in scaling-up the manufacture of new products in commercial quantities, including problems involving product yields, product stability or shelf life, quality control, adequacy of control procedures and policies, compliance with FDA regulations and the need for further FDA approval of any new manufacturing processes and facilities. Should any of our manufacturing or marketing companies, including Membrana and NxStage, encounter regulatory problems with the FDA, FDA approval of our product candidates could be delayed or the marketing of our product candidates, if approved, could be suspended or otherwise adversely affected.

Because we are currently dependent on NxStage and Membrana as the manufacturers of our SEPET™ cartridges, any failure or delay by either NxStage or Membrana. to manufacture the cartridges will negatively affect our future operations.

We have exclusive manufacturing and/or supply arrangements both with NxStage and Membrana. If NxStage or Membrana is unable to meet its contractual obligations to us, we may have difficulty in finding a replacement manufacturer/supplier if we are unable to effectively transfer the NxStage or Membrana know-how to another

manufacturer. We have no control over NxStage, Membrana or their suppliers, and if NxStage or Membrana are unable to produce the SEPET™ cartridges or it's components on a timely basis, our business may be adversely affected.

We currently do not have a manufacturing arrangement for the cartridges used in the HepatAssist™ Cell-Based Liver Support System. While we believe there are several potential contract manufacturers who can produce these cartridges, there can be no assurance that we will be able to enter into such an arrangement on commercially fav