HEPALIFE TECHNOLOGIES INC
Form 10-K/A
April 29, 2010

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K/A Amendment No. 1

x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2009

OR

¨ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File Number: 000-29819

HEPALIFE TECHNOLOGIES, INC.

(Exact name of registrant as specified in its charter)

FLORIDA

(State or other jurisdiction of incorporation or organization)

58-2349413

(I.R.S. Employer Identification No.)

60 State Street, Suite 700, Boston, MA 02109

(Address of principal executive offices)

(800) 518-4879

(Registrant s telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act: **None**

Securities registered pursuant to Section 12(g) of the Act:

Common Stock, $0.001 par value per share

(Title of Class)

Over The Counter Bulletin Board (OTCBB)

(Name of exchange on which registered)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
Yes [ ] No [X]

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.
Yes [ ] No [X]

Indicate by check mark whether the registrant: (1) has filed all reports required by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing for the past 90 days.
Yes [X] No [ ]

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

Yes [ ] No [ ] Not Applicable [X]

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (229.405 of this chapter) is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. [ ]

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

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act).

Yes [ ] No [X]

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant as of the last business day of the registrant s most recently completed second fiscal quarter, based upon the closing sale price of the registrant s common stock on June 30, 2009: $11,165,989.

Number of shares of Common Stock, $0.001 par value, outstanding as of March 22, 2010: 101,494,158.

Documents incorporated by reference: None

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Explanatory Note

This Form 10-K/A Amendment No. 1 (the Amendment) is being filed by HepaLife Technologies, Inc. (the Company) and amends the Company s Annual Report on Form 10-K for the fiscal year ended December 31, 2009. This Form 10-K/A replaces in its entirety the Form 10-K that was filed with the Securities and Exchange Commission (the SEC) on March 31, 2010 (the Original Filing). The purpose of this Amendment is to include in Part III, Item 10, expanded disclosures required by the Proxy Disclosure Enhancements released by the SEC effective for all filings after February 28, 2010 for certain information about our directors, executive officers, promoters or control persons. Accordingly, Item 10 of Part III of the Form 10-K is hereby amended and restated in its entirety as set forth below.

In connection with the filing of this Form 10-K/A and pursuant to Rules 13a-14(a) or 15d-14(a) under the Securities Exchange Act of 1934, the Company is including with this Form 10-K/A certain currently dated certifications.

No other changes have been made to the Form 10-K. This Form 10-K/A Amendment No. 1 speaks as of the original date of the Form 10-K and has not been updated to reflect events occurring subsequent to the original filing date.

TABLE OF CONTENTS
HEPALIFE TECHNOLOGIES, INC.
ANNUAL REPORT ON FORM 10-K/A
FOR THE FISCAL YEAR ENDED DECEMBER 31, 2009

PART I

Item 1. Business.

Forward-Looking Statements

Except for the historical information presented in this document, the matters discussed in this Form 10-K/A for the fiscal year ending December 31, 2009, contain forward-looking statements. Such forward-looking statements include statements regarding, among other things, (a) our projected sales and profitability, (b) our growth strategies, (c) anticipated trends in our industry, (d) our future financing plans, and (e) our anticipated needs for working capital. Forward-looking statements, which involve assumptions and describe our future plans, strategies, and expectations, are generally identifiable by use of the words may, will, should, could, might, expect, anticipate, estimate intend, or project or the negative of these words or other variations on these words or comparable terminology. This information may involve known and unknown risks, uncertainties, and other factors that may cause our actual results, performance, or achievements to be materially different from the future results, performance, or achievements expressed or implied by any forward-looking statements. These statements may be found under Management's Discussion and Analysis of Financial Condition and Results of Operations, Business, Properties, as well as in this report generally.

The safe harbor provisions of Section 21E of the Securities Exchange Act of 1934, as amended, and Section 27A of the Securities Act of 1933, as amended, apply to forward-looking statements made by the Company. The reader is cautioned that no statements contained in this Form 10-K/A should be construed as a guarantee or assurance of future performance or results. Actual events or results may differ materially from those discussed in forward-looking statements as a result of various factors, including, without limitation, the risks described in this report and matters described in this report generally. In light of these risks and uncertainties, there can be no assurance that the forward-looking statements contained in this filing will in fact occur. These forward-looking statements are based on current expectations, and the Company assumes no obligation to update this information. Readers are urged to carefully review and consider the various disclosures made by the Company in this Form 10-K/A and in the Company's other reports filed with the Securities and Exchange Commission that attempt to advise interested parties of the risks and factors that may affect the Company's business.

The Company

We are a Florida corporation, formed in 1997 under the name Zeta Corporation. We changed our name on April 17, 2003, to more accurately reflect our business. We are authorized to issue up to 300,000,000 shares of common stock (of which 101,494,158 were issued and outstanding on March 12, 2010) and 1,000,000 shares of preferred stock (none of which has been issued).

Our principal executive offices are located at 60 State Street, Suite 700, Boston, MA 02109. Our telephone number is 800-518-4879. The address of our website is www.hepalife.com. Information on our website is not part of this Form 10-K/A.

Because we are a smaller reporting company, certain disclosures otherwise required to be made in a Form 10-K/A are not required to be made by the Company.

Description of Business

We are a development stage biotechnology company. We do not have, and may never develop, any commercialized products. We have not generated any revenue from our current operations and do not expect to do so for the foreseeable future. On December 31, 2009, we had an accumulated deficit of $20,237,116.

We are currently focused on the development of HepaMate , a cell-based bioartificial liver system, as a potential treatment for liver failure patients. HepaMate is designed to provide whole liver function in patients with the most severe forms of liver failure by combining the process of removing toxins from the patient s blood (detoxification) with concurrent liver cell therapy. HepaMate has been successfully tested in a clinical Phase I study and was previously known as HepatAssist .

We acquired the HepatAssist technology and related assets from Arbios Systems, Inc. (Arbios) in October 2008, as part of our ongoing efforts to enhance and strengthen our bioartificial liver development program. The assets we acquired (collectively, the HepatAssist Related Assets) from Arbios, include: over 12 patents and patent licenses; miscellaneous scientific equipment; United States Food and Drug Administration (FDA) Investigative New Drug application, including orphan drug and fast track designation; Phase I and Phase II/III clinical protocols and clinical data; and standard operating procedures for manufacturing and quality control. The HepatAssist related Assets relate to the bioartificial liver device

formerly known as HepatAssist, now referred to as HepaMate .

We are currently working towards optimizing our HepaMate bioartificial liver device for utilization in a new clinical Phase III study followed, if warranted, by commercialization upon final regulatory approval.

Prior to our acquisition of the HepatAssist Related Assets from Arbios, we focused our efforts on the research and development of: a porcine stem cell line, and subclones thereof, which we refer to as the PICM-19 cell line for use in a bioartificial liver and in-vitro toxicology testing; and on the development and potential commercialization of a chicken cell line, and subclones thereof, which we refer to as the PBS-1 cell line.

The PICM-19 cell line has been developed for potential use in a bioartificial liver device and in-vitro toxicology platforms, and was exclusively licensed from the U.S. Department of Agriculture, Agricultural Research Service (USDA, ARS) in November 2007. In September 2008, the license was amended in order to expand the field-of-use to allow for use of the PICM-19 cell line as in-vitro infection host systems for viral and protozoan agents such as malaria. We are continuing to evaluate the further optimization of our PICM-19 liver stem cell line.

The PBS-1 cell line was developed for potential use in cell-based vaccine production and was exclusively licensed from Michigan State University (MSU) in June 2006. In January 2009, we provided written notice to MSU terminating the license agreement effective April 24, 2009.

HepaMate Bioartificial Liver System

We are developing HepaMate for patients with acute or severe liver failure. HepaMate is the most clinically-studied bioartificial liver with more than 50 scientific papers and book chapters published on the technology. Over 200 patients have participated in two clinical trials in the United States and Europe.

HepaMate is an extracorporeal (outside the body), temporary liver support system designed to provide whole liver function to patients with acute or severe liver failure. Unlike conventional technologies which use mechanical methods to perform rudimentary filtration of a patient s blood or partially detoxify blood by using albumin or sorbents, HepaMate combines the process of removing toxins from the patient s blood (detoxification) with concurrent biologic liver cell therapy.

During HepaMate therapy, the patient s plasma is first separated from whole blood, then exposed to the HepaMate bioartificial liver, and finally, returned to the patient. HepaMate is comprised of a blood plasma separation cartridge, a hollow-fiber bioreactor filled with proprietary porcine liver cells, a charcoal column, an oxygenator, and a plasma reservoir. These components are assembled into a patented blood/plasma circulation system, which is placed on our HepaDrive perfusion platform.

HepaMate is designed to provide whole liver function by using liver cells which are expected to remove toxins and produce albumin and other important liver-specific proteins. In order to easily and safely store and distribute our liver cells, we use a patented liver cell cryopreservation process which freezes the cells and allows for their prolonged storage. We believe our patented cryopreservation process provides us with a significant commercial and logistical advantage over technologies reliant upon the delivery of fresh cells which cannot typically be stored for prolonged periods and therefore, have shorter shelf-lifetimes than our cells used in HepaMate .

HepaMate , previously known as 'HepatAssist, has been clinically evaluated in a successful Phase I clinical trial. Following these results, a pivotal Phase II/III prospective, randomized, controlled trial in 171 patients (with fulminant/subfulminant hepatic failure and primary non-function following a failed liver transplant) was conducted in 11 U.S. and 9 European medical centers. The clinical data was published in 2004 and showed that, based on a retrospective analysis, liver failure patients with fulminant and sub-fulminant hepatic failure who were treated with the bioartificial liver achieved a significant survival advantage when compared against the patient control group receiving standard-of-care treatment without bioartificial liver support.

We believe the inclusion of a subset of 24 patients who had undergone a prior, failed liver transplant negatively impacted the Phase II/III trial s outcome since such patients are known to have poor survival outcomes. As a consequence, the pivotal Phase II/III trial was unable to achieve its primary 30-day survival endpoint in the overall study population. Based on our retrospective statistical analysis of the clinical trial data, we anticipate, but cannot assure, that a new Phase III clinical trial without the inclusion of such failed liver transplant patients may be successful.

There is no assurance that we will achieve all or any of our goals.

Due to the pre-revenue, clinical development stage of our business, we expect to incur losses as we continue conducting our ongoing product development program. We will require additional funding to continue our product development program, to conduct a new clinical Phase III trial for HepaMate , for operating expenses, to pursue regulatory approvals for our product, for the costs involved in filing and prosecuting patent applications and enforcing or defending patent claims, if any, for any possible acquisitions or new technologies, and we may require additional funding to establish manufacturing and marketing capabilities in the future.

We currently do not have any arrangements or agreements with any third parties relating to such additional funding. We may seek to access the public or private equity markets whenever conditions are favorable. We may also seek additional funding through strategic alliances and other financing mechanisms. We cannot assure you that funding will be available in amounts and on terms acceptable to us, if at all. If adequate funds are not available, we may be required to curtail significantly our development program or obtain funds through arrangements with collaborators or others. This may require us to relinquish rights to certain of our technologies or product candidates. To the extent that we are unable to obtain third-party funding for such expenses, we expect that increased expenses will result in increased losses from operations. We cannot assure you that we will successfully develop our products under development or that our products, if successfully developed, will generate revenues sufficient to enable us to earn a profit.

USDA Agricultural Research Service

In November 2007, we entered into an exclusive license agreement with the USDA, ARS for the use of patented PICM-19 liver cell lines in bioartificial liver devices and in-vitro toxicological testing platforms. In September 2008, we amended our license agreement to expand the field-of-use to allow for use of the PICM-19 cells as in-vitro infection host systems for viral and protozoan agents such as malaria. The license agreement gives us exclusive rights to the use of PICM-19 liver cell lines in artificial liver devices and in-vitro toxicological testing platforms patented by two issued and one pending patent. Under the terms of the license agreement, we paid USDA, ARS a one-time license execution fee and are obligated to pay certain maintenance fees, milestone payments and royalties on future sales, if any.

The exclusive license agreement for the PICM-19 liver cell line with the USDA, ARS for the use of patented liver cell lines in artificial liver devices and in-vitro toxicological testing platforms remains in force and effect; the license was recently expanded for the additional use of PICM-19 as in-vitro infection host system for viral and protozoan agents such as malaria. We are continuing to evaluate the further optimization of our PICM-19 liver stem cell line for potential use in a future generation of the HepaMate bioartificial liver system

While we are currently maintaining the license agreement for the PICM-19 liver cell line in effect, contemporaneously with our acquisition of the HepatAssist related assets, we, through our subsidiary, HepaLife Biosystems, Inc. (HepaBio), have notified the USDA, ARS that HepaBio has elected to terminate the Cooperative Research and Development Agreement (the CRADA) between us and the USDA, ARS effective November 30, 2008.

Michigan State University

In June 2006, we, through our subsidiary, Phoenix BioSystems, Inc. (PBS), entered into an exclusive worldwide license agreement with Michigan State University for the use of the patented PBS-1 chick cell lines for the development of new cell-culture based flu vaccines. In February 2008, PBS amended the license agreement to include use of the PBS-12SF chick cell line for the development of new cell-culture based flu vaccines. The license agreement granted us exclusive rights to five issued patents. Under the terms of the license agreement, we paid MSU a one-time license execution fee and are obligated to pay royalties based on future sales, if any, subject to annual minimum payments. In January 2009, in order to more fully focus our resources on the development of the HepaMate and related technologies, we provided written notice to MSU to terminating the license agreement relating to the PBS-12SF chick cell line effective April 24, 2009.

Our Strategy

Currently, we are focusing a significant portion of our financial resources on the continued development of HepaMate and related technologies. We believe that our bioartificial liver development program, due to our existing pivotal clinical trial data, is one of the most advanced development programs of its kind. We expect to conduct a new Phase III clinical trial as soon as possible, subject to the availability of required funding which we estimate will exceed our current working capital.

Although there is no assurance that we will be successful, if we succeed in our efforts to develop our bioartificial liver and in obtaining regulatory approval for commercialization following successful clinical phase III trials of HepaMate , we will

explore a number of commercial opportunities, including, but not limited to:

- the outright sale of our technology,
- joint venture partnerships with health care companies, or
- direct marketing and selling of our products.

Ultimately, our commercial success will depend on our ability and the ability of our partners, if any, to compete effectively in product development areas such as, but not limited to, safety, efficacy, ease of use, patient or customer compliance, price, marketing and distribution as well as the efficacy of competing technologies.

Competition

The biotechnology industry is characterized by intense competition, rapid product development and technological change. A number of companies, research institutions and universities are working on technologies and products that may be similar and/or potentially competitive with our cell-based bioartificial liver. Non cell-based techniques initially developed for other conditions, have been used to treat severe acute liver failure for more than a decade. Until now, no controlled, multicenter, large, randomized, prospective trials have been carried out using non-cell-based systems; therefore, their effect on survival remains unknown.

There can be no assurance that competitors will not succeed in developing alternative clinical therapies that are more effective than any that may ultimately be derived from our development efforts or that would render any such product obsolete and non-competitive.

We face competition from a number of companies, some of which are substantially larger than we are and have access to resources far greater than ours. Some companies enjoy numerous competitive advantages over us, including:

- greater brand name recognition;
- established relations with healthcare professionals, customers and third-party payors;
- established distribution networks;

- additional lines of products, and the ability to offer rebates, higher discounts or incentives to gain a competitive advantage;

- greater experience in conducting research and development, manufacturing, clinical trials, obtaining regulatory approval for products, and marketing approved products; and

- greater financial and human resources for product development, sales and marketing, and patent litigation.

As a result, we may not be able to compete effectively against these companies or their products.

The brief description of the products and technologies being developed or marketed by our competitors listed below have been taken from publicly available documents or reports filed by these companies with the United States Securities and Exchange Commission.

Competitors With Artificial Liver Device Technologies In Advanced Clinical Evaluation

- Arbios Systems, Inc. developing a non-biologic liver filtration device (SEPET) based on selective hemofiltration,

- Fresenius AG developed a non-biologic liver filtration system (PROMETHEUS) based on a dialysis principle to remove water-soluble and albumin bound toxins from the blood,

- Gambro AB developed a non-biologic liver filtration system (MARS) based on a dialysis principle to remove water-soluble and albumin bound toxins from the blood, and

- Vital Therapies, Inc. developing a bioartificial liver device (ELAD) that uses a line of human liver cells cultivated from a hepatoblastoma, a type of liver tumor.

We believe that in order for us to compete with such companies, both for the acquisition of rights to viable biotechnologies and the financial resources required to ultimately attempt to commercialize such technologies, it is important for us to establish and maintain brand name recognition. Accordingly, we have undertaken a program designed to establish brand name recognition within the investment and scientific communities; we intend to continue to develop and market our brand name pending commercialization.

Our Intended Markets

Liver failure and the Need for an Artificial Liver Device

Each year an estimated two million people die of liver disease. The World Health Organization estimates that over 650 million people worldwide are affected by some form of liver disease, including 30 million Americans. China has the world s largest population of Hepatitis B patients (approx. 120 million) with 500,000 people dying of the liver disease every year.

In the US alone, there are around 500,000 critical episodes of liver problems requiring hospitalization with 80,000 deaths annually. Liver transplantation is currently the only therapy proven to extend survival but the waiting list for liver transplants is extensive and many on the list will not receive an organ due to a dramatic shortage of donors or not being eligible.

In 2007, according to the United Network for Organ Sharing, there were nearly 17,000 individuals on the US waiting list for a liver transplant. Only 30% of those in need were transplanted. The average waiting time was more than 400 days. The same year, about 1,300 people died while waiting for a suitable donor with no medical option for saving their life available. For those patients with fulminant hepatic failure, a severe liver disease with 60-90% mortality, depending on the cause, only 10% received a transplant. Liver transplantation has a relatively high mortality of 30-40% at 5 -8years with 65% of the deaths occurring in the first 6 months. In addition, patients who have undergone transplantation must use lifelong immunosuppressive therapy.

The need for a bioartificial liver device able to remove toxins and improve survival results is more critical today than ever before. Limited treatment options, a low number of donor organs, the high price of transplants and follow up costs, a growing base of hepatitis, alcohol abuse, drug overdoses, liver cancer and other factors, all clearly indicate a strong need for a bioartificial liver device.

Liver Failure Treatment

For 30 years the medical world has tried to create a life-saving bioartificial liver device. Hepatocytes, or liver cells, are the key to a functioning bioartificial liver. However, the liver is a complex organ to functionally replicate: it takes in oxygen and nutrients, and returns metabolic byproducts to the plasma; it must regulate the balance of fluids, electrolytes, and glucoses. The liver synthesizes albumin, globulins, and heparin, and filters out ammonia and toxins.

Currently, the standard treatment for acute liver failure involves supportive care that focuses on bridging patients to either transplantation or spontaneous recovery. Orthotopic liver transplantation is the only current therapy shown to improve patient survival.

Several extracorporeal liver support systems have been used to treat acute liver failure, attempting to bridge patients to either recovery or to transplantation. These include cell-based and non cell-based systems. In the absence of treatment alternatives, non cell-based techniques (eg, high-volume plasma exchange and albumin dialysis) initially developed for other conditions, have been used to treat severe acute liver failure for more than a decade. However, the clinical effect on patient survival in severe acute liver failure was limited.

Extracorporeal liver perfusion using whole human and pig livers rather than cells has been shown to effectively support patients with acute liver failure for several days, but it is impractical for wider use because of limited availability of human livers and lack of quality control and consistency for animal livers. As a result, several extracorporeal cell-based devices were developed. Early Phase I studies have been performed using whole blood or plasma perfusion through cartridges (mostly hollow-fiber bioreactors) containing either human hepatoblastoma (tumor) cells or freshly isolated porcine hepatocytes. While such devices appeared to be well tolerated by patients, the studies did not demonstrate a survival advantage over standard care in appropriately controlled settings.

The Market Segments

Assuming the results from our development efforts and anticipated clinical trials prove successful, and subject to receiving regulatory approvals, we believe that we will have the potential to address two important clinical needs and market segments:

Acute Liver Failure

Acute liver failure (ALF) can develop from several distinct disease processes that are associated with the rapid loss of liver function, including fulminant hepatic failure (FHF), subfulminant hepatic failure, and primary nonfunction of a transplanted liver. FHF is usually used as a generic term encompassing a range of definitions that are based on the time of onset of hepatic

encephalopathy (coma).

FHF is the final common pathway for a variety of liver injuries. In FHF, the need for a liver replacement is urgent because of rapid deterioration in the patient s condition, often associated with irreversible brain damage.

In severe FHF, the mortality rate without liver transplantation approaches up to 90% and individuals diagnosed with FHF are placed at the top of the transplant waiting list (Status I). We anticipate that our HepaMate bioartificial liver may help keep patients alive and maintain their neurological state until their own liver potentially recovers and regenerates to normal function (bridge to recovery), or until a donor liver becomes available for transplantation to the patient (bridge to transplantation).

In FHF patients, we anticipate that our HepaMate bioartificial liver therapy will:

- Allow survival without a transplant (a bridge to liver regeneration)
- Reduce the risk of pre-transplant death
- Help keep liver failure patients alive and neurologically intact before, during and immediately after transplantation
- Improve survival in individuals with drug-induced liver toxicity
- Improve survival with drug-induced liver toxicity

Acute-on-Chronic and Chronic Liver Failure

These patients experience recurrent acute episodes of liver failure which are very difficult and costly to treat. The large majority of these patients do not become eligible for liver transplantation until very late in their disease course, if ever, by which time they may be contraindicated for such an invasive surgical procedure. Thus, we anticipate that the principal objective for use of our HepaMate bioartificial liver will be to bridge these patients to regeneration and recovery of their own liver. Over several years, we anticipate that such patients may be repeatedly treated with our HepaMate bioartificial liver in response to recurring, acute episodes.

For acute-on-chronic and chronic liver failure patients, we anticipate that potential indications for the HepaMate bioartificial liver may include its use in: (a) treatment of acute episodes (or flares) of chronic liver disease, or

acute-on-chronic liver failure arising from specific viral hepatitis strains; (b) prevention of acute-on-chronic episodes of liver failure; (c) treatment of acute alcoholic hepatitis, and; (d) use in conjunction with multi-drug anti-viral therapy in refractory viral hepatitis patients, where liver injury may impede immune response to conventional administration of antiviral drugs.

Marketing of Commercialized Products

We do not have any commercialized products, nor is there any assurance that we will have any such products; accordingly, we have no sales organization or agreements with third parties regarding the sale and marketing of any products which we may eventually commercialize. To the extent that we may enter into distribution, co-marketing, co-promotion or sublicensing arrangements for the marketing and sale of any such products, any revenues received by us will be dependent on the efforts of third parties. If any of such parties were to breach or terminate their agreement with us or otherwise fail to conduct marketing activities successfully, and in a timely manner, the commercialization of products, if any, derived from our development efforts would be delayed or terminated.

Our ability to achieve profitability is dependent in part on ultimately obtaining regulatory approvals for products, if any, which are derived from our development efforts, and then commercialize either through our own sales force or by entering into sales/marketing agreements for the commercialization of any such products with third parties or strategic partners. There can be no assurance that such regulatory approvals will be obtained or such agreements will be entered into. The failure to obtain any such necessary regulatory approvals or to enter into any such necessary agreements could delay or prevent us from achieving profitability and would have a material adverse effect on the business, financial position and results of our operations. Further, there can be no assurance that our operations will become profitable even if products, if any, which are derived from our development efforts, are commercialized.

If FDA and other approvals are ultimately obtained with respect to any product submitted by us in the future for approval, we expect to market and sell any such product ourselves, through distribution, co-marketing, co-promotion or sublicensing arrangements with third parties.

Employees

At December 31, 2009 we had one full-time employee. We do not have any part-time employees. Our employee is not

represented by a labor union or other collective bargaining groups. We consider relations with our employee to be good. To the best of our knowledge, none of our employees, officers or directors are bound by restrictive covenants from prior employers which would preclude them from providing services to us. We currently plan to retain and utilize the services of outside consultants for additional research, testing, regulatory, accounting, legal compliance and other services on an as needed basis.

Item 2. PROPERTIES.

Our current corporate office is located at 60 State Street, Suite 700, Boston, MA 02109.

Item 3. LEGAL PROCEEDINGS.

We are not a party to any current legal proceedings.

Item 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS.

Our Annual Meeting of Stockholders (the Annual Meeting) was held on December 21, 2009, at which time the stockholders voted on the following proposals:

1. The election of a board of directors to serve until the next Annual Meeting or until their respective successors are duly elected and have qualified.

	Votes For	Votes Against	Votes Abstaining
Javier Jimenez	53,074,383	585,332	118,803
Joseph Sierchio	53,074,365	577,330	126,821
Jatinder Bhogal	53,069,437	583,088	124,991

2. Ratifying the appointment of Peterson Sullivan LLP as our auditors for the fiscal year ending December 31, 2009.

Votes For	Votes Against	Votes Abstaining
53,356,738	253,594	168,185

PART II

ITEM 5. MARKET FOR REGISTRANT S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES.

Market Information

Our Company's Common Stock is traded on the Over the Counter Bulletin Board (OTCBB) under the symbol "HPLF." We are engaged in a highly dynamic industry, which often results in significant volatility of our common stock price.

The following table sets forth the high and low sale prices for the periods indicated:

	High	Low
First Quarter 2008	$0.47	$0.31
Second Quarter 2008	$0.73	$0.45
Third Quarter 2008	$0.48	$0.18
Fourth Quarter 2008	$0.31	$0.14
First Quarter 2009	$0.30	$0.15
Second Quarter 2009	$0.22	$0.16
Third Quarter 2009	$0.35	$0.16
Fourth Quarter 2009	$0.38	$0.13

As of March 22, 2010, there were approximately 76 stockholders of record.

Dividend Policy

We have never paid cash dividends on our common stock and do not anticipate paying any cash dividends in the foreseeable future, but intend to retain our capital resources for reinvestment in our business. Any future determination to pay cash dividends will be at the discretion of the board of directors and will be dependent upon our financial condition, results of operations, capital requirements and other factors as the board of directors deems relevant. Our board of directors has the right to authorize the issuance of preferred stock, without further shareholder approval, the holders of which may have preferences over the holders of the Common Stock as to payment of dividends.

Securities Authorized for Issuance Under Equity Compensation Plans

	Number of Securities to be issued upon exercise of outstanding options, warrants and right	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
Plan Category	(a)	(b)	(c)
Equity compensation plans approved by security holders	250,000	$0.35	37,548,000
Equity compensation plans not approved by security holders			
Total	250,000	$0.35	37,548,000

item 7. management s discussion and analysis of financial condition and results of operations.

Discussion and Analysis

The following discussion and analysis is based upon our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States, and should be read in conjunction with our financial statements and related notes. The preparation of these financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue and expenses, and related disclosure of contingent assets and liabilities. Management bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. In addition, the following discussion and analysis contains forward-looking statements that involve risks and uncertainties, including, but not limited to, those discussed in ***Forward Looking Statements*** *, and elsewhere in this Form 10-K/A.*

Overview

We are a development stage biotechnology company focusing on the development of a cell-based bioartificial liver system, HepaMate , as a potentially lifesaving treatment for liver failure patients. The technology has previously been successfully tested in a clinical phase I study. As an extracorporeal cell-based bioartificial liver system, HepaMate is designed to combine blood detoxification with liver cell therapy to provide whole liver function in patients with the most severe forms of liver failure.

On October 3, 2008, we acquired HepatAssist Related Assets from Arbios, which included over 12 patents and patent licenses; miscellaneous scientific equipment; FDA Investigative New Drug (IND) application, including orphan drug and fast track designation; phase I and phase II/III clinical protocols and clinical data; and standard operating procedures for manufacturing and quality control. The acquired assets relate to a bioartificial liver device formerly known as HepatAssist. HepatAssist passed clinical phase I studies was evaluated in the largest-ever phase II/III clinical study (prospective, randomized, multicenter, controlled trial involving over 170 patients) to test the safety and efficacy of a bioartificial liver assist device. The clinical data was published in 2004 and showed for bioartificial liver device treated patients in fulminant and sub-fulminant hepatic failure a significant survival advantage compared with the patient control group receiving standard-of-care treatment.

We are working towards optimizing the former HepatAssist bioartificial liver device for utilization in a new clinical phase II/III study followed, if warranted, by commercialization upon final regulatory approval.

Previously we focused our research, development and commercialization efforts on the development of a porcine stem cell line, and subclones thereof, which we refer to as the PICM-19 cell line for use in a bioartificial liver and in-vitro toxicology testing, and on the commercialization of a chicken cell line, and subclones thereof, which we refer to as the PBS-1 cell line . The PBS-1 cell line was developed for potential use in cell-based vaccine production and was exclusively licensed from Michigan State University (MSU) in June 2006. In January 2009, we provided written notice to MSU terminating the license agreement effective April 24, 2009.

The PICM-19 cell line was developed for potential use in a bioartificial liver device and in-vitro toxicology platforms and was exclusively licensed from USDA Agricultural Research Service on November 2007. In September 2008 the license was amended for the expanded field-of-use as in-vitro infection host systems for viral and protozoan agents such as malaria.

On May 23, 2008, we completed a private placement of securities for an aggregate purchase price of $4,530,800. Simultaneously with the completion of the private placement, n satisfaction of the $877,800 outstanding principal amount of the promissory note which we previously issued, we issued 2,065,412 Units consisting of 2,065,412 shares and 2,065,412 Series C Warrants; the note holder agreed to accept $150,000 in full payment and satisfaction of the accrued and unpaid interest on the note payable in the amount of $249,945.

Asset Purchase Agreement

On October 3, 2008, we entered into and consummated the transactions contemplated by a purchase agreement with Arbios pursuant to which, we purchased certain specified assets of Arbios relating to the pig cell based liver device technology that was being developed by Arbios.

The purchase price of the acquired assets consisted of: $450,000 in cash, of which $250,000 was paid at the closing and $200,000 has been deferred for up to 18 months; a Series D Stock Purchase Warrant to purchase up to 750,000 shares of the Company s common stock at an exercise price of $0.35 per share for a period of 5 years. The Deferred Cash Purchase Price of $200,000 was due and payable on the earlier of (i) the date on which we consummate one or more debt or equity financings in which the gross proceeds received in the aggregate equal or exceed $4,000,000, or (ii) the eighteen month anniversary of the closing date.

The issuance of the Series D Warrant was deemed to be exempt from registration under the Securities Act in reliance on Section 4(2) of the Securities Act in that the issuance did not involve a public offering. We granted Arbios certain registration rights, as more fully set forth in the Registration Rights Agreement dated October 3, 2008 between us and Arbios, with respect to the shares of the Company s common stock issuable upon exercise of the Series D warrant. Pursuant to the Registration Rights Agreement, if we have not filed with, and have declared effective by, the Securities and Exchange Commission, a registration statement within nine months of October 3, 2008, Arbios, to the extent applicable, will be entitled to utilize the cashless exercise provisions of the Series D Warrant.

Warrant Repurchase Agreement

On April 22, 2009, we consummated the transactions contemplated by a Warrant Repurchase Agreement between us and Arbios. Pursuant to the Repurchase Agreement, we repurchased the Series D stock purchase warrant previously issued to Arbios as partial consideration pursuant to the Asset Purchase Agreement. The Series D Warrant entitled the holder to purchase up to 750,000 shares of our common stock at a price of $0.35 per share for a period of 5 years. In consideration thereof we accelerated payment of the Deferred Cash Purchase Price to April 22, 2009 which was due on the earlier of (i) the date on which we consummate one or more debt or equity financings in which the gross proceeds received in the aggregate equal or exceed $4,000,000, or (ii) the eighteen month anniversary of the closing date.

May 2008 Private Placement

On May 23, 2008, we completed a private placement (May 2008 Private Placement) pursuant to which we sold 10,660,705 units (Units) at a price of $0.425 per Unit or $4,530,800 in the aggregate. Each Unit consists of one share of our common stock (the Unit Shares) and one Series C stock purchase warrant (Series C warrant) to purchase a share of common stock at the initial exercise price of $0.55 per share for a period of two years from the date of issuance. In conjunction with our completion of the acquisition of the HepatAssist Related Assets in October 2008, we reduced the initial exercise price of the Series C warrants to $0.34 per share. We also issued an additional 263,713 Units in payment of placement and legal fees relating to this transaction. We have agreed to register for resale the Unit Shares and the shares of our common stock issuable upon exercise of our common stock.

Loan Conversion

Simultaneously with the completion of the May 2008 Private Placement, we entered into an agreement with Mr. Harmel S. Rayat, our former Chief Financial Officer, Director and Controlling Shareholder, pursuant to which Mr. Rayat (i) converted the entire outstanding principal amount ($877,800) of his loan to us into an aggregate of 2,065,412 Units, each Unit consisting of one share of our common stock and one Series C warrant, at a conversion price of $0.425 per Unit and (ii) agreed to accept $150,000 in full payment and satisfaction of the accrued and unpaid interest on the loan in the amount of $249,945.

Warrants

As of December 31, 2009, we had Warrant shares outstanding that we issued May 11, 2007 with an original exercise price of $1.50 and original warrant shares of 737,000 convertible into common stock until May 11, 2012. The Warrant Agreement provides for an adjustment to the exercise price and number of shares if we issue shares of common stock or common stock equivalents for consideration less than the then market price at the date of issuance subject to a 1% adjustment floor. As a result of this provision, the total number of Warrant shares outstanding as of December 31, 2009 was 825,000 with an exercise price of $1.34.

Warrant Exchange/Exercise Agreement

On October 27, 2009, we consummated the transactions contemplated by the Warrant Exchange/Exercise Agreement between us and each of the holders of the Series C Warrants. Pursuant to the terms of the Warrant Exchange/Exercise Agreement we issued 3,492,505 shares of restricted stock in exchange for 6,985,010 Series C Warrants and issued an aggregate of 6,004,824 shares of common stock in connection with the exercise of the balance of the Series C Warrants a price of $0.10 per share. As of December 31, 2009, there are no Series C Warrants outstanding.

The fair value of the Series C Warrant Liability at October 27, 2009, the effective date of the Warrant Exchange/Exercise Agreement, using the Black-Scholes pricing-model was $581,559, of which $268,838 was allocated to the 6,004,824 warrant shares exercised and $312,721 was allocated to the 6,985,010 warrant shares exchanged.

We received total cash proceeds of $600,483 from the 6,004,824 warrant shares exercised at $0.10 per warrant share as part of the Warrant Exchange/Exercise Agreement. The fair value of the Series C Warrant liabilty attributable to the Warrants exercised was $268,838, prior to the impact of the reduction in exercise price. The fair value of the warrant liabilty increased by $691,934 and resulted in a carrying value of $960,772 from the reduction in exercise price. The increase in the fair value of the warrant liabilty of $691,934 was recorded as a component of the loss on extinguishment of warrant liabilty in the accompanying financial statements.

The fair value of the 3,492,505 shares of common stock issued to settle the exchange for 6,985,010 warrant shares was $908,952 based on the closing price of the Company s common stock of $0.26 per share on October 27, 2009 as quoted on the Over the Counter Bulletin Board. The Company recorded a loss on extinguishment of warrant liability on the shares exchanged for common stock in the amount of $595,330 on October 27, 2009 as a result of the excess of the consideration provided in the form of common stock over the fair value of the Series C Warrant Liability.

Critical Accounting Policies

Our discussion and analysis of our financial condition and results of operations are based on our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities and expenses and related disclosures. We review our estimates on an ongoing basis.

We consider an accounting estimate to be critical if it requires assumptions to be made that were uncertain at the time the estimate was made; and changes in the estimate or different estimates that could have been made could have a material impact on our results of operations or financial condition. While our significant accounting policies are described in more detail in the notes to our financial statements included in this Form 10-K/A, we believe the following accounting policies to be critical to the judgments and estimates used in the preparation of our financial statements:

Research and Development Expenses

Research and development expenses represent costs incurred to develop our technology, as well as purchased in-process research and development programs. Until October 2008, the majority of costs incurred were pursuant to our CRADA with the USDA s Agricultural Research Service and pursuant to our sponsored research agreement with MSU. During 2009, research and development expenses were $185,081. Third-party costs paid by us relating to these agreements include salaries and benefits for research and development personnel, allocated overhead and facility occupancy costs, contract services and other applicable costs. In addition, costs may include third party laboratory work. We charge all research and development expenses to operations as they are incurred, including internal costs, costs paid to sponsoring organizations, and purchased in-process research and development programs. We do not track research and development expenses by project.

General and Administrative Expenses

Our general and administrative expenses consist primarily of personnel related costs, legal costs, including intellectual property that is expensed when incurred, investor relations costs, stock-based compensation costs, accounting costs, and other professional and administrative costs.

Stock-Based Compensation

We measure all stock-based compensation awards at fair value on the date of grant and recognize such expense in our consolidated financial statements over the requisite service period for awards expected to vest. We use the Black-Scholes pricing model to determine the fair value of stock-based compensation awards on the date of grant. The Black-Scholes pricing model requires management to make assumptions regarding the option lives, expected volatility, and risk free interest rates. See Note 9. Stock Options in the Notes to Consolidated Financial Statements for additional information on our stock-based compensation plans.

Fair Value

We measure fair value as the price that would be received to sell an asset or paid to transfer a liability (an exit price) in an

orderly transaction between market participants at the reporting date. We utilize a three-tier hierarchy, which prioritizes the inputs used in the valuation methodologies in measuring fair value:

Level 1. Valuations based on quoted prices in active markets for identical assets or liabilities that an entity has the ability to access. We have no assets or liabilities valued with Level 1 inputs.

Level 2. Valuations based on quoted prices for similar assets or liabilities, quoted prices for identical assets or liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable data for substantially the full term of the assets or liabilities. We have no assets or liabilities valued with Level 2 inputs.

Level 3. Valuations based on inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. Liabilities valued with Level 3 inputs are described in Note 8. Stockholders Equity in the Notes to Consolidated Financial Statements.

Warrant Liability Derivative

We evaluate financial instruments for freestanding or embedded derivatives. The warrant liability derivative is recorded at fair value with changes in value recognized as other income (expense) in the consolidated statements of operations in the period of change.

Results of Operations

We have yet to establish any history of profitable operations and our accumulated deficit from inception through December 31, 2009 is $20,237,116 We have not generated any revenues from operations during the past five years and do not expect to generate any revenues for the foreseeable future. We expect that our future revenues will not be sufficient to sustain our operations for the foreseeable future. Our profitability will require the successful completion of our research and development programs, and the subsequent commercialization of the results or of products derived from such research and development efforts. No assurances can be given when this will occur or that we will ever be profitable.

We expect to continue to incur losses from business operations and we believe our cash and cash equivalents balances, anticipated cash flows from operations, and other external sources of credit will be sufficient to meet our cash requirements through March 2011. Our future after March 2011 will depend in large part on our ability to successfully

raise capital from external sources to pay for planned expenditures and to fund operations.

Operating Expenses

A summary of our operating expenses for the years ended December 31, 2009 and 2008 is as follows:

	2009	2008	Increase (Decrease)	% Change
Expenses				
Salary and benefits	$ 536,712	$ 1,157,785	$ (621,073)	(53.6%)
Research and development	185,081	892,386	(707,305)	(79.3%)
Shareholder relations and name branding	37,246	354,308	(317,062)	(89.5%)
Administrative and general	228,593	324,393	(95,800)	(29.5%)
Professional fees- accounting and legal	378,690	204,422	174,268	85.2%
Director, management and consulting fees	147,606	20,705	126,901	612.9%
Depreciation	-	7,821	(7,821)	(100.0%)
	$ 1,513,928	$ 2,961,820	$ (1,447,892)	(48.9%)

Salaries and benefits: We incurred salaries and benefits expense of $536,712 for the year ended December 31, 2009

representing a decrease of $621,073 or 53.6% compared to the year ended December 31, 2008. The majority of the decrease, representing $324,479, is primarily due to a decrease in stock compensation expense as certain option grants have been fully expensed. The remaining decrease of $296,594 is due to a lower compensation expense from fewer employees as we terminated our research scientists effective November 30, 2008 as a result of the Arbios Systems, Inc. asset acquisition and due to closing our corporate office in Vancouver, British Columbia on August 31, 2008.

Research and development: We incurred $185,081 in research and development expenses for the year ended December 31, 2009 representing a decrease of $707,305 or 79.3% compared to the year ended December 31, 2008. This decrease is due primarily to the cancellation of our purchased research and development program with the USDA effective October 2008 and the cancellation of our sponsored research agreement with Michigan State University (MSU) effective April 24, 2009. We cancelled both the USDA and MSU research programs as a result of repositioning our strategic direction.

Shareholder relations and name branding: We incurred $37,246 of shareholder relations and name branding expenses for the year ended December 31, 2009 representing a decrease of $317,062 or 89.5% compared to the year-ended December 31, 2008, primarily as a result of the company s decision to reduce name branding expenditures.

Administrative and general: We incurred $228,593 in administrative and general expenses for the year ended December 31, 2009 representing a decrease of $95,800 or 29.5% compared to the year ended December 31, 2008. The change is primarily comprised of a decrease of $105,809 in facilities and travel expenses due to closing of the corporate office in Vancouver, British Columbia on August 31, 2008, offset by an increase of $ 7,309 for the first time incurrence of license maintenance fees and director and officer insurance.

Professional fees: We incurred a total of $378,690 in professional fees for the year ended December 31, 2009 for an increase of $174,268 or 85.2% which is comprised of the following: an increase of $101,756 in legal fees, an increase of $54,158 for external accounting fees as these services were primarily performed by the corporate office in Vancouver, British Columbia in 2008 and are now outsourced; and an increase of $18,354 in audit and other consulting services.

Director, management and consulting fees: We incurred a total of $147,606 in director, management and consulting expenses for the year ended December 31, 2009 for an increase of $126,901 or 612.9% compared to the year ended December 31, 2008. The increase is attributable to an increase in the number of positions on the Board of Directors from three to five beginning in September 2008, increasing the Director s fees from $750 to $2,500 on a quarterly basis, and also to our hiring a Chief Financial Officer, on a contract basis, in February 2009. In addition, we hired an interim Chief Executive Officer in October 2009.

Depreciation: Depreciation expense was zero for the year ended December 31, 2009 as all assets were retired in the year ended December 31, 2008.

Other Income and (Expense)

A summary of our other income and expense for years ended December 31, 2009 and 2008 is as follows:

	2009	2008	Increase (Decrease)	% Change
Other income and (expenses)				
Interest on promissory note	$ -	$ (41,615)	$ (41,615)	100.0%
Bank charges and foreign exchange loss	(1,226)	(11,261)	(10,035)	(89.1%)
Interest income	29,619	30,831	(1,212)	(3.9%)
Loss on disposal of fixed assets	-	(3,061)	(3,061)	(100.0%)
Amortization of discount on notes	(12,873)	(469,893)	(457,020)	97.3%
Amortization of deferred financing costs	-	(210,728)	(210,728)	(100.0%)
Change in fair value of warrant liability	(62,297)	-	62,297	0.0%
Loss on extinguishment of warrant liability	(1,287,264)	-	1,287,264	0.0%
	$ (1,334,041)	$ (705,727)	$ 625,890	71.0%

Interest on promissory note: Interest expense represents interest accrued on note payables to Mr. Harmel S. Rayat, at an annual rate of 8.5%. Mr. Rayat was our former Chief Financial Officer, former Director, and former majority shareholder. As part of the 2008 Private Placement the balance of this loan was converted to common stock and warrants.

Interest income: Interest income for the years ended December 31, 2009 and 2008 represents interest earned on cash and cash equivalents.

Amortization of discount on notes and deferred financing costs: These accounts decreased due to the conversion of notes payable to common stock during 2008.

Change in fair value and loss on extinguishment of warrant liability: On January 1 2009, we adopted guidance which is now part of ASC 815-40, *Contracts in Entity s Own Equity (* ASC 815-40). We determined that our Warrants issued in May 2007 and our Series C Warrants issued in May 2008 contain a dilutive issuance provision that may result in an adjustment to the exercise price and number of underlying shares of common stock. As a result, we reclassified 737,000 Warrant shares from equity to noncurrent warrant liability and 12,989,830 Series C Warrants from equity to a current warrant liability and recorded a cumulative effect of the change in accounting principle adjustment that reduced our accumulated deficit as of January 1, 2009 by $1,932,469.

Our Warrants and Series C Warrants are considered derivative liabilities and are therefore required to be adjusted to fair value each quarter. We value our warrant liability using the Black-Scholes model. Our stock price, remaining term of the warrants and the volatility of our stock all impact the fair value of the warrants.

The amount recorded to adjust the Warrants and Series C Warrants to fair value resulted in a net non-cash loss of $62,297 for the year ended December 31, 2009.

On October 27, 2009, we consummated the transactions contemplated by a Warrant Exchange/Exercise Agreement between us and each of the holders of the Series C Warrants. Pursuant to the terms of the Warrant Exchange/Exercise Agreement we issued 3,492,505 shares of restricted stock in exchange for 6,985,010 Series C Warrants and issued an aggregate of 6,004,824 shares of restricted stock in connection with the exercise of the balance of the Series C Warrants a price of $0.10 per share. Currently, there are no Series C Warrants issued and outstanding.

The fair value of the Series C Warrant Liability at October 27, 2009, the effective date of the Warrant Exchange/Exercise Agreement, using the Black-Scholes pricing-model (Level 3 inputs) was $581,559, of which $268,838 was allocated to the 6,004,824 warrant shares exercised and $312,721 was allocated to the 6,985,010 warrant shares exchanged.

We received total cash proceeds of $600,483 from the 6,004,824 warrant shares exercised at $0.10 per warrant share as part of the Warrant Exchange/Exercise Agreement. The fair value of the Series C Warant liabilty attributable to the Warrants exercised was $268,838, prior to the impact of the reduction in exercise price. The fair value of the warrant liabilty increased by $691,934 and resulted in a carrying value of $960,772 from the reduction in exercise price. The increase in the fair value of the warrant liabilty of $691,934 was recorded as a component of the loss on extinguishment of warrant liabilty in the accompanying fiancial statements.

The fair value of the 3,492,505 shares of common stock issued to settle the exchange for 6,985,010 warrant shares was $908,952 based on the closing price of the Company s common stock of $0.26 per share on October 27, 2009 as quoted on the Over the Counter Bulletin Board. The Company recorded a loss on extinguishment of warrant liability on the shares exchanged for common stock in the amount of $595,330 on October 27, 2009 as a result of the excess of the consideration provided in the form of common stock over the fair value of the Series C Warrant Liability.

Liquidity and Capital Resources

We had cash and cash equivalents of $2,310,200 and $3,084,155 as of December 31, 2009 and, 2008, respectively. Net cash provided by financing activities was $400,483 for the year ended December 31, 2009 from the exercise of 6,004,824 shares of Series C Warrants as part of the Warrant Exchange or Exercise Agreement consummated on October 27, 2009 and from payment of $200,000 on a contract commitment. Net cash provided by financing activities was $4,530,800 for the year ended December 31, 2008 from a private placement of securities of 10,660,705 units, with each unit consisting of one share of common stock and one common stock warrant.

Net cash flow used in operating activities was $1,174,819 for the year ended December 31, 2009, compared to net cash flow used of $1,984,149 for the year ended December 31, 2008. We have financed operations primarily from cash on hand and

through private placement of securities, as well as through the exercise of Series C Warrants. The accompanying financial statements have been prepared assuming we will continue as a going concern. We incurred cumulative losses of $20,237,116 from inception through December 31, 2009. Additionally, we have expended a significant amount of cash in developing our technology. We expect to continue to incur losses from business operations and we believe our cash and cash equivalents balances, anticipated cash flows from operations, and other external sources of credit will be sufficient to meet our cash requirements through March 2011. Our future after March 2011 will depend in large part on our ability to successfully raise capital from external sources to pay for planned expenditures and to fund operations.

At this time, we have no agreements or understandings with any third party regarding any financings.

Related Party Transactions

Employment Agreement: On September 30, 2009, we and Mr. Frank Menzler, who at the time was our Chief Executive Officer and President, entered into a restated employment agreement providing for the payment to Mr. Menzler of a signing bonus of $35,000, which was recorded as salary expense; a severance payment of up to six-months salary and benefits; cancelation of all stock option grants; and the resignation of Mr. Menzler as a Director and Chairman of our Board of Directors.

On October 13, 2009, Mr. Menzler resigned from his position as Chief Executive Officer and President. Pursuant to the terms of the restated employment agreement, Mr. Menzler was appointed Special Technical Advisor and continues as an employee. On March 16, 2010, we gave written notice to Mr. Menzler of our election to terminate the September 30, 2009 restated employment agreement effective March 31, 2010.

On October 13, 2009, we entered into an Interim Executive Services Agreement (the Agreement) with Mr. Amit Dang in which Mr. Dang was appointed as our Interim Chief Executive Officer, President and Secretary. Mr. Dang will receive a fee of $7,000 per month during the term of the Agreement. This agreement may be terminated at any time by the Company and upon 90 days prior written notice by Mr. Dang. It is not expected that Mr. Dang will devote his full time and attention to our operations.

Mr. Dang was also granted an option to purchase, subject to vesting restrictions, up to 100,000 shares of our common stock, at a price of $0.32 per share (the closing price of our common stock as reported on the Over the Counter Bulletin Board on October 13, 2009). The options shall vest and become exercisable when either (a) with Mr. Dang s support and contribution, we are able to successfully consummate a strategic transaction, or other such commercial transaction which the Board deems sufficiently substantial, or (b) the Board, in its sole discretion, elects to accelerate the vesting of the options. We expect that the options shall vest within one year from the date of grant.

Executive Management: For the years ended December 31, 2009 and 2008, we incurred $21,000 and $0 in fees paid to Mr. Amit Dang our President, Chief Executive Officer, and Secretary. In addition, we recorded $2,708 and $0 as stock compensation expense for the award to Mr. Dang for the years ended December 31, 2009 and 2008, respectively.

Director Fees: For the years ended December 31, 2009 and 2008, we incurred $41,667 and $19,343, respectively, in board fees for our non-employee directors. In addition, during June and September 2008, we granted stock options to purchase 50,000 shares each for a total of 200,000 shares of common stock to non-employee board members. For the years ended December 31, 2009 and 2008, we recorded $19,285 and $12,541, respectively, as stock compensation expense relating to these stock grants.

Legal Fees: Legal fees expensed for the year ended December 31, 2009 and 2008 that were paid or are due to our attorney who also serves as a board member totaled $204,193 and $111,150, respectively. Also, as part of our May 2008 Private Placement, we settled $21,250 in legal costs by issuing 50,000 Units to this attorney.

Notes Payable and Accrued Interest: On May 23, 2008, we reached an agreement with Mr. Harmel S. Rayat to which Mr. Rayat (i) converted the entire outstanding principal amount ($877,800) of his loan to us into an aggregate of 2,065,412 Units, each Unit consisting of one share of our common stock and one Series C warrant, at a conversion price of $0.425 per Unit and (ii) agreed to accept $150,000 in full payment and satisfaction of the accrued and unpaid interest on the loan in the amount of $249,945. Mr. Harmel S. Rayat was a former officer, director and majority stockholder of until June 2008.

Rent: Until August 31, 2008, our administrative office was located in Canada. This premise is owned by a private corporation controlled by Mr. Rayat. We paid rent of $26,866 for the year ended December 31, 2008 to the private corporation. Effective September 1, 2008, we closed this administrative office, terminating all of its employees. There were no severance arrangements with any of the terminated employees.

All related party transactions are recorded at the exchange amount established and agreed to between related parties and are in

the normal course of business.

Off Balance Sheet Arrangements

We has no off-balance sheet arrangements.

Recent Accounting Pronouncements

See Note 2 to the Consolidated Financial Statements in this Form 10-K/A.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.

Index to Financial Statements

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors

HepaLife Technologies, Inc.

Boston, Massachusetts

We have audited the accompanying consolidated balance sheets of HepaLife Technologies, Inc. and Subsidiary (a development stage company) ("the Company") as of December 31, 2009 and 2008, and the related consolidated statements of operations, stockholders' equity (deficit), and cash flows for the years then ended, and for the period from October 21, 1997 (date of inception) to December 31, 2009. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Company has determined that it is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of HepaLife Technologies, Inc. and Subsidiary (a development stage company) as of December 31, 2009 and 2008, and the results of their operations and their cash flows for the years then ended, and for the period from October 21, 1997 (date of inception) to December 31, 2009, in conformity with accounting principles generally accepted in the United States.

/S/ PETERSON SULLIVAN LLP

Seattle, Washington

March 31, 2010

HEPALIFE TECHNOLOGIES, INC.
(A Development Stage Company)

CONSOLIDATED BALANCE SHEETS
December 31, 2009 and 2008

		2009		2008
ASSETS				
Current assets				
Cash and cash equivalents	$	2,310,200	$	3,084,155
Prepaid expenses		44,033		98,716
Total current assets	$	2,354,233	$	3,182,871
LIABILITIES				
Current liabilities				
Accounts payable and accrued liabilities	$	98,462	$	105,250
Total current liabilities		98,462		105,250
Contract commitment payable (Note 4)		-		200,000
Discount on contract commitment payable		-		(12,873)
Warrant liability (Note 8)		9,815		-
Total liabilities		108,277		292,377
Commitments and contingencies (Note 5)				
STOCKHOLDERS' EQUITY				
Stockholders' equity (Note 8)				
Preferred stock: $0.10 par value; Authorized: 1,000,000				
Issued and outstanding: none		-		-
Common stock: $0.001 par value; Authorized: 300,000,000				
Issued and outstanding: 101,494,158 (2008: 91,996,829)		101,495		91,998
Additional paid-in capital		22,381,577		22,120,493
Accumulated other comprehensive income		-		(381)
Loss accumulated during the development stage		(20,237,116)		(19,321,616)
Total stockholders' equity		2,245,956		2,890,494
Total liabilities and stockholders' equity	$	2,354,233	$	3,182,871

(The accompanying notes are an integral part of these financial statements)

HEPALIFE TECHNOLOGIES, INC.
(A Development Stage Company)

CONSOLIDATED STATEMENTS OF OPERATIONS
For the years ended December 31, 2009 and 2008
and from inception (October 21, 1997) to December 31, 2009

	2009	2008	From inception (October 21, 1997) to December 31, 2009
Revenue	$ -	$ -	$ -
Expenses			
Salary and benefits	536,712	1,157,785	6,171,467
Research and development	185,081	892,386	2,098,755
Shareholder relations and name branding	37,246	354,308	4,191,960
Administrative and general	228,593	324,393	1,487,933
Professional fees- accounting and legal	378,690	204,422	1,090,633
Director, management and consulting fees (Note 5)	147,606	20,705	1,170,648
Depreciation	-	7,821	35,410
Stock offering costs	-	-	1,926,713
	1,513,928	2,961,820	18,173,519
Operating Loss	(1,513,928)	(2,961,820)	(18,173,519)
Other income and (expenses)			
Interest on promissory note (Note 7)	-	(41,615)	(355,112)
Interest, bank charges and foreign exchange loss	(1,226)	(11,261)	(37,033)
Interest income	29,619	30,831	149,738
Loss on disposal of fixed assets	-	(3,061)	(3,061)
Amortization of discount on notes (Note 4 and Note 7)	(12,873)	(469,893)	(2,107,522)
Amortization of deferred financing costs (Note 7)	-	(210,728)	(293,515)
Change in fair value of warrant liability	(62,297)	-	1,870,172
Loss on extinguishment of warrant liability	(1,287,264)	-	(1,287,264)
	(1,334,041)	(705,727)	(2,063,597)
Net loss available to common stockholders	$ (2,847,969)	**$** (3,667,547)	$ (20,237,116)
Loss per share - basic and diluted	$ (0.03)	$ (0.04)	
Weighted average number of common shares outstanding - basic and diluted	93,688,134	85,952,917	

(The accompanying notes are an integral part of these financial statements)

HEPALIFE TECHNOLOGIES, INC.
(A Development Stage Company)

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT)
from inception (October 21, 1997) to December 31, 2009

	Common Stock Shares	Amount	Additional paid-in capital	Accumulated other comprehensive income	Loss accumu during develo stage
Common stock issued for service rendered at $0.00025 per share, October 21, 1997	12,000,000	$ 12,000	$ (9,000)	$ -	
Common stock issued for cash at $0.0625 per share during 1997	1,200,000	1,200	73,800	-	
Comprehensive income					
Income from inception (October 21, 1997) to December 31, 1997	-	-	-	-	
Total comprehensive income					
Balance, December 31, 1997	**13,200,000**	**13,200**	**64,800**	**-**	
Common stock issued for service rendered at $0.025 per share, December 15, 1998	16,000,000	16,000	384,000	**-**	
Comprehensive income (loss)					
Loss, year ended December 31, 1998	-	-	-	**-**	(47
Total comprehensive income					
Balance, December 31, 1998	**29,200,000**	**29,200**	**448,800**	**-**	**(47**
Common stock issued for cash at $0.025 per share, March 1999	12,000,000	12,000	288,000	**-**	
Comprehensive income (loss)					
Loss, year ended December 31, 1999	-	-	-	**-**	(12
Total comprehensive income					
Balance, December 31, 1999	**41,200,000**	**41,200**	**736,800**	**-**	**(59**
Comprehensive income (loss)					
Loss, year ended December 31, 2000	-	-	-	-	(8
Total comprehensive income					

Balance, December 31, 2000	**41,200,000**	**41,200**	**736,800**	**-**	**(67**
Conversion of debt to equity at $0.015 per share, July 31, 2001	8,933,332	8,933	125,067	-	
Comprehensive income (loss)					
Loss, year ended December 31, 2001	-	-	-	-	(16
Total comprehensive income					
Balance, December 31, 2001	**50,133,332**	**50,133**	**861,867**	**-**	**(83**
Common stock issued for services at $0.06 per share, April 23, 2002	10,000	10	590	-	
Conversion of debt to equity at $0.05 per share, April 26, 2002	2,160,000	2,160	105,840	-	
Common stock issued for investor relations services at $0.05 per share, July 25, 2002	2,390,000	2,390	117,110	-	
Conversion of debt to equity at $0.05 per share, December 18, 2002	1,920,000	1,920	94,080	-	
Comprehensive income (loss)					
Loss, year ended December 31, 2002	-	-	-	-	(37
Total comprehensive income					
Balance, December 31, 2002	**56,613,332**	**56,613**	**1,179,487**	**-**	**(1,20**
Common stock issued pursuant to exercise of stock options during the year at between $0.07 to $2.11 per share	282,500	283	398,317	-	
Common stock issued pursuant to exercise of share purchase warrants in November 2003 at $0.025 per share	7,300,000	7,300	175,200	-	
Comprehensive income (loss)					
Loss, year ended December 31, 2003	-	-	-	-	(1,10
Total comprehensive income					
Balance, December 31, 2003	**64,195,832**	**64,196**	**1,753,004**	**-**	**(2,31**
Common stock issued pursuant to exercise of stock options during the year between $0.07 to $2.11 per share	1,622,000	1,622	1,339,998	-	

Common stock issued pursuant to exercise of share purchase warrants in December 2004 at $0.025 per share	2,000,000	2,000	48,000	-	
Comprehensive income (loss) Loss, year ended December 31, 2004	-	-	-	-	(1,43
Total comprehensive income					
Balance, December 31, 2004	**67,817,832**	**67,818**	**3,141,002**	**-**	**(3,74**
Common stock issued pursuant to exercise of stock options in March 2005 at $3.10 per share	50,000	50	154,950	-	
Common stock issued pursuant to exercise of stock options in May 2005 at $2.11 per share	45,000	45	94,905	-	
Common stock issued pursuant to exercise of stock options in June 2005 at $2.11 per share	100,000	100	210,900	-	
Common stock issued pursuant to exercise of stock options in October 2005 at $2.11 per share	40,000	40	84,360	-	
Common stock issued pursuant to exercise of stock options in March 2005 at $2.11 per share	50,000	50	105,450	-	
Common stock issued pursuant to exercise of share purchase warrants in March 2005 at $0.025 per share	1,250,000	1,250	30,000	-	
Restricted common stock issued in June 2005 pursuant to share purchase agreement	20,000	20	37,580	-	
Restricted common stock issued in July 2005 pursuant to share purchase agreement	691,598	692	1,382,504	-	
Comprehensive income (loss) Loss, year ended December 31, 2005	-	-	-	-	(2,81
Total comprehensive income					
Balance, December 31, 2005	**70,064,430**	**70,065**	**5,241,651**	**-**	**(6,56**
Restricted common stock issued in January 2006 pursuant to share purchase agreement	374,753	375	505,542	-	

Common stock issued in the first quarter of 2006 to Fusion Capital for cash	431,381	431	449,569	-	
Common stock issued in the second quarter of 2006 to Fusion Capital for cash	416,303	416	329,584	-	
Common stock issued in the third quarter of 2006 to Fusion Capital for cash	758,606	759	584,234	-	
Common stock issued in the fourth quarter of 2006 to Fusion Capital for cash	548,371	548	354,455	-	
Exercise of stock options	175,000	175	12,075	-	
Stock based compensation expenses	-	-	2,607,302	-	
Comprehensive income (loss)					
Loss, year ended December 31, 2006	-	-	-	-	(4,65
Total comprehensive income					
Balance, December 31, 2006	**72,768,844**	**72,769**	**10,084,412**	**-**	**(11,21**
Common stock issued in the first quarter of 2007 to Fusion Capital for cash	382,000	382	204,619	-	
Common stock issued in the second quarter of 2007 to Fusion Capital for cash	509,019	509	289,491	-	
Common stock converted from convertible promissory notes	2,604,721	2,605	1,742,395	-	
Stock based compensation expenses	-	-	935,044	-	
Proceeds allocated to the warrants issued with the convertible notes	-	-	497,689	-	
Warrants issued for the payment of broker's fees	-	-	64,990	-	
Intrinsic value of the beneficial conversion feature of the notes	-	-	1,220,410	-	
Comprehensive income (loss)					
Foreign currency translation adjustment	-	-	-	(3,772)	
Loss, year ended December 31, 2007	-	-	-	-	(4,43
Total comprehensive income					
Balance, December 31, 2007	**76,264,584**	**76,265**	**15,039,050**	**(3,772)**	**(15,65**

Common stock converted from convertible promissory notes in January 2008	2,342,415	2,343	752,657	-	
Common stock converted from notes in June 2008	2,065,412	2,065	975,680	-	
Common stock and warrants issued for cash, at $0.425 per share in May 2008 and in payment of placement and legal fees	10,924,418	10,925	4,519,875	-	
Common stock issued for services received in 2008	400,000	400	169,600	-	
Warrants granted for purchase of in-process research and development in October 2008	-	-	98,325	-	
Stock based compensation expenses	-	-	565,306	-	
Comprehensive income (loss)					
Foreign currency translation adjustment	-	-	-	3,391	
Loss, year ended December 31, 2008	-	-	-	-	(3,66
Total comprehensive income					
Balance, December 31, 2008	**91,996,829**	**91,998**	**22,120,493**	**(381)**	**(19,32**
Cumulative effect of change in accounting principle	-	-	(2,461,546)	-	1,9
Common stock issued for exchange of Series C Warrants, 2 for 1	3,492,505	3,493	904,559	-	
Common stock issued upon exercise of Series C Warrants, $0.10 per warrant	6,004,824	6,004	1,555,250	-	
Stock based compensation expenses	-	-	262,821	-	
Comprehensive income (loss)					
Foreign currency translation adjustment	-	-	-	381	
Loss, year ended December 31, 2009	-	-	-	-	(2,84
Total comprehensive income					
Balance, December 31, 2009	**101,494,158**	**$ 101,495**	**$ 22,381,577**	**$ -**	**$ (20,23**

(The accompanying notes are an integral part of these financial statements)

HEPALIFE TECHNOLOGIES, INC.
(A Development Stage Company)

CONSOLIDATED STATEMENTS OF CASH FLOWS
For the years ended December 31, 2009 and 2008
and from inception (October 21, 1997) to December 31, 2009

	2009	2008	From inception (October 21, 1997) to December 31, 2009
Cash flows from operating activities:			
Net Loss	$ (2,847,969)	$ (3,667,547)	$ (20,237,116)
Adjustments to reconcile net loss to net cash from operating activities:			
Depreciation	-	7,821	35,410
Amortization of license fees	62,500	87,500	150,000
Services paid by issuance of common stock	-	170,000	1,031,100
Stock offering costs paid by issuance of common stock	-	-	1,926,713
In-process research and development partially purchased by issuance of common stock warrants and a contract commitment payable, net of discount	-	283,903	283,903
Stock based compensation expenses	262,821	565,306	4,370,473
Amortization of discount on notes payable	12,873	469,893	2,107,522
Amortization of deferred financing costs	-	210,728	293,515
Loss on disposal of assets	-	3,061	3,061
Change in fair value of warrant liability	62,297	-	(1,870,172)
Loss on settlement of warrant liability	1,287,264	-	1,287,264
Change in assets and liabilities:			
Decrease (increase) in prepaid expenses and deposits	(7,817)	(106,880)	(119,035)
Increase (decrease) in accounts payable	(6,788)	100,450	98,462
Increase (decrease) in accounts payable - related party	-	(108,384)	99,946
Net cash used in operating activities	(1,174,819)	(1,984,149)	(10,538,954)
Cash flows from investing activities:			
Purchase of property and equipment	-	-	(38,471)
Purchase of license fees	-	-	(75,000)
Net cash used in investing activities	-	-	(113,471)
Cash flows from financing activities:			
Payment on contract commitment	(200,000)	-	(200,000)
Proceeds from issuance of common stock and warrants, net	-	4,530,800	9,787,867
Proceeds from issuance of convertible notes	-	-	2,125,000
Net proceeds from promissory notes	-	-	877,800
Proceeds from exercise of warrants	600,483	-	600,483
Increase in deferred financing cost	-	-	(228,525)
Net cash provided by financing activities	400,483	4,530,800	12,962,625
Increase (decrease) in cash and cash equivalents	(774,336)	2,546,651	2,310,200
Effect of foreign exchange rate	381	3,391	-
Cash and cash equivalents, beginning of period	3,084,155	534,113	-
Cash and cash equivalents, end of period	$ 2,310,200	$ 3,084,155	$ 2,310,200
Supplemental disclosure of cash flow information:			

Interest paid in cash	$	-$	150,000	$	247,575
Income tax paid in cash	$	-$	-	$	-
Non-cash investing and financing activities:					
Common stock and warrants issued for professional services	$	-$	282,078	$	1,143,078
Issuance of common stock as stock offering costs	$	-$	-	$	1,926,713
Issuance of warrants for deferred financing costs	$	-$	-	$	64,990
Conversion of note payable and related interest to equity	$	-$	977,745	$	977,745
Conversion of debt to equity	$	-$	755,000	$	2,500,000
Issuance of common stock to extinguish warrant liability	$	581,559	$ -	$	581,559

(The accompanying notes are an integral part of these financial statements)

HEPALIFE TECHNOLOGIES, INC.

(A Development Stage Company)

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

DECEMBER 31, 2009

Note 1. Description of the Business and Going Concern Uncertainties

We are a development stage biotechnology company focusing on the development of a cell-based bioartificial liver system.

HepaLife Technologies, Inc. (the Company , we , us and our) was incorporated in the State of Florida on October 21 1997. The accompanying consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries HepaLife Biosystems, Inc., Phoenix BioSystems, Inc., and HepaLife Technologies Ltd.

HepaLife Biosystems, Inc. was incorporated in State of Nevada on April 17, 2007 for our research and development efforts with the patented PICM-19 cell line, artificial liver technologies, and in vitro toxicology testing systems.

Phoenix BioSystems, Inc. was incorporated under the laws of the State of Nevada on June 6, 2006 for our research and development efforts with the patented PBS-1 cell line. We terminated the development of the PBS-1 cell line on April 24, 2009. As a result, we dissolved Phoenix BioSystems, Inc. on May 19, 2009.

HepaLife Technologies Ltd. was incorporated on April 11, 2007 in British Columbia, Canada, for the purpose of streamlining business operations in Canada. We ceased to conduct business in Canada on August 31, 2008 and closed this office. As a result, we dissolved HepaLife Technologies, Ltd. on January 1, 2009.

We have incurred net operating losses since inception. We face all the risks common to companies in early stages of development, including undercapitalization and uncertainty of funding sources, high initial expenditure levels, uncertain revenue streams, and difficulties in managing growth. We expect to continue to incur losses from business operations and we believe our cash and cash equivalents balances, anticipated cash flows from operations, and other external sources of credit will be sufficient to meet our cash requirements through March 2011. Our prospects after March 2011 will depend in large part on our ability to successfully raise capital from external sources to pay for planned expenditures and to fund operations.

Note 2. Significant Accounting Policies

Basis of Presentation

The accompanying consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States (U.S. GAAP).

Principles of Consolidation

These consolidated financial statements presented are those of the Company and its wholly-owned subsidiaries, HepaLife Biosystems, Inc., Phoenix BioSystems, Inc., and HepaLife Technologies Ltd. All significant intercompany transactions and accounts have been eliminated in consolidation.

References to Authoritative Accounting Literature

In June 2009, the Financial Accounting Standards Board ("FASB") issued the Accounting Standards Codification ("ASC") as the single source of authoritative U.S. GAAP recognized by the FASB to be applied by non-governmental entities in preparation of financial statements in conformity with U.S. GAAP, except for additional authoritative rules and interpretative releases issued by the SEC. While the adoption of the ASC changes how we reference accounting standards, the adoption did not have an impact on our consolidated financial statements.

Accounting Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities

at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Areas where management uses subjective judgment include valuation of equity instruments. Actual results may differ from these estimates

and assumptions.

Fair Value

We measure fair value as the price that would be received to sell an asset or paid to transfer a liability (an exit price) in an orderly transaction between market participants at the reporting date. We utilize a three-tier hierarchy, which prioritizes the inputs used in the valuation methodologies in measuring fair value:

Level 1. Valuations based on quoted prices in active markets for identical assets or liabilities that an entity has the ability to access. We have no assets or liabilities valued with Level 1 inputs.

Level 2. Valuations based on quoted prices for similar assets or liabilities, quoted prices for identical assets or liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable data for substantially the full term of the assets or liabilities. We have no assets or liabilities valued with Level 2 inputs.

Level 3. Valuations based on inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. Liabilities valued with Level 3 inputs are described in Note 8. Stockholders Equity.

Cash and Cash Equivalents

We consider all highly liquid instruments with a maturity of three months or less at the time of purchase to be cash equivalents. The Company maintains cash and cash equivalent balances with financial institutions that exceed federally insured limits. The Company has not experienced any losses related to these balances, and management believes its credit risk to be minimal.

Fair Value of Financial Instruments

Fair value estimates of financial instruments are made at a specific point in time, based on relevant information about financial markets and specific financial instruments. As these estimates are subjective in nature, involving

uncertainties and matters of significant judgment, they cannot be determined with precision. Changes in assumptions can significantly affect estimated fair values.

The carrying value of cash and accounts payable, accrued liabilities and notes payable approximates their fair value because of the short-term nature of these instruments. We place our cash and cash equivalents with high credit quality financial institutions.

Warrant Liability Derivative

We evaluate financial instruments for freestanding or embedded derivatives. The warrant liability derivative is recorded at fair value with changes in value recognized as other income (expense) in the consolidated statements of operations in the period of change.

Foreign Operations and Foreign Currency Translation

The functional currencies of the Company s international subsidiaries are the local currency of the country in which the subsidiary is located. Assets and liabilities recorded in foreign currencies are translated at the exchange rate on the balance sheet date. Translation adjustments resulting from this process are charged or credited to accumulated other comprehensive income. Revenues and expenses of the Company s consolidated foreign operations are translated at the average rates of exchange prevailing during the year. Gains and losses on foreign currency transactions are included in foreign exchange gain or loss.

Research and Development

Research and development costs are expensed as incurred and include purchased in-process research and development programs.

Stock-Based Compensation

We measure all stock-based compensation awards at fair value on the date of grant and recognize such expense in our consolidated financial statements over the requisite service period for awards expected to vest. The Company uses the Black-

29

Scholes pricing model to determine the fair value of stock-based compensation awards on the date of grant. The Black-Scholes pricing model requires management to make assumptions regarding the option lives, expected volatility, and risk free interest rates. See Note 9. Stock Options for additional information on the Company s stock-based compensation plans.

Income Taxes

We recognize income taxes on an accrual basis based on tax position taken or expected to be taken in our tax returns. A tax position is defined as a position in a previously filed tax return or a position expected to be taken in a future tax filing that is reflected in measuring current or deferred income tax assets and liabilities. Tax positions are recognized only when it is more likely than not (i.e., likelihood of greater than 50%), based on technical merits, that the position would be sustained upon examination by taxing authorities. Tax positions that meet the more likely than not threshold are measured using a probability-weighted approach as the largest amount of tax benefit that is greater than 50% likely of being realized upon settlement. Income taxes are accounted for using an asset and liability approach that requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in our financial statements or tax returns. A valuation allowance is established to reduce deferred tax assets if all, or some portion, of such assets will more than likely not be realized. Should they occur, our policy is to classify interest and penalties related to tax positions as interest expense. Since our inception, no such interest or penalties have been incurred, however.

Earnings (Loss) Per Share

The computation of basic net income (loss) per common share is based on the weighted average number of shares that were outstanding during the year. The computation of diluted net income (loss) per common share is based on the weighted average number of shares used in the basic net income (loss) per share calculation plus the number of common shares that would be issued assuming the exercise of all potentially dilutive common shares outstanding using the treasury stock method for shares subject to stock options and warrants. See Note 3. Net Loss Per Share for further discussion.

Related Party Transactions

A related party is generally defined as (i) any person who holds 10% or more of the Company s securities and their immediate families, (ii) the Company s management, (iii) someone who directly or indirectly controls, is controlled by or is under common control with the Company, or (iv) anyone who can significantly influence the financial and operating decisions of the Company. A transaction is considered to be a related party transaction when there is a transfer of resources or obligations between related parties. (See Note 5. Related Party Transactions).

Recent and Adopted Accounting Pronouncements

In June 2009, the FASB issued new authoritative guidance to eliminate the quantitative approach previously required for determining the primary beneficiary of a variable interest entity and requires ongoing qualitative reassessments of whether an enterprise is the primary beneficiary of a variable interest entity. We adopted the guidance in 2009 without material impact on our consolidated financial statements.

In April 2009, the FASB issued additional authoritative guidance on the fair value of financial instruments, which provides: (i) further provisions on estimating fair value when the markets become inactive and quoted prices reflect distressed transactions; (ii) extended disclosure requirements for interim financial statements regarding the fair value of financial instruments; and (iii) new criteria for recording impairment charges on investments in debt instruments. We adopted the guidance on a prospective basis in 2009 without material impact to our consolidated financial statements.

In June 2008, the FASB ratified new authoritative guidance addressing the accounting for certain instruments (or embedded features) determined to be indexed to an entity s own stock. This guidance provides that an entity should use a two-step approach to evaluate whether an equity-linked financial instrument (or embedded feature) is indexed to its own stock, including evaluating the instrument s contingent exercise and settlement provisions. We adopted this guidance effective January 1, 2009 on a prospective basis. See Note 8. Stockholders Equity for further discussion of the impact of this guidance to our consolidated financial statements.

In January 2010, the FASB issued new authoritative guidance regarding the disclosure of fair value measurements, which clarifies certain existing disclosure requirements as well as requiring new disclosures related to significant transfers between each fair value level as well as requiring additional information about Level 3 activity. This guidance begins phasing in during the first fiscal period after December 15, 2009. We do not expect the implementation of this guidance to have a material impact on our consolidated financial statements.

In May 2009, the FASB issued new authoritative guidance for the accounting for and disclosures of subsequent events that occur after the balance sheet date but before financial statements are issued or are available to be issued. The guidance was effective for interim or annual financial periods ending after June 15, 2009. This guidance applies to both interim financial statements and annual financial statements. In February 2010, the FASB issued additional guidance that clarifies certain existing evaluation and disclosure requirements related to subsequent events. We adopted the initial and revised guidance without material impact on our consolidated financial statements.

Note 3. Net Loss Per Share

Dilutive common stock equivalents include 1,075,000 and 17,176,830 warrants and stock options that are not included in the computation of diluted loss per share because to do so would be anti-dilutive for 2009 and 2008, respectively. All share and per share information are adjusted retroactively to reflect stock splits and changes in par value, when applicable.

Following is the computation of basic and diluted net loss per share for the years ended December 31, 2009 and 2008:

	Dec. 31, 2009	Dec. 31, 2008
Numerator - net loss available to common stockholders	$ (2,847,969)	$ (3,667,547)
Denominator - weighted average number of common shares outstanding	93,688,134	85,952,917
Basic and diluted loss per common share	($0.03)	($0.04)

Note 4. Purchased In-Process Research and Development

We purchased certain assets from Arbios Systems, Inc. (Arbios) relating to the pig cell based liver device technology known as HepatAssist in October 2008 in order to enhance and strengthen our PICM-19 porcine liver cell line based bioartificial liver. We re-trademarked the device as HepaMate. The effective purchase price of $548,325 was charged to operations in 2008 as purchased in-process research and development expense. The purchase price consisted of cash for $250,000, a contract commitment of $200,000 (the Deferred Cash Purchase Price), and 750,000 Series D warrants valued at $98,325 using the Black-Scholes pricing model (refer to Note 8. Stockholders Equity).

According to the purchase agreement, the Deferred Cash Purchase Price was due and payable on the earlier of (i) the date on which we consummate one or more debt or equity financings in which the gross proceeds received in the aggregate equal or exceed $4,000,000, or (ii) the eighteen month anniversary of the closing date. The Deferred Cash Purchase Price did not bear interest. We discounted the payable with an effective annual interest rate of 5% and the associated amortization of the discount is charged to interest expense over the 18 month expected life of the note. As of December 31, 2008, the Deferred Cash Purchase Price of $200,000, net of unamortized discount of $12,873 was recorded in noncurrent liabilities.

On April 1, 2009, we entered into a Repurchase Agreement with Arbios whereby we reacquired the Series D Warrants effective April 22, 2009 in consideration for the accelerated payment of the Deferred Cash Purchase Price. Due to the early retirement of the contract commitment, we recognized the full unamortized discount outstanding as of April 22, 2009 in the amount of $10,524.

For the years ended December 31, 2009 and 2008, $12,873 and $1,549, respectively, of discount amortization was charged to interest expense.

Note 5. Related Party Transactions

Employment Agreement: On September 30, 2009, we and Mr. Frank Menzler, who at the time was our Chief Executive Officer and President, entered into a restated employment agreement providing for the payment to Mr. Menzler of a signing bonus of $35,000, which was recorded as salary expense; a severance payment of up to six-months salary and benefits; cancelation of all stock option grants (refer to Note 9. Stock Options); and the resignation of Mr. Menzler as a Director and Chairman of the Company s Board of Directors.

On October 13, 2009, Mr. Menzler resigned from his position as Chief Executive Officer and President. Pursuant to the terms of the restated employment agreement, Mr. Menzler was appointed Special Technical Advisor and continues as an employee of the Company.

On October 13, 2009, we entered into an Interim Executive Services Agreement (the Agreement) with Mr. Amit Dang in which Mr. Dang was appointed as the Company s Interim Chief Executive Officer, President and Secretary. Mr. Dang will receive a fee of $7,000 per month during the term of the Agreement. This agreement may be terminated at any time by the Company and upon 90 days prior written notice by Mr. Dang. It is not expected that Mr. Dang will devote his full time and attention to the Company s operations.

Mr. Dang was also granted an option to purchase, subject to vesting restrictions, up to 100,000 shares of the Company s common stock, at a price of $0.32 per share (the closing price of the Company s common stock as reported on the Over the Counter Bulletin Board on October 13, 2009). The options shall vest and become exercisable when either (a) with Mr. Dang s support and contribution, the Company is able to successfully consummate a strategic transaction, or other such commercial transaction which the Board deems sufficiently substantial, or (b) the Board, in its sole discretion, elects to accelerate the vesting of the options. The Company expects that the options shall vest within one year from the date of grant.

Executive Management: For the years ended December 31, 2009 and 2008, we incurred $21,000 and $0 in fees paid to Mr. Amit Dang the President, Chief Executive Officer, and Secretary of the Company. In addition, we recorded $2,708 and $0 as stock compensation expense for the award to Mr. Dang for the years ended December 31, 2009 and 2008, respectively.

Director Fees: For the years ended December 31, 2009 and 2008, we incurred $41,667 and $19,343, respectively, in board fees for non-employee directors of the Company. In addition, during June and September 2008, we granted stock options to purchase 50,000 shares each for a total of 200,000 shares of common stock to non-employee board members. For the years ended December 31, 2009 and 2008, we recorded $19,285 and $12,541, respectively, as stock compensation expense relating to these stock grants (refer to Note 9. Stock Options).

Legal Fees: Legal fees expensed for the year ended December 31, 2009 and 2008 that were paid or are due to our attorney who also serves as a board member totaled $204,193 and $111,150, respectively. Also, as part of our May 2008 Private Placement, we settled $21,250 in legal costs by issuing 50,000 Units to this attorney.

Notes Payable and Accrued Interest: On May 23, 2008, we reached an agreement with Mr. Harmel S. Rayat to which Mr. Rayat (i) converted the entire outstanding principal amount ($877,800) of his loan to the Company into an aggregate of 2,065,412 Units, each Unit consisting of one share of the Company s common stock and one Series C warrant, at a conversion price of $0.425 per Unit and (ii) agreed to accept $150,000 in full payment and satisfaction of the accrued and unpaid interest on the loan in the amount of $249,945. Mr. Harmel S. Rayat was an officer, director and majority stockholder of the Company until June 2008.

Rent: Until August 31, 2008, our administrative office was located in Canada. This premise is owned by a private corporation controlled by Mr. Rayat. We paid rent of $26,866 for the year ended December 31, 2008 to the private corporation. Effective September 1, 2008, we closed this administrative office, terminating all of its employees. There were no severance arrangements with any of the terminated employees.

All related party transactions are recorded at the exchange amount established and agreed to between related parties and are in the normal course of business.

Note 6. Cooperative and License Agreements

USDA, ARS CRADA: In November 2002, we entered into a Cooperative Research and Development Agreement (CRADA) with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS) pertaining to the continued development and use of patented liver cell lines in artificial liver devices and in-vitro toxicological testing platforms. This agreement was amended several times, with a final agreement termination date of November 2008. For the year ended December 31, 2008, costs charged to research and development expense related to the CRADA totaled $268,359.

USDA, ARS License: On November 20, 2007, we exercised our license right under the CRADA by entering into an exclusive license agreement with the USDA, ARS for existing and future patents related to the PICM-19 hepatocyte cell lines. Under this license agreement, we incurred a license execution fee of $150,000 with $75,000 paid in December 2007 and $75,000 paid in November 2008. The license execution fees were capitalized to prepaid license costs when incurred and amortized to operating expense during the years ended December 31, 2009 and 2008 for a total of $62,500 and $87,500, respectively. In addition to these payments, we are responsible for annual license maintenance fees commencing in year 2010 for the term of the license, which is until the expiration of the last to expire licensed patents unless terminated earlier. The license agreement also requires certain milestone payments, if and when milestones are reached, as well as royalties on net sales of resulting licensed products, if any.

MSU License: On June 15, 2006, we entered into an exclusive worldwide license agreement with Michigan State University (MSU) through our subsidiary, Phoenix BioSystems, Inc. (PBS), for the development of new cell-culture based flu vaccines to protect against the spread of influenza viruses among humans, including potentially the high pathogenicity H5N1 virus.

In January 2009, we provided notice to MSU to terminate the license agreement effective April 24, 2009. For the year ended December 31, 2009, we incurred $30,848 in expenses related to this contract. The $30,848 consisted of a $15,000 milestone payment charged to research and development and $15,848 in legal fees. Total costs incurred to date relating to this license agreement are $104,201.

Note 7. Convertible Promissory Note

On May 11, 2007, we entered into a Securities Purchase Agreement for the sale of a convertible note with a $2,500,000 principal amount and maturity date of May 11, 2009. The purchase price was $2,125,000 (eighty-five percent of the principal amount). The convertible note did not bear interest, except upon an event of default at which time interest would accrue at the rate of 18% per annum. The convertible note and any accrued interest were convertible into shares of our common stock at a conversion price of 95% of the trading volume weighted average price, for the five trading days immediately prior to the date of notice of conversion.

We issued to the purchaser warrants to purchase 670,000 shares of our common stock at a price of $1.50 per share (the "Warrants") for a term of five years. We also issued warrants and paid a $15,000 fee to a broker/dealer. The broker/dealer received warrants to purchase 67,000 shares of our common stock at a price of $1.50 per share for a term of five years. The Warrant Agreements state that the warrant purchase prices are subject to adjustment, including if the Company issues any shares of common stock or common stock equivalents for consideration less than the then market price at the date of issuance subject to a 1% adjustment floor (refer to "Note 8. Stockholders Equity").

A registration statement relating to the resale of the common shares issuable under the conversion of the convertible note and exercise of the warrants was declared effective on July 5, 2007.

Proceeds from the convertible note were allocated between the convertible note and Warrants on a relative fair value basis. The value allocated to the Warrants was $497,689. The fair value of the Warrants was determined using the Black-Scholes option pricing model with the following assumptions: expected dividend yield of 0%, risk-free interest rate of 4.58%, volatility of 96.2%, and a contractual life of 5 years. The value of the Warrants was recorded as a debt discount against the proceeds of the convertible note. In addition, a beneficial conversion feature related to the convertible note was determined to be $1,220,410. As a result, the discount on the convertible note, including

purchase discount, totaled $2,093,099 to be amortized over its term.

In 2007, $1,745,000 of the convertible note was converted into 2,604,721 shares of common stock. In January 2008, the remaining $755,000 of the convertible note was converted into 2,342,415 shares of common stock. Amortization of the discount amounted to $468,343 and $1,624,756 for 2008 and 2007, respectively. Issuance costs of $210,728 and $82,787, relating to the convertible note were charged to operations during 2008 and 2007, respectively.

Note 8. Stockholders Equity

We completed a private placement of 10,660,705 units at a price of $0.425 per unit or $4,530,800 in the aggregate in May 2008. Each unit consists of one share of our common stock and one Series C stock purchase warrant (Series C warrant) to purchase a share of common stock at the initial exercise price of $0.55 per share for a period of two years from the date of issuance. The relative fair value of the common stock was estimated to be $2,972,407 and the relative fair value of the warrants was estimated to be $1,558,393 as determined based on the relative fair value allocation of the proceeds received. The warrants were valued on the transaction date using the Black-Scholes pricing model. In conjunction with our completion of the acquisition of the HepatAssist related assets in October 2008, we reduced the initial exercise price of the Series C warrants to $0.34 per share. In connection with the private placement, the agent was due a sales commission equal to $90,828 or two (2%) percent of the gross proceeds, which was settled by issuing to the agent 213,713 units. In addition, we issued an aggregate of 50,000 units in payment of legal fees in the amount of $21,250. These units were otherwise issued on the same terms and conditions as the units sold in the private placement.

Pursuant to the Subscription Agreement and the Registration Rights Agreement relating to the private placement, we and the investor parties made other covenants and representations and warranties regarding matters that are customarily included in financings of this nature. In the event that during the twelve month period following the closing date we issue shares at a price

per share which is less than $0.425 per share (the Base Share Price), then we are required to issue to the investors the number of shares equal to (1) the quotient of the aggregate purchase price payable under the Securities Purchase Agreement divided by Base Share Price less (2) the quotient of the aggregate purchase price divided by the per share purchase price under the Securities Purchase Agreement (the Dilutive Issuance Adjustment).

On August 18, 2008, the Board of Directors agreed to issue 400,000 shares of its restricted common stock for services provided by its investment banker for the period January 1, 2008 to August 31, 2008. The value of the issuance was agreed to be the value of services provided, $170,000. These shares were issued November 8, 2008.

Warrants

As of December 31, 2009, we had outstanding 825,000 Warrant shares. Each of our warrants outstanding entitles the holder to purchase one share of our common stock for at $1.34 per share. The Warrants expire May 11, 2010.

During the year ended December 31, 2009, we settled our Series D Warrants. As stated in Note 4. Purchased In-Process Research and Development , we entered into a Repurchase Agreement on April 22, 2009 with Arbios whereby we repurchased all of the 750,000 shares outstanding of the Series D warrants from Arbios in consideration for the early payment of the Deferred Cash portion of the Purchase Price.

During the year ended December 31, 2009, we settled our Series C warrants. On October 27, 2009 we completed a Warrant Exercise or Exchange Agreement with the holders of the Series C Warrants whereby each holder elected to either: (i) exchange all Series C Warrants for shares of the Company s common stock, on the basis of one share of common stock for every two shares of Series C Warrants; or (ii) exercise all Series C Warrants to purchase our common stock at a reduced exercise price of $0.10 per warrant share.

As described in Note 7. Convertible Promissory Note , according to terms of the The Warrant Agreement the warrant purchase price is subject to adjustment if the Company issues any shares of common stock or common stock equivalents for consideration less than the then market price at the date of issuance subject to a 1% adjustment floor. The May 2008 issuance of common stock resulted in an adjustment of the Warrant exercise price to $1.45 if the Warrants are exercised, with an offsetting share adjustment which increased the number of warrants to 757,192 shares. The October settlement of the Series C warrants also resulted in a potential adjustment to the Warrant exercise price to $1.34, with an offsetting share adjustment which increased the number of warrants to 825,000.

The potential of a dilutive adjustment to the Warrants and Series C Warrants exercise prices and number of underlying shares of common stock may result in a settlement amount that does not equal the difference between the fair value of

a fixed number of the Company s common stock and a fixed exercise price. Accordingly, the Warrants and Series C Warrants are not considered indexed to the Company s own stock and, therefore, are accounted for as a derivative pursuant to ASC 815-40 *Contracts in an Entity s Own Equity* which became effective January 1, 2009 . Upon the adoption of this guidance, we recognized a one-time adjustment to opening loss accumulated during the development stage in the amount of $1,932,469.

At December 31, 2009, we valued the warrant liability for the Warrants using the Black-Scholes pricing-model (Level 3 inputs) containing the following assumptions: volatility 93.61%, risk-free rate 1.14%, and term of 2.35 years. The warrant liability recorded at fair value is summarized below:

	Warrants	Series C Warrants	Total
Beginning balance, January 1, 2009	$ 23,714	$ 505,363	$ 529,077
Change in fair value of warrant liability	(13,899)	76,196	62,297
Settlement of warrants		(581,559)	(581,559)
Ending balance, December 31, 2009	$ 9,815	$ -	9,815

As a result of adjusting the warrant liability to fair value, we recorded a non-cash gain of $13,899 and a non-cash loss of $76,196 (net loss of $62,297) relating to the Warrants and Series C Warrants, respectively, for the year ended December 31, 2009.

On October 27, 2009, we consummated the transactions contemplated by the Warrant Exchange/Exercise Agreement between us and each of the holders of the Series C Warrants. Pursuant to the terms of the Warrant Exchange/Exercise Agreement we issued 3,492,505 shares of restricted stock in exchange for 6,985,010 Series C Warrants and issued an aggregate of 6,004,824

shares of common stock in connection with the exercise of the balance of the Series C Warrants a price of $0.10 per share. We received aggregate proceeds of $600,483 from the exercise of the Series C Warrants. As of December 31, 2009, there are no Series C Warrants outstanding.

The fair value of the Series C Warrant Liability at October 27, 2009, the effective date of the Warrant Exchange/Exercise Agreement, using the Black-Scholes pricing-model (Level 3 inputs) was $581,559, of which $268,838 was allocated to the 6,004,824 warrant shares exercised and $312,721 was allocated to the 6,985,010 warrant shares exchanged, using the following assumptions: exercise price of $0.34, dividend yield of 0%, expected volatility of 88.25%, risk-free interest rate of 0.17%, and expected term of 0.58 years.

We received total cash proceeds of $600,483 from the 6,004,824 warrant shares exercised at $0.10 per warrant share as part of the Warrant Exchange/Exercise Agreement. The fair value of the Series C Warrant liability attributable to the Warrants exercised was $268,838, prior to the impact of the reduction in exercise price. The fair value of the warrant liability increased by $691,934 and resulted in a carrying value of $960,772 from the reduction in exercise price. The increase in the fair value of the warrant liability of $691,934 was recorded as a component of the loss on extinguishment of warrant liability in the accompanying financial statements.

The fair value of the 3,492,505 shares of common stock issued to settle the exchange for 6,985,010 warrant shares was $908,952 based on the closing price of the Company s common stock of $0.26 per share on October 27, 2009 as quoted on the Over the Counter Bulletin Board. The Company recorded a loss on extinguishment of warrant liability on the shares exchanged for common stock in the amount of $595,330 on October 27, 2009 as a result of the excess of the consideration provided in the form of common stock over the fair value of the Series C Warrant Liability.

Note 9. Stock Options

We have an active stock option plan that provides shares available for option grants to employees, directors and others. A total of 40,000,000 shares of our common stock have been reserved for award under the stock option plan, of which 37,548,000 were available for future issuance as of December 31, 2009. Options granted under our option plan generally vest over two to five years or as otherwise determined by the Board of Directors, have exercise prices equal to the fair market value of the common stock on the date of grant, and expire no later than ten years after the date of grant.

Stock option activity during the years ended December 31, 2009 and 2008 is summarized as follows:

	Number of options	Weighted average exercise price	Remaining contractual term	Aggregate intrinsic value
Outstanding at December 31, 2007	2,026,750	$ 0.52		
Granted	775,000	0.54		
Cancelled	(101,750)	0.43		
Outstanding at December 31, 2008	2,700,000	0.53		
Granted	100,000	0.32		
Cancelled	(2,550,000)	0.05		
Outsanding at December 31, 2009	250,000	0.35	7.09	$ -
Exercisable at December 31, 2009	30,000	0.38	8.62	$ -
Available for grant at December 31, 2009	37,548,000			

In accordance with Mr. Menzler s restated employment agreement dated September 30, 2009, the total issued and outstanding 2,500,000 stock options granted to Mr. Menzler since the date of his employment were cancelled. As a result, the unrecognized stock option compensation expense of $71,152 was recognized upon the execution of the agreement as compensation expense in the consolidated statement of operations.

The aggregate intrinsic value in the table above represents the total pretax intrinsic value for all in-the-money options (i.e. the difference between the Company s closing stock price on the last trading day of the year ended December 31, 2009 and the exercise price, multiplied by the number of shares) that would have been received by the option holders had all option holders exercised their options on December 31, 2009. This amount is based on the fair market value of the Company s stock. Total intrinsic value of options exercised was $nil for 2009 and 2008.

A summary of the Company s unvested stock options and changes during the years ended December 31, 2009 and 2008 is as follows:

	Number of Options	Weighted Average Grant Date Fair Value
Unvested, December 31, 2007	2,026,750	$ 0.43
Granted	775,000	0.37
Vested	(100,000)	0.41
Cancelled	(101,750)	0.26
Unvested, December 2008	2,600,000	0.42
Granted	100,000	0.23
Vested	(30,000)	0.25
Cancelled	(2,450,000)	0.43
Unvested, December 2009	220,000	0.24

The following table details further information regarding stock options outstanding and exercisable at December 31, 2009:

	Outstanding			Exercisable	
Range of Exercise Prices	Number Outstanding at December 31, 2009	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price	Number Exercisable at December 31, 2009	Weighted Average Exercise Price
$ 0.61	50,000	8.45	$ 0.61	10,000	$ 0.61
0.26	100,000	8.70	0.26	20,000	0.26
0.32	100,000	4.79	0.32	-	-
	250,000	7.09	$ 0.35	30,000	$ 0.38

During the years ended December 31, 2009 and 2008, we granted 100,000 and 775,000 stock options awards, respectively. For purposes of determining the stock-based compensation expense for stock option awards granted, the Black-Scholes pricing model was used with the following weighted-average assumptions:

	2009 Stock Option Grants	2008 Stock Option Grants
Risk-free interest rate	2.28%	2.75% - 3.57%
Expected term	5 years	5 years
Expected volatility	91.39%	83.32% - 90.53%
Weighted-average volatility	91.39%	84.2%
Dividend per share	$0	$0

The weighted average fair value of options granted during the year ended December 31, 2009 and 2008 was $0.23 and $0.37, respectively, per share.

During the year ended December 31, 2009, total stock option compensation expense charged to operations was $262,821 (inclusive of $71,152 recognized upon cancellation of Mr. Menzler s stock options), with $240,827 classified as salaries and benefits and $21,994 included in director fees.

During the year ended December 31, 2008, total stock option compensation expense charged to operations was $565,306, with $552,765 classified as salaries and benefits and $12,541 included in director fees.

The fair value of stock options that vested during the year ended December 31, 2009 was $7,531.

As of the year ended December 31, 2009, we had $36,288 of total unrecognized compensation cost related to unvested stock options, which is expected to be recognized over a weighted average period of approximately 2.57 years.

We do not repurchase shares to fulfill the requirements of options that are exercised. Further, we issue new shares when options are exercised.

Note 10. Income Taxes

There is no current or deferred tax expense for the years ended December 31, 2009 and 2008 due to the Company s loss position. The benefits of temporary differences have not been previously recorded. The deferred tax consequences of temporary differences in reporting items for financial statement and income tax purposes are recognized, as appropriate. Realization of the future tax benefits related to the deferred tax assets is dependent on many factors, including the Company s ability to generate taxable income. Management has considered these factors in reaching its conclusion as to the valuation allowance for financial reporting purposes and has recorded a full valuation allowance against the deferred tax asset.

The income tax effect of temporary differences comprising the deferred tax assets on the accompanying balance sheets is primarily a result of stock compensation costs, research and development costs, and of start-up expenses, which are capitalized for income tax purposes. Net deferred tax assets are summarized as follows:

	2009	2008
Net operating loss carryforwards	$ 3,564,000	$ 3,180,000
Stock compensation costs	8,000	1,397,000
Research and development costs	580,000	566,000
	4,152,000	5,143,000
Valuation allowance	(4,152,000)	(5,143,000)
Net deferred tax assets	$ -	$ -

The 2009 decrease in the valuation allowance was $991,000, comprised of a decrease amounting to $1,389,000 due to the cancellation of stock options, partially offset by an increase of $398,000 due to the uncertainty of realizing tax benefits from research and development start-up costs and net operating loss carry forwards. The increase in the

valuation allowance for 2008 was $944,000, composed of increases to the allowance due to uncertainty of realizing tax benefits from research and development start-up costs, stock compensation costs and net operating loss carryforwards.

The Company has available net operating loss carryforwards of approximately $10,482,000 for tax purposes to offset future taxable income which expire commencing 2009 to 2029. Additionally, research and development, and start-up costs of approximately $1,708,000 are available to reduce taxable income assuming normal operations have commenced. The tax years 2006 through 2009 remain open to examination by federal authorities and other jurisdictions of which the company operates.

A reconciliation between the statutory federal income tax rate (34%) and the effective rate of income tax expense is as follows:

	2009	2008
Statutory federal income tax	-34.00%	-34.00%
Valuation allowance	18.00	32.00
Non-deductable losses	16.00	0.00
Stock offering costs	0.00	2.00
Effective income tax rate	0.00%	0.00%

ITEM 9: CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE.

None.

ITEM 9A(T): CONTROLS AND PROCEDURES.

Evaluation of Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including its Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of the design and operation of its disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934 (the Exchange Act), as of the end of the period covered by this annual report. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded as of December 31, 2009 that the Company s disclosure controls and procedures were effective such that the information required to be disclosed in the Company s United States Securities and Exchange Commission (the SEC) reports is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and is accumulated and communicated to our management, including its Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Evaluation of and Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over our financial reporting. Management, with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of our internal control over financial reporting as of December 31, 2009 based on the criteria established in Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations (COSO). Based on this evaluation, management concluded that, as of December 31, 2009, our internal control over financial reporting is effective in providing reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles.

This annual report does not include an attestation report of ouir independent registered public accounting firm regarding internal control over financial reporting. Management's report was not subject to attestation by our independent registered public accounting firm pursuant to temporary rules of the SEC that permit the Company to provide only management's report in this annual report.

Changes in Internal Control over Financial Reporting

There have been no changes in internal controls, or in factors that could materially affect internal controls, subsequent to the date that management, including the Chief Executive Officer and the Chief Financial Officer, completed their evaluation.

ITEM 9B. OTHER INFORMATION.

None.

PART III

ITEM 10: DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE.

The following table and text set forth the names and ages of all of our directors and executive officers as of December 31, 2009. The board of directors is comprised of only one class. All of the directors will serve until the next annual meeting of stockholders and until their successors are elected and qualified, or until their earlier death, retirement, resignation or removal.

Name	Age	Position	Director/Officer Since
Amit S. Dang	29	Interim President, Chief Executive Officer, Chief Financial Officer and Secretary	October 13, 2009
Jatinder Bhogal	43	Director	September 2008
Javier Jimenez	44	Director	March 2007
Joseph Sierchio	60	Director	September 2008

Set forth below are the names of all of our directors and executive officers, all positions and offices with us held by each person, the period during which each has served as such, the principal occupations and employment of such persons during at least the last five years, and other director positions held currently or during the last five years:

AMIT SINGH DANG. Mr. Dang holds a Bachelors degree (B.B.A.) in Finance from Wayne State University (2003), with advanced academic studies in contract, criminal, civil, and policy law; management, finance, logistics, and strategy; and audit theory; from Michigan State University (2003-2004), The University of Michigan (2004-2006), and the Institute of Internal Auditors (2006-2008), respectively. From May 2005 to August 2005, Mr. Dang was employed as an Accountant at Noir Medical Technologies / Laser Company, and from February 2006 to June 2006, he served as a Business Process and Development Consultant for Sterling Solutions and Systems. From June 2006 to May 2008, Mr. Dang worked as a Risk and Performance Services Consultant at Crowe Horwath, where he specialized in identifying high-risk areas for public and private companies and helped develop and re-engineer core business processes for greater efficiency and control. Since May 2008, Mr. Dang has served as the Managing Director for Infinitus Ventures, facilitating the early incubation, capital funding, and development of client companies.

JAVIER JIMENEZ. Mr. Jimenez received both Bachelor and Masters degrees in Aeronautical Engineering from Universidad Politecnica de Madrid, Spain in 1991, and his Master s degree in Business Administration (MBA) from Boston University in 1996. In 2000, Mr. Jimenez joined GE Healthcare, a division of General Electric Company. During his tenure at GE Healthcare, Mr. Jimenez held several key finance and management positions, including eBusiness Finance Manager (Latin America), Finance Manager (Brazil), Finance Manager (Latin American Distributors), Manager, Financial Planning & Analysis, Manager, Global PET Operations and Director, Commercial

Operations, in the United States and Latin America. In 2004, Mr. Jimenez joined ABIOMED, Inc., the developer of the world s first self-contained artificial heart, as Vice President, Operations. Mr. Jimenez served in numerous positions, most recently, as Vice President, General Manager Europe. In 2008 Mr. Jimenez became Partner in the New England practice of Tatum, LLC. a firm that provides companies with executive services and consulting, helping to maximize the Office of the CFO. Mr. Jimenez joined the Board of Directors on March 14, 2007.

JATINDER S. BHOGAL. Since December 1993, Mr. Bhogal has worked as a business consultant to emerging growth companies. For over 15 years, Mr. Bhogal has provided early business development guidance and consulting to companies developing healthcare services, medical devices, pharmaceuticals and vaccines, solar-photovoltaics, biofuels, and information technology solutions. Mr. Bhogal currently serves on the board of directors for International Energy, Inc., since October 2008, and New Energy Technologies, Inc., since September 2008.

JOSEPH SIERCHIO. Since 1975, Mr. Sierchio has practiced corporate and securities law in New York City, representing and offering counsel to domestic and foreign corporations, investors, entrepreneurs, and public and private companies in the United States, Canada, United Kingdom, Germany, Italy, Switzerland, Australia, and Hong Kong. Mr. Sierchio is admitted in all New York state courts and federal courts in the Eastern, Northern, and

Southern Districts of the State of New York as well as the federal Court of Appeals for the Second Circuit.
Mr. Sierchio earned his Doctor of Law degree at Cornell University Law School in 1974, and a Bachelor of Arts degree, with Highest Distinction in Economics, from Rutgers College at Rutgers University, in 1971. Mr. Sierchio is also a member of Sierchio & Company, LLP, which is our legal counsel. Mr. Sierchio currently serves on the board of directos for r New Energy Technologies, Inc. He has held this position since September 2008.

Family Relationships and Other Matters

There are no family relationships between or among the directors, executive officers or persons nominated or charged by our company to become directors or executive officers. Executive officers are appointed by, and serve at the discretion of, the Board of Directors.

Legal Proceedings

During the past ten years none of our directors, executive officers, promoters or control persons has been:

· the subject of any bankruptcy petition filed by or against any business of which such person was a general partner or executive officer either at the time of the bankruptcy or within two years prior to that time;

· convicted in a criminal proceeding or is subject to a pending criminal proceeding (excluding traffic violations and other minor offenses);

· subject to any order, judgment, or decree, not subsequently reversed, suspended or vacated, of any court of competent jurisdiction, permanently or temporarily enjoining, barring, suspending or otherwise limiting his involvement in any type of business, securities or banking activities;

· found by a court of competent jurisdiction (in a civil action), the Commission or the Commodity Futures Trading Commission to have violated a federal or state securities or commodities law;

· the subject of any Federal or State judicial or administrative order, judgment, decree, or finding, not subsequently reversed, suspended or vacated, relating to an alleged violation of:

(i) Any Federal or State securities or commodities law or regulation; or

(ii) Any law or regulation respecting financial institutions or insurance companies including, but not limited to, a temporary or permanent injunction, order of disgorgement or restitution, civil money penalty or temporary or permanent cease-and-desist order, or removal or prohibition order; or

(iii) Any law or regulation prohibiting mail or wire fraud or fraud in connection with any business entity.

- any federal or state judicial or administrative proceedings based on violations of federal or state securities, commodities, banking or insurance laws and regulations, or any settlement to such actions (excluding settlements between private parties); and

- any disciplinary sanctions or orders imposed by a stock, commodities or derivatives exchange or other self-regulatory organization.

On October 23, 2003, Mr. Harmel S. Rayat (our former director and officer), EquityAlert.com, Inc., and Innotech Corporation of which Mr. Rayat had served at various times as a director and officer, along with certain other individuals, collectively the respondents, consented to a cease-and-desist order pursuant to Section 8A of the Securities Act of 1933. Without admitting or denying the findings of the Securities and Exchange Commission related to the public relation and stock advertising activities of EquityAlert.com, Inc. and Innotech Corporation, the respondents agreed to cease and desist from committing or causing any violations and any future violations of , among other things, Section 5(a) and 5(c) of the Securities Act of 1933. EquityAlert.com, Inc. and Innotech Corporation agreed to pay disgorgement and prejudgment interest of $31,555.14.

On August 8, 2000, Mr. Harmel S. Rayat and EquityAlert.com, Inc., without admitting or denying the allegations of the U.S. Securities & Exchange Commission that EquityAlert did not disclose certain compensation received by it in connection with stock advertisements and promotions, consented to the entry of a permanent injunction enjoining them from, among other things, violating Section 17(b) of the Securities Act of 1933; in addition, each of Mr. Rayat and EquityAlert agreed to pay a civil penalty of $20,000.

Compliance With Section 16(a) Of The Exchange Act

Section 16(a) of the Securities Exchange Act of 1934, as amended, requires our directors and executive officers and persons who beneficially own more than 10% of a registered class of our equity securities to file reports of ownership and reports of changes in ownership with the Securities and Exchange Commission. These persons are required by regulations of the Securities and Exchange Commission to furnish us with copies of all Section 16(a) forms they file.

Based solely on our review of the copies of these forms received by us, we believe that, with respect to fiscal year 2009, our officers with the exception of Amit S, Dang who was delinquent in filing his Form 3, directors, with the exception of director Joseph Sierchio who was delinquent in filing his Form 4, and 10% stockholders were in compliance with all applicable filing requirements.

Code of Ethics

Effective December 31, 2008, our Board of Directors adopted an Amended and Restated Code of Business Conduct and Ethics that applies to all of our employees, officers and directors, including our principal executive officer, principal financial officer and principal accounting officer. We are committed to the highest standards of ethical and professional conduct, and the code provides guidance in how to uphold these standards. The code consists of basic standards of business practice as well as professional and personal conduct.

Committees of the Board of Directors

We do not currently have any standing committees of the Board of Directors. The full Board is responsible for performing the functions of the: (i) Audit Committee, (ii) Compensation Committee and (iii) Nominating Committee.

Audit Committee

The Board does not currently have a standing Audit Committee. The full Board performs the principal functions of the Audit Committee. The full Board monitors the Company's financial reporting process and internal control system and reviews and appraises the audit efforts of the Company's independent registered public accounting firm.

Compensation Committee

The Board does not currently have a standing Compensation Committee. The full Board establishes overall compensation policies for the Company and reviews recommendations submitted by our management.

Nominating Committee

Our Board of Directors currently consists of three members. Directors serve for a term of one year and stand for election at our annual meeting of stockholders. Pursuant to our Bylaws, any vacancy occurring in the board of directors, including a vacancy created by an increase in the number of directors, may be filled by the stockholders or by the affirmative vote of a majority of the remaining directors though less than a quorum of the board of directors. A director elected to fill a vacancy shall hold office only until the next election of directors by the stockholders. If there

are no remaining directors, the vacancy shall be filled by the stockholders.

At a meeting of stockholders, any director or the entire board of directors may be removed, with or without cause by our stockholders, provided the notice of the meeting of our stockholders states that one of the purposes of the meeting is the removal of the director. A director may be removed only if the number of votes cast to remove him exceeds the number of votes cast against removal.

Communications with the Board of Directors

Stockholders who wish to communicate with the Board of Directors may do so by addressing their correspondence to the Board of Directors at HepaLife Technologies, Inc., Attention: Amit Dang, Chief Executive Officer, 60 State Street, Boston, MA 08540. The Board of Directors has approved a process pursuant to which they shall review and forward correspondence to the appropriate director or group of directors for response.

ITEM 11: EXECUTIVE COMPENSATION.

The responsibility for establishing, administering and interpreting our policies governing the compensation and benefits for our executive officers lies with our Board of Directors. In this connection the Board has not retained the services of any compensation consultants.

The goals of our executive compensation program are to attract, motivate and retain individuals with the skills and qualities necessary to support and develop our business within the framework of our small size and available resources. In 2009, we designed our executive compensation program to achieve the following objectives:

attract and retain executives experienced in developing and delivering products such as our own;

motivate and reward executives whose experience and skills are critical to our success;

reward performance; and

align the interests of our executive officers and stockholders by motivating executive officers to increase stockholder value.

The following table and descriptive materials set forth information concerning compensation earned for services rendered to the Company by: the Chief Executive Officer (the CEO); the Chief Financial Officer (the CFO); and the three other most highly-compensated executive officers other than the CEO and CFO who were serving as executive officers of the Company at the end of the 2009 fiscal year (the Named Executive Officers).

Summary Compensation Table

Name and Principal Position	Year	Salary	Bonus	Option Awards	Other (4)	Total
Amit Dang (1)	2009	$ 21,000	$ 0	$ 23,000	$ 0	$ 44,000
President, CEO, CFO, Secretary	2008	$ 0	$ 0		$ 0	$ 0
Frank Menzler (2)	2009	$ 225,000	$ 35,000	$ 205,000	$ 975	$ 465,975
Former President, CEO, Chairman, and Director	2008	$ 225,000	$ 0		$ 450	$ 225,450
Harmel S. Rayat (3)	2009	$ 0	$ 0		$ 0	$ 0
Former Secretary, Treasurer, CFO, Chairman, and Director	2008	$ 0	$ 0		$ 0	$ 0

(1) Mr. Dang was appointed to his positions on October 13, 2009.

On October 13, 2009, we entered into an Interim Executive Services Agreement with Mr. Amit Dang in which Mr. Dang has been appointed as our Interim Chief Executive Officer, President and Secretary. Mr. Dang will receive a fee of $7,000 per month during the term of the Agreement. This agreement may be terminated at any time by us and upon 90 days prior written notice by Mr. Dang. It is not expected that Mr. Dang will devote his full time and attention to our operations

Mr. Dang was also granted an option to purchase, subject to vesting restrictions, up to 100,000 shares of the Company s common stock, at a price of $0.32 per share (the closing price of the Company s common stock as reported on the Over the Counter Bulletin Board on October 13, 2009). The options shall vest and become exercisable when either (a) with Mr. Dang s support and contribution, we are able to successfully consummate a strategic transaction, or other such commercial transaction which the Board deems sufficiently substantial, or (b) the Board, in its sole discretion, elects to accelerate the vesting of the options. We expect that the options shall vest within one year from the date of grant.

(2) Mr. Menzler resigned as a director effective September 30, 2009 and as an officer effective October 13, 2009.

On September 30, 2009, we and Mr. Frank Menzler entered into a restated employment agreement providing for, among other things, the payment to Mr. Menzler of a signing bonus of $35,000, which was recorded as salary expense; a severance payment of up to six-months salary and benefits; cancelation of all stock option grants; and the resignation of Mr. Menzler as a Director and Chairman of our Board of Directors.

On October 13, 2009, Mr. Menzler resigned from his position as Chief Executive Officer and President. Pursuant to the terms of the restated employment agreement, Mr. Menzler was appointed Special Technical Advisor and continues to be our employee.

(3) Mr. Rayat resigned as an officer and director on September 12, 2008.

(4) Represents life insurance premiums for the benefit of Mr. Menzler.

Change of Control Agreements

There are no understandings or agreements known by management at this time which would result in a change in control.

Our not have any change-of-control or severance agreements with any of its executive officers or directors. In the event of the termination of employment of the Named Executive Officers any and all unexercised stock options shall expire and no longer be exercisable after a specified time following the date of the termination.

Outstanding Equity Awards at Fiscal Year End

The following table sets forth information regarding equity awards that have been previously awarded to each of the Named Executive Officers and which remained outstanding as of December 31, 2009.

Name	Number of Securities Underlying Options (Exercisable)	Number of Securities Underlying Options (Unexercisable)	Equity Incentive Awards: Number of Securities Underlying Unexercised Unearned Options	% of Total Options Granted to Employees in 2009	Exercise Price ($/sh)	Expiration Date
Amit Dang (1)	0	0	100,000	100%	$ 0.32	10/13/2014

(1) It is understood and agreed that the options shall vest and become exercisable, only when: (a) With Mr. Dang s support and contribution, the Company is able to successfully consummate a strategic transaction, or other such commercial transaction which the Board deems sufficiently substantial, or if (b) the Board, in its sole discretion, elects to accelerate the vesting of the options.

Compensation of Directors

We do not pay director compensation to directors who are also our employees. Our Board of Directors determines the non-employee directors compensation for serving on the Board and its committees. In establishing director compensation, the Board is guided by the following goals:

- Compensation should consist of a combination of cash and equity awards that are designed to fairly pay the directors for work required for a company of our size and scope;
- Compensation should align the directors interests with the long-term interests of stockholders; and
- Compensation should assist with attracting and retaining qualified directors.

Non-employee directors receive $2,500 per quarter for their services as directors plus $500 for each board meeting attended in excess of five per year. Directors are entitled to participate in our 2001 Incentive Stock Option Plan. We also reimburse our directors for any actual expenses incurred to attend meetings of the Board.

The table below outlines director compensation for the fiscal year ended December 31, 2009.

Name	Fees earned or paid in cash (1)	Stock awards Aggregate Grant Date Fair Value	Option awards Aggregate Grant Date Fair Value	Non-equity incentive plan compensation	Nonqualified deferred compensation earnings	All other compensation	Total
Javier Jaminez	$ 11,000	$ 0	$ 0	$ 0	$ 0	$ 7,081	$ 18,081
Jatinder Bhogal	$ 11,000	$ 0	$ 0	$ 0	$ 0	$ 3,315	$ 14,315
Roland Schomer (2)	$ 8,667	$ 0	$ 0	$ 0	$ 0	$ 5,574	$